

# PROFESSORS OF MEDICINE AND MEDICAL WORKS AT *GYMNASIUM DORPATENSE AND* *ACADEMIA GUSTAVIANA*

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The aim of the present article is to describe activities in the field of medicine at *Gymnasium (Collegium) Dorpatense* (1630–32) and *Academia Gustaviana Dorpatensis* (1632–56) by making a survey of the professors of medicine and authors of medical disputations and orations, and especially of their works from that period. As the authors of medical works were not necessarily persons connected with medicine through their studies, the circle of authors in this field is wider than just professors and students of medicine. The article should reveal what kind of approach to medicine was practised during the first period of activity of the Swedish University of Tartu and which were the main features of medical works. Therefore, the article focuses on quoted sources and authors in these works and tries to bring out potential influences on authors of medical disputations and orations. This kind of approach should allow a picture of local interest and thought in the field of medicine in the first half of the seventeenth century.

The latest research on the Swedish University of Tartu has been concentrated on philology, especially on occasional poetry from that period,<sup>1</sup> and studies of Greek language at the University of Tartu in the seventeenth century also have been treated.<sup>2</sup> These philological treatises are also sources

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<sup>1</sup> E.g. Kristi Viiding, *Die Dichtung neulateinischer Propemptika an der Academia Gustaviana (Dorpatensis) in den Jahren 1632–1656* (Tartu: Tartu Ülikooli Kirjastus, 2002); Kristi Viiding, “Önnelik olgu su samm...”, *Keel ja Kirjandus*, 5–6 (2005), 359–378, 455–474; Katre Kaju, “Keelevalik Tartu Academia Gustaviana aegses pulmaluuless (1632–1656)”, *Lääne-mere provintside arenguperspektiivid Rootsii suurriigis 16/17. sajandil II*, toim. Enn Küng, Eesti Ajalooarhiivi toimetised = Acta et Commentationes Archivi Historici Estoniae, 12 (19) (2006), 50–100; Kristi Viiding, Jana Orion, Janika Päll, *O Dorpat, urbs addictissima musis...: valik 17. sajandi Tartu juhuluulet* (Tallinn: Eesti Keele Sihtasutus, 2007).

<sup>2</sup> E.g. Janika Päll, “Pindarlektüre an der Academia Gustaviana: Henricus Vogelmanus’ *Ode Prophonetike*”, *Studia Humaniora Tartuensia*, 2. Section A (*Classical Studies and Ancient History*), 2, <[www.ut.ee/klassik/sht/2001/paelli1.pdf](http://www.ut.ee/klassik/sht/2001/paelli1.pdf)> (8.7.2011); Janika Päll,

of information about the authors of medical works in *Academia Gustaviana*, as they have been addressees of poems or have written occasional poetry themselves, either in Greek or Latin. There are several overviews about the medical faculty of the Swedish University of Tartu, but none of them concentrates on medical works written during that period.<sup>3</sup> However, some medical works written in Tartu are mentioned and described in the research of Swedish scientists.<sup>4</sup> There are also overviews about the origin of the professors at the Swedish University of Tartu.<sup>5</sup> The main source for biographical data about students is *Album Academicum*.<sup>6</sup> Lists of disputations and orations held at the Swedish University of Tartu can be found in the works of M. A. Sainio<sup>7</sup> and E.-L. Jaanson.<sup>8</sup> The articles, which treat disputations and orations at the Swedish University of Tartu are quite scarce

<sup>3</sup> "Vanakreeka keel Tartu Ülikoolis 1632–1710", *Kakssada aastat klassikalist filoloogiat Eestis = Duo saecula philologiae classicae in Estonia*, Morgensterni Seltsi toimetised, I (Tartu: Tartu Ülikooli Kirjastus, 2003), Janika Päll, "Far away from Byzantium: pronunciation and orthography of Greek in the 17th century Estonia", *Byzantino-Nordica 2004: papers presented at the international symposium of Byzantine studies held on 7–11 May 2004 in Tartu, Estonia*, Morgensterni Seltsi toimetised, II (Tartu: Tartu University Press, 2005), 86–119.

<sup>4</sup> The most thorough overview until now is by Viktor Kalnin, "Arstiteadus ja loodusteadused", *Tartu Ülikooli ajalugu, 1632–1982*, I: 1632–1798, ed. by Helmut Piirimäe (Tallinn: Valgus, 1982), 228–239. Among other research that gives information about this field of study, the following can be mentioned: Herbert Normann, "Märkusi rootsiaegsest Tartu ülikooli arstiteaduskonnast", *Eesti Arst*, 7 (1926), 241–247; Gustavs Šaurums, *Tērbatas Universitāte 1632–1932* (Rīga: Gramatu spiestuvēs, 1932), 19–20; S. G. Magilnitski, "Mediki universitetov v Tartu i Pyarnu v XVII–XVIII vv (1632–1710)", *Iz istorii meditsinъ: sbornik statei*, Ministerstvo zdarovokhraneniya Latviiskoi SSR, Muzei istorii meditsinъ im. P. Stradynya, Latviiskoe nauchnoe istoriko-meditsinskoе obshchestvo, 7 (1967) (Riga: Akademiya nauk Latviiskoi SSR, 1957–1991), 179–188; Karl Inno, *Tartu University in Estonia during the Swedish rule (1632–1710)* (Stockholm: Vaba Eesti, 1972), 109–112; A. A. Viksna, "O medikakh Pribaltiki – vospitannikakh Gustavianskoи i Gustavo-Karolinskoi akademii в XVII–XVIII vekakh", *Tartu Ülikooli ajaloo küsimusi*, VI (1977), 79–86; *Universitas Tartuensis 1632–2007*, ed. by Toomas Hiio and Helmut Piirimäe (Tartu: Tartu Ülikooli Kirjastus, 2007), 62–65.

<sup>5</sup> E.g. Sten Lindroth, *Paracelsismen i Sverige till 1600-talets mitt*, Lychnos-Bibliotek, 7 (Uppsala: Almqvist & Wiksell, 1943); Henrik Sandblad, *Om Dorpats universitet under dess äldsta skede 1632–1656*, Särtryck ur Lychnos (1975–76).

<sup>6</sup> E.g. Arvo Tering, "Tartu ülikooli osa Eesti- ja Liivimaa haritlaskonna kujunemises XVII sajandil ja XVIII sajandi algul", *Keel ja Kirjandus*, 11 (1982), 588–596.

<sup>7</sup> Arvo Tering, *Album Academicum der Universität Dorpat (Tartu) 1632–1710*, *Publicationes Bibliothecae Universitatis Litterarum Tartuensis*, 5 (Tallinn: Valgus, 1984).

<sup>8</sup> Matti A. Sainio, *Dissertationen und Orationen der Universität Dorpat 1632–1656*, Årsböcker i svensk undervisningshistoria, 141 (Stockholm: Ljunbergs Boktryckeri, 1978).

<sup>9</sup> 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, 2000).

and are dedicated to different themes.<sup>9</sup> Thus there are no proper overviews about works of different disciplines – natural sciences, theology, law, philosophy or other fields of sciences. One can maybe hope that the present treatise about medical works introduces this kind of study.

### *Medical thinking from Antiquity up to the Renaissance*

First a survey of medical thinking from antiquity up to the Renaissance is given, as these ideas are reflected also in the works written in Tartu during the first half of the seventeenth century.

European medicine begins with Hippocrates (460–370 BC), who gave to Greek medicine its scientific spirit and its ethical ideals. To him, medicine owes the art of clinical inspection and observation. The central Hippocratic doctrine, the humoral pathology, attributes all diseases to disorders of the fluids of the body. Hippocrates was not acquainted with experiment, but no physician ever profited more by experience. He divided diseases into acute and chronic, endemic and epidemic. In therapeutics, Hippocrates believed simply in assisting nature, and although he knew the use of many drugs, his scheme of treatment was usually confined to such plain expedients as fresh air, good diet, purgation, bloodletting, tisanes of barley gruel, barley water, hydromel (honey and water), oxymel (honey and vinegar), massage, and

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<sup>9</sup> See Matti A. Sainio “Das Studium der Geschichte an der Universität Tartu” and “Andreas Arvidi als Student in Tartu”, *Die schwedischen Ostseeprovinzen Estland und Livland im 16.–18. Jahrhundert*, ed. by A. Loit and H. Piirimäe, Acta Universitatis Stockholmensis, Studia Baltica Stockholmensiæ, 11 (Stockholm: Almqvist & Wiksell, 1993), 269–275; 277–284; Märt Tänavä “Ajaloo öpetamisest ja uurimisest *Academia Gustaviana*’s”, *Tartu Ülikooli ajaloo küsimus*, 10 (1981), 15–23; Anne Lill, “Latin at the University of Tartu (Dorpatum) in the seventeenth century”, *Mare Balticum – Mare nostrum: Latin in the countries of the Baltic Sea (1500–1800)*, ed. by O. Merisalo and R. Sarasti-Wilénius, *Annales Academiae Scientiarum Fennicarum*, ser. B, tom. 274 (Helsingfors: Suomalainen Tiedeakatemia, 1994), 97–105; Kristi Viiding, “Arukast reisimisest: kolm reisimethodilist traktaati 17. sajandi Eesti kirjanduses”, *Lääne mere provintside arenguperspektiivid Rootsli suurriigis 16/17. sajandil II*, ed. by Enn Küng, Eesti Ajalooarhiivi toimetised = *Acta et Commentationes Archivi Historici Estoniae*, 12 (19) (2006), 7–49; Katre Kaju, “Laurentius Ludenius, Professor an der Universitäten Greifswald und Dorpat (1592–1654)”, *Die Universität Greifswald in der Bildungslandschaft des Ostseeraums*, ed. by Dirk Alvermann, Nils Jörn, Jens E. Olesen, Nordische Geschichte, 5 (Münster: LIT Verlag, 2007), 211–229; Janika Päll, “Jacobus Lotichius and his *Oratio de Musica* (Dorpat, 1640)”, <http://hdl.handle.net/10062/5900> (8.7.2011); Kaarina Rein, “Andreas Arvidi disputatsioon ‘De natura et constitutione medicinae’ arstiteadusliku mõtte arengu peegeldajana 17. sajandi Tartu ülikoolis”, *Mäetagused*, 39 (2008), 7–28. There is also an edition of Johannes Claudii Risingh’s oration about Tartu (with Estonian translation by Marju Lepajöe): Johannes Claudii Risingh, *Kõne Tartu linnast* (1637) (Tartu: Tartu Ülikooli Kirjastus, 1996).

hydrotherapy. In Greek medicine, black hellebore (*Helleborus niger*) was the universal purge; white hellebore (*Veratrum album*) the universal emetic.<sup>10</sup>

After Hippocrates' time there was a great gap in the continuity of Greek medicine. In succeeding centuries, the open minded, receptive spirit of his teaching became merged into the case-hardened formalism of dogmatists, who cared more for rigid doctrine than for investigation. The dogmatists divided medical science into five branches: physiology, etiology (pathology), hygiene, semiotics, and therapeutics. The later Empirics retained only two of these, and only the practical elements of these two: semiotics, and therapeutics with its subdivisions of dietetics, pharmacology and surgery, with hygiene sometimes also included.<sup>11</sup> The greatest scientific name after Hippocrates is that of Aristotle (384–322 BC), who gave to medicine the beginnings of botany, zoology, comparative anatomy, embryology, teratology, and physiology, and the use of formal logic as an instrument of precision. He taught anatomy by the dissection of animals. Aristotle has written treatises on generation, on the parts of animals, and a book on the soul.<sup>12</sup>

Roman medicine was almost entirely in Greek hands. The ancient period closes with the name of the greatest Greek physician after Hippocrates, Galen (131–201 AD), the founder of experimental physiology. He was the most skilled practitioner of his time, but left no good accounts of clinical cases, only miraculous cures. Galen had an answer ready for every problem, a reason to assign for every phenomenon. He substituted a pragmatic system of medical philosophy for the plain notation and interpretation of facts as taught by Hippocrates.<sup>13</sup> Galen was also the central figure for the development of humoral pathology in classical time. He combined theory found in Plato, Aristotle, and the Stoic writers with the system found in Corpus Hippocraticum. Galen added to the Hippocratic version the four qualities of taste, i.e., sweet, sour, bitter, salty; and their correlation with one of the four fluids. Galen also ascribes intellectual and emotional properties to the four fluids.<sup>14</sup> He travelled far to learn all he could about the native remedies of different regions, and even paid two special visits to the isle of Lemnos in order to investigate the therapeutic value of its sacred sealed earth (*terra sigillata*). As an anatomist, Galen left many excellent

<sup>10</sup> Fielding Hudson Garrison, *An introduction to the history of medicine* (Philadelphia and London: W. B. Saunders, 1960), 92–99.

<sup>11</sup> Garrison, *An introduction*, 100–101.

<sup>12</sup> *Ibid.*, 101.

<sup>13</sup> *Ibid.*, 112.

<sup>14</sup> Heikki Mikkeli, *Hygiene in the early modern medical tradition* (Helsinki: Academia Scientiarum Fennica, 1999), 15–16.

descriptions, but his work was faulty and inaccurate, as it was based largely on the dissection of apes and swine. After his death, European medicine remained dormant for nearly fourteen centuries.<sup>15</sup>

During the period of the Renaissance, with the growth of individualism and release from the ban of authority, changes took place in medical thinking and practice. Physicians began to be interested in observation, experience, and experiment. One of the first doctors from that time, who abandoned authorities and promoted observation and experience in medicine, was Aureolus Theophrastus Bombastus von Hohenheim, or Paracelsus (1493–1541). He was precursor of chemical pharmacology and therapeutics, and the most original medical thinker of the sixteenth century. Paracelsus pioneered the use of chemicals and minerals in medicine. His catchphrase in practice was “experimentation controlled by the authoritative literature”. Paracelsus’ pathology contained such elements as the concept of disease as a disharmony of normal functions (life under altered conditions), e.g., hereditary or dietetic diseases. These dietetic diseases, he regarded as “tartaric” processes, caused by the precipitation of substances ordinarily voided from the body. His five causes of disease (*entia*) were cosmic agencies (*ens astrorum*); pathologic poisons (*ens venene*); natural causes (*ens naturale*) or predisposition to disease from organic defects; psychic causes (*ens spirituale*); and divine intervention (*ens deale*). His pupil, Peter Severinus, developed the idea of contagia (*ens venenata*) as animate pathology (*pathologia animata*).<sup>16</sup>

According to Paracelsus, medicine rests upon four pillars – philosophy, astronomy, alchemy, and ethics. The first pillar is the philosophical knowledge of earth and water; the second, astronomy, supplies its full understanding of that which is of fiery and airy nature; the third is an adequate explanation of the properties of all the four elements – that is to say, of the whole cosmos – and an introduction into the art of their transformations; and finally, the fourth shows the physician those virtues that must stay with him up until his death, and it should support and complete the three other pillars.<sup>17</sup>

Far in advance of his time, Paracelsus discarded Galenism and the four humours, and taught physicians to substitute chemical therapeutics for alchemy. He attacked witchcraft and the strolling mountebanks. He was the first to write on dietetic (tartaric) and miner’s (occupational) diseases, and

<sup>15</sup> Garrison, *An introduction*, 113–114.

<sup>16</sup> *Ibid.*, 204–206.

<sup>17</sup> Paracelsus, “Art of medicine”, *Selected writings, II: man and his body*, ed. by Jolande Jacoby, trans. by Norbert Guterman, Bollingen series, 28 (New York: Pantheon Books, 1958), 59–60; Kalnin, “Arstiteadus jaloodusteadused”.

the first to establish a correlation between cretinism and endemic goiter. He was ahead of his time in noting the geographic differences of disease. Paracelsus taught the unity of medicine and surgery, and that nature heals wounds, not officious meddling. He introduced mineral baths, and was one of the first to analyze them, while also popularizing tinctures and alcoholic extracts.<sup>18</sup> Paracelsus was the founder of the iatrochemical direction in medicine and saw three chemical elements – salt, sulphur, and mercury – as basic substances. During the Renaissance, humoral pathology began to be replaced with iatrochemistry and the triumph of natural philosophy took place, which helped to explain nature.

The Wittenbergian doctor, Daniel Sennert (1572–1637), had criticized Paracelsus for undervaluing the elements, and he could not approve of the position reserved for them by the Paracelsian system. Salt, sulphur, and mercury would be composed of the elements earth, air, water, and fire.<sup>19</sup> Paracelsian medicine and pharmacology were partially transformed from deviate “science” to an accepted branch of medicine by seventeenth-century scholars like van Helmont (1577–1644) and Sennert. Another Renaissance physician whose name should be mentioned is Giroloamo Fracastoro (1484–1553), who explained in his treatise *De contagione* (1546) the modern theory of infection by microorganisms (*seminaria contagionum*).<sup>20</sup>

The sixteenth and seventeenth centuries have become known as revolutionary centuries in human anatomy and physiology. The publication and great success of Andreas Vesalius' (1514–64) anatomy in 1543 launched new interest in medical tradition, which flourished especially in Italian universities. In physiology, one of the most important innovations in the seventeenth century was the theory of the circulation of blood by William Harvey (1578–1657).<sup>21</sup>

### *Medicine at Gymnasium Dorpatense and Academia Gustaviana*

One of the three higher faculties at the University of Tartu in the seventeenth century was the faculty of medicine. The model of the University of Paris demanded that all “real” universities have a medical faculty.<sup>22</sup> The

<sup>18</sup> Garrison, *An introduction*, 206.

<sup>19</sup> Maija Kallinen, *Change and stability: natural philosophy at the Academy of Turku 1640–1713* (Helsinki: Finnish Historical Society, 1995), 128.

<sup>20</sup> Garrison, *An introduction*, 233.

<sup>21</sup> Kallinen, *Change and stability*, 232.

<sup>22</sup> *Ibid.*, 63.

history of medicine at the University of Tartu begins with its predecessor, Tartu Gymnasium, as former professor of medicine of Uppsala University Johannes Raicus was employed there.

The history of the medical faculty at the Swedish University of Tartu has been little researched. The most thorough review to date was written by Viktor Kalnin, published in the work *Tartu Ülikooli ajalugu I* (Tartu University History) in 1982.<sup>23</sup> However, the author of that article could use only one medical work from the first period of activity at the Swedish university, and has described the other works merely on the basis of secondary sources. It can be explained with the fact that many of the materials of the Swedish university were not available in Estonia during the Soviet period and access to them was hindered.

On the other hand, it can also be understood that this field of study – medicine at the Swedish University of Tartu – has not attracted much attention from researchers, as medical education at the University of Tartu was insufficient at that time as compared to theology, law, or rhetoric. Different fields of medicine were not represented, no dissections of human cadavers took place, and posts of medical professors remained unoccupied. Nevertheless, at most of the seventeenth-century universities in Europe medical teaching was not especially important, as there were some wound physicians/surgeons in every town and there was no need for more doctors. Thus few students specialized in medicine, or if they did, they had to study in the best universities of Europe, where there were anatomical theatres or even clinics.<sup>24</sup> The leading universities in the field of medicine during the seventeenth century were the universities of Leiden and Utrecht.<sup>25</sup> During the *Academia Gustaviana* period, the influence of Uppsala University was probably the strongest,<sup>26</sup> but medical education was insufficient there as well.<sup>27</sup> The number of students at the faculty of medicine in Uppsala did not exceed ten persons at a time in the first half of the seventeenth century.<sup>28</sup>

The University of Tartu was one of the smallest in Europe. During the *Academia Gustaviana* period there were on the average one hundred

<sup>23</sup> Kalnin, "Arstiteadus ja loodusteadused".

<sup>24</sup> Tering, *Album Academicum*, 113.

<sup>25</sup> Arvo Tering, *Eesti-, liivi- ja kuramaalased Euroopa ülikoolides 1561–1798* (Tartu: Eesti Ajalooarhiiv, 2008), 271–272; Inno, *Tartu University*, 109.

<sup>26</sup> Inno, *Tartu University*, 109.

<sup>27</sup> Karin Johannesson, *Levande lärdom: Uppsala universitet under fem sekler* (Uddevalla: Uppsala University Press, 1989), 34.

<sup>28</sup> Tering, "Tartu ülikooli osa", 595.

students, in the better times up to 140 at a time.<sup>29</sup> There were also very few students studying at the faculty of medicine in Tartu in the seventeenth century. Among the students of *Academia Gustaviana*, eight students are known to have been active later in the field of medicine.<sup>30</sup> The reasons for the lack of students were the absence of the professor of medicine from 1642 to 1647, the problems of finding a job as a physician, and the absence of an anatomical theatre. It is therefore not surprising that the number of medical students was small.<sup>31</sup> Only two names are known from among those who studied medicine at *Academia Gustaviana* and worked later as physicians – David Cunitius and Olaus Oestenius.<sup>32</sup>

According to the constitution of the university, there had to be two professors of medicine,<sup>33</sup> but in reality only one was employed.<sup>34</sup> During the period of *Gymnasium Dorpatense* until the end of the activity of *Academia Gustaviana*, i.e., from 1630 to 1656, there were three persons who held the post of the professor of medicine – Johannes Raicus, Johann Below, and Sebastian Wirdig.<sup>35</sup>

The medical writings from the first period of activity in the Swedish university were few. There were three disputations (presided by professors Johannes Raicus and Sebastian Wirdig) and two orations (held on the order of professor of rhetoric Laurentius Ludenius). The field of study of the disputations was noted in their title, thus according to these only three disputations were classified as medical. There were also some disputations from the field of natural sciences, defended in the philosophical faculty (and defined as *disputatio physica*), which dealt partly with the problems of medicine.<sup>36</sup> But as compared to the total number of disputations and orations of *Academia Gustaviana* – 498 disputations and 222 orations<sup>37</sup> – the number of medical works was still insignificant.

<sup>29</sup> Tering, *Eesti-, liivi- ja kuramaalased*, 285.

<sup>30</sup> About conjectures for more medical students at *Academia Gustaviana*, see Tering, “Tartu ülikooli osa”, 590.

<sup>31</sup> Tering, *Album Academicum*, 113.

<sup>32</sup> *Ibid.*, 114.

<sup>33</sup> *Constitutiones Academiae Dorpatensis (Academia Gustaviana) = Tartu Akadeemia (Academia Gustaviana), põhikiri* (Tartu: Tartu Ülikooli Kirjastus, 1997), 56–59.

<sup>34</sup> Inno, *Tartu University*, 109.

<sup>35</sup> In the case of Johannes Raicus, it would be more correct to say that he was meant to hold that post at the university.

<sup>36</sup> Disputations presided over in Tartu by Johannes Raicus are classified as *disputatio physico-medica*, thus dealing with natural sciences as well as with medicine.

<sup>37</sup> Jaanson, *Tartu Ülikooli trükkikoda*, 42.

When surveying the period of activity of professors of medicine, the biography and works of Johannes Raicus are treated more thoroughly, as he had already gained fame as a scientist and supporter of Paracelsus' ideas before his arrival to Tartu.

### *Johannes Raicus*

Tartu Gymnasium was founded in 1630, and in the same year former professor of medicine at Uppsala University, Johannes Raicus, was appointed teacher and first rector of the Gymnasium. Being a supporter of the views of Paracelsus, Raicus had gained fame all over Germany.<sup>38</sup>

Johannes Raicus (ca. 1580–1632) was born in the small mining town of Schlackenwalde in Bohemia, probably in the beginning of the 1580s. His father was a mine employee and was evidently the first to guide his son towards chemical and Paracelsian knowledge. The name Raicus can be seen first in the written documents from 1603, when the same year in October he was enrolled at Wittenberg University by its prorector, professor of medicine Ernst Hettenbach. Raicus became licentiate of medicine at Wittenberg in 1615, after an open disputation presided over by Hettenbach. Raicus himself stated in one of his later works that this professor directed him to study Arabian, chemical, and Galenic medicine.<sup>39</sup> During Raicus' studies at Wittenberg, one of the professors of medicine at the medical faculty was Daniel Sennert. Raicus later declared Sennert, who tried to find a compromise between Paracelsus' and Galenus' teachings, to be clearly his 'praeceptor.' Studies at Wittenberg brought Raicus into contact with medical research, some of which was not clearly orthodox but showed appreciation for new directions, partly influenced by Paracelsus' teaching.<sup>40</sup> In 1615, Raicus was active in Pomerania, probably in Stolp, and later he served as an army surgeon, probably staying for some time in Poland. In 1620, Raicus was a practicing doctor in Marienburg in East Prussia. In 1621, he became rector of the Dome School in Königsberg. In 1626, Swedes occupied Prussia. Raicus' activity attracted Axel Oxenstiernas' attention, who in 1627 invited him to occupy the post of professor of medicine at Uppsala University. Raicus accepted the post and real medicine, so-called

<sup>38</sup> Arvo Tering, "Uppsala ülikool ja Baltimaad XVII sajandil ja XVIII sajandi algul", *Keel ja Kirjandus*, 7 (1992), 432.

<sup>39</sup> Sten Lindroth, *Paracelsismen i Sverige till 1600-talets mitt*, Lychnos-Bibliotek, 7 (Uppsala: Almqvist & Wiksell, 1943), 327.

<sup>40</sup> Lindroth, *Paracelsismen*, 327.

institutions, became his area.<sup>41</sup> Apparently the conditions in Uppsala were very different as compared to those in Germany. Raicus complained of a lack of remedies and medical instruments in Uppsala.<sup>42</sup> In 1630, Raicus was invited to Tartu Gymnasium by Johann Skytte and was appointed teacher of natural sciences and rector of the gymnasium. He was to occupy the post of the professor of medicine at the future university. Unfortunately, Raicus died before the inauguration of the new university, probably in late summer 1632.<sup>43</sup>

In spite of the fact that Raicus did not begin work at *Academia Gustaviana*, there is a medical disputation written by him and dedicated to the future academy, entitled *Disputatio physico-medica votiva εἰς ἵέρωμα surgenti jam Dorpati novo collegio regio* (Physical-medical votive disputation in dedication to the new royal college of Tartu). According to Sten Lindroth's assessment, Johannes Raicus was a Paracelsist, and the most convincing in the history of medicine of Sweden. Lindroth adds that he was not a fanatic supporter of Paracelsus, as he also had respect for Galen and especially for Hippocrates and tried to unite the prevalent school medicine with Paracelsus' teachings when possible. This was the basis for his medical thinking.<sup>44</sup> There are two works by Raicus known from the period of his studies in Wittenberg: *Quaestiones medicae controversae quinque, pro disputatione nona propositae* from 1608, presided over by Sennert<sup>45</sup> and *Theses medicae de paralysi* from 1615, presided over by Hettenbach.<sup>46</sup>

There are two other writings of medical content known from Raicus' activity in Germany. The earlier one is a work about the most popular genre in medicine of that time – literature about plague. *Von der Pestilenz ex flagello Dei* was printed in Elbing in 1620. According to Paracelsus' teachings, Raicus interprets bubonic plague as God's punishment, carried out by angels of death who fire arrows poisoned with arsenic into human bodies.<sup>47</sup> A year later, Raicus published a treatise in Frankfurt called *Tractatus de podagra medico-kimikus*. This is a Paracelsian text in which Raicus treats gout according to the tartarus' (tartaric) theory, and which later

<sup>41</sup> Sten Lindroth, *Svensk lärdomshistoria: stormaktstiden* (Stockholm: Typografi Karl-Erik Forsberg, 1989), 387–388.

<sup>42</sup> Lindroth, *Paracelsismen*, 329.

<sup>43</sup> *Ibid.*

<sup>44</sup> Lindroth, *Svensk lärdomshistoria*, 388.

<sup>45</sup> Daniel Sennert, Johannes Raicus, *Quaestiones medicae controversae quinque, pro disputatione nona propositae* (Wittenberg: Henckel, 1608).

<sup>46</sup> Ernestus Hettenbachius, Michael Klobius, Joannes Raicus, *Theses medicae de paralysi* (Wittenberg: Richter, 1615).

<sup>47</sup> Lindroth, *Svensk lärdomshistoria*, 388.

in his theses about consumption attracted more interest. Raicus' hippocratism is also apparent. Raicus constantly tries to interpret Hippocrates as spokesman for Paracelsian teachings, but avoids mentioning Paracelsus name in his writing *De podagra*.

From 1628–29, there are three disputations from Raicus printed in Uppsala. Of all his works, Raicus' most important is considered to be a public disputation on consumption, *De phthisi ex tartaro*. Raicus has been considered the first person in Sweden to handle tuberculosis.<sup>48</sup> A young student of medicine, Olavus Johannis Bååk, defended this disputation on 26 April 1628. This extensive work in its contents has attracted the attention of historians of medicine as it adopts and amplifies the ideas of Paracelsus in an important subject.<sup>49</sup> *De phthisi ex tartaro* was followed by two ordinary disputations. In 1629, a German student defended Raicus' disputation about body humours – *Illustrum quaestionum medicarum tetras* – in which Raicus tries to unite Galenic humoral physiology with Paracelsus' chemical observations.

On 20 June 1629, under presidium of Raicus (then rector of the academy), *Dichas assertiorum* was defended by Ericus Danielis Achrelius. The first part of the work speaks about an important subject in pharmacology at the time – sealed earth (*terra sigillata*). In the second part of *Dichas assertiorum* Raicus has left some supplementary elucidations on the subject, which he had dealt with earlier in *Tractatus de podagra* in 1621, namely the treatment of gout, which lies in iron's mercury (*mercurius ferri*).

The last work of Raicus was the disputation written in Tartu entitled *Disputatio physico-medica votiva eis iépωμα surgenti jam Dorpati novo collegio regio*. It was debated on 26 March 1631 by a Swede Petrus Turdinus (1609–53), who studied at Uppsala University between 1625–29, then moved to Tartu and was first a student at Tartu Gymnasium and then at the University (from 1632 to 1638). He was later active in promoting the local educational life and had a career as a clergyman.<sup>50</sup>

The last disputation of Johannes Raicus is divided into two parts. The first is a survey of the chemical constitution of soil and water in the environs of Tartu, dealing with local endemic diseases and their treatment. Doctors are called society's *physici*, as they should have knowledge of the

<sup>48</sup> Lars-Gösta Wiman, "Om den tartariska ftisen: den första mediciniska avhandlingen i Sverige 1628 av Johannes Raicus", *Läkartidningen*, 93:15 (1996), 1445–1446.

<sup>49</sup> Lindroth, *Paracelsismen*, 337.

<sup>50</sup> Martin Klöker, *Literarisches Leben in Reval in der ersten Hälfte des 17. Jahrhunderts (1600–1657). Institutionen der Gelehrsamkeit und Dichten bei Gelegenheit, I: Darstellung* (Tübingen: Niemeyer, 2005), 740–741.

nature of the microcosm and macrocosm. Raicus' addition to this Paracelsian idea is that a doctor should be familiar with the macrocosm in the area of his practice. It is geography, which becomes an auxiliary science.<sup>51</sup> There is an important text where this kind of topographic medicine has been expressed – Hippocrates' *De aere, aquis et locis* – which sets as a condition for physicians, when heading to a foreign place, an investigation of the soil, water, and air in order to determine what circumstances cause the endemic diseases of the region.<sup>52</sup>

In the first part, Raicus claims that soil and water in the environs of Tartu have a salty nature, containing spirit of iron (*esse de Natura boli nitrosa vehentis spiritum ferri*). Proceeding from the theory of Hippocrates, concerning the body humours, this kind of symbiosis is defined to be biliary. Bile accumulates in the region of Tartu and also in human bodies, into internal organs, especially into parenchyma of the liver as well as the veins and synovias of the muscles. Bile is characterized as a hot humour, analogous to fire. Raicus concludes that the endemic diseases of the region should be acute fevers, catarrhs, colic, especially those of stomach, biliary calculus, cholera, and obstruction of internal organs and the veins, which in their turn cause cachexy, attacks of asthma, blood effusions from the eyes, obstruction of the liver, and inflammation of the liver. Jaundice, scurvy, muscular pain, which sometimes ends in epilepsy, scabies, abscess, ulcer, Greek leprosy, and other diseases of that sort would occur as well.<sup>53</sup> Raicus claims that when considering these factors, every physician should easily understand according to remedies used in that area the nature of endemic diseases in the region, as well as their sources and methods of medical treatment. Hereby Raicus raises a question: whether the drinking of spirits, which was common in local medical treatment, especially in preventing colic and scurvy, was justified. Raicus describes three different ways of preparing spirits, but accepts only one kind of distillation, which proceeds on the slow fire. Raicus also stresses the importance of everyday food, quoting Hippocrates, who states that everything that is excessive is at the same time unwholesome.<sup>54</sup> Raicus promises to continue the issues raised in the disputation in the future, for instance to expand the theme of

<sup>51</sup> Lindroth, *Paracelsismen*, 354.

<sup>52</sup> Hippocrates with an English translation by W. H. S. Jones, I, The Loeb Classical Library (Cambridge, MA: Harvard University Press; London: William Heinemann, 1984), 70–71.

<sup>53</sup> Johannes Raicus, Petrus Turdinus, *Disputatio physico-medica votiva εἰς ιέρωμα surgenti jam Dorpati novo collegio regio* (Riga: Schröder, 1631).

<sup>54</sup> Raicus, Turdinus, *Disputatio physico-medica*.

the influence of climate on air, and therefore on health, as well.<sup>55</sup> The climate of Tartu was later praised in the oration of Johannes Claudii Risingh's *Oratio de civitate Dorpatensi*, where the author claims the air in Tartu is so healthy that it can be found in few other places.<sup>56</sup>

Paracelsus' chemical healing is revealed in the second part of the disputation, where Raicus deals with mineral waters and springs.<sup>57</sup> First he speaks about what he calls "acidula antimonii" or "clysis", by which he means an artificial mineral water prepared by chemical means.<sup>58</sup> Raicus considers birch sap a mineral water as well; it can be treated as a vegetal mineral water. The author explains that birch sap contains the same minerals as the ground. The mineral found in these mineral waters is proved by testing and investigation. Raicus also mentions the minerals from which mineral waters are secreted into the ground. The second part of the disputation partly deals with the medical treatment of the diseases that are mentioned in the first part of the disputation.<sup>59</sup> At the end of the seventeenth century, Urban Hiärne (1641–1724) dealt with the question of mineral springs in Sweden and provoked interest in them, thus Raicus can be called his predecessor.<sup>60</sup>

Johannes Raicus has been mentioned in Estonian academic literature as the first person whose works refer to local folk medicine.<sup>61</sup> These statements are dubious, as they are based on the article by Viktor Kalnin, who had read none of Raicus' works himself. In addition, it is unclear what kind of medicine can be called folk medicine in the context of the seventeenth century.

Considering Johannes Raicus' background, he may have successfully developed the medical faculty at Tartu's *Academia Gustaviana*. It can be said that his death in 1632 considerably hindered the development of the faculty.

<sup>55</sup> Raicus, Turdinus, *Disputatio physico-medica*.

<sup>56</sup> Risingh, *Kõne Tartu linnast*, 28–29.

<sup>57</sup> Lindroth, *Svensk lärdomshistoria*, 388.

<sup>58</sup> Lindroth, *Paracelsismen*, 376–377.

<sup>59</sup> Raicus, Turdinus, *Disputatio physico-medica*.

<sup>60</sup> Lindroth, *Svensk lärdomshistoria*, 388.

<sup>61</sup> See, e.g., Renata Sõukand, Ain Raal, "Data on medicinal plants in Estonian folk medicine: collection, formation and overview of previous researches", <<http://www.folklore.ee/Folklore/vol30/soukand.pdf>> (8.7.2011), 190, and Renata Sõukand, Ain Raal, "Ravimtaimed Eesti rahvameditsiinis: ajalooline taust, etnofarmakoloogiliste andmete kogumine ja analüüs", *Akadeemia*, 8 (2004), 1748.

### *Johann Below*

As Johannes Raicus died before the opening of the University of Tartu, the first professor of medicine at *Academia Gustaviana* became Johann Below (Johannes Belovius) (1601–68), who held that post from 1632<sup>62</sup> to 1642. Below was born in Rostock, and from 1621 he studied at the universities of Wittenberg, Greifswald, Erfurt, Leipzig, and Rostock,<sup>63</sup> becoming doctor of medicine at the University of Rostock in 1628.<sup>64</sup>

Below was very familiar with the works of the ancient doctors, not only Greek and Arabic, but also Italian, German, and French.<sup>65</sup> It has been presumed that he was interested in Paracelsus' doctrine.<sup>66</sup> Of his medical works, the only information relates to his doctoral thesis *De variolis et morbillis theses inaugurales*, presided over by Jacobus Fabricius on 21 August 1628. In his thesis, Below describes smallpox and measles as diseases that occur most often in the case of children, and both illnesses come from almost the same causes and have almost the same symptoms and features. The thesis continues with a comparative analysis about causes and differences between these diseases, which include body liquids, contagious air, and food. Both are acute diseases, which last up to 14 days and have benign and malignant forms. Measles are more dangerous by their nature as they arise from more bilious humour than smallpox. Below describes treatment of smallpox and measles by dietetic, surgical, and pharmaceutical means. Arabian doctors and their methods of treatment are mentioned; from the European physicians there are references, e.g., to G. Fracastoro and A. Paré.<sup>67</sup>

<sup>62</sup> Different sources give 1632 or 1633 as the year when Below took up the post of professor of medicine. However, the protocols of the Senate of the University of Tartu show that Johann Below participated in the first official session of the Senate on 20 October 1632. See Arvo Tering, *Tartu Ülikooli (Academia Gustaviana) senati protokollid 1632–1656; Konsistoriumsprotokolle der Universität Dorpat (Academia Gustaviana) 1632–1656: I 1632–1634*, Publicationes Bibliothecae Universitatis Litterarum Tartuensis, 4 (Tartu: TRÜ trükikoda, 1978), 20–21.

<sup>63</sup> *Album rectorum Universitatis Tartuensis 1632–1997*, comp. Sirje Tamul (Tartu: Tartu Ülikooli Kirjastus, 1997), 20.

<sup>64</sup> Isidor Brennsohn, *Die Aerzte Livlands von den ältesten Zeiten bis zur Gegenwart: ein biographisches Lexikon* (Mitau: J. F. Steffenhagen, 1905), 94.

<sup>65</sup> Herbert Normann, "Märkusi rootsiaegsest Tartu ülikooli arstiteaduskonnast", *Eesti Arst*, 7 (1926), 243–244.

<sup>66</sup> Rein Ruutsoo, Tõnu Luik, "Filosoofia", *Tartu Ülikooli ajalugu 1632–1982*, I, 183.

<sup>67</sup> Jacobus Fabricius, Johannes Below, *De variolis et morbillis theses inaugurales* (Rostock: Pedani, Acad. Typogr. 1628). A. Paré (1510–1590) was a French surgeon, who gained fame for his reforms in the treatment of wounds.

Learned men with doctoral degrees, like Johann Below, as well as theologian Andreas Virginius (1596–1664) and lawyer Henricus Hein (Heinrich Hein, 1590–1666), were allured to Tartu with advantageous perquisites. They acquired a high social position in Livland and were the greatest experts in their field.<sup>68</sup> As there were no educated doctors in Tartu at that time, Below's main occupation was that of town physician. At the same time, he was *medicus ordinarius* at the royal court of law.<sup>69</sup> It should also be mentioned that the first student of medicine appeared in Tartu during Below's professorship. In summer 1638, Below wrote that until that time he had neither seen nor heard a single student of medicine until, half a year previously, a student came from Pomerania.<sup>70</sup> This first student of medicine at the University of Tartu was David Cunitius (?–1670), who gained fame during his studies for his poems written in Latin and Greek and was later active as a physician and professor of poetics in Tallinn.<sup>71</sup>

As there were extremely few students of medicine in Tartu, Johann Below delivered lectures on anatomy and botany for students from other faculties.<sup>72</sup> There is no information about the dissection of human bodies from the period of *Academia Gustaviana*, but it is known that the dissection of cats and dogs occurred with the objective of teaching anatomy. The dissections were probably carried out by Below, who lectured on anatomy.<sup>73</sup> Below was twice rector of the University of Tartu – in 1634 and 1640–41.<sup>74</sup>

Below left the University of Tartu in 1642, and from 1642–43 he lived in Riga. Afterwards he headed for Moscow, where he worked as a personal doctor to Russian tsars Mikhayl Feodorovich and Alexey Mikhaylovich until 1651. He returned later to Rostock, where he died on 17 December 1668.<sup>75</sup>

No medical disputations were written or defended in Tartu during Below's professorship, but there are two orations from that period dealing with medical themes – *Oratio de medicina* by Fridericus Heinius from

<sup>68</sup> Tering, "Tartu ülikooli osa", 590.

<sup>69</sup> Kalnin, "Arstiteadus ja loodusteadused", 230.

<sup>70</sup> Henrik Sandblad, *Om Dorpats universitet under dess äldsta skede 1632–1656*, Särtryck ur Lychnos (1975–1976), 228.

<sup>71</sup> Viiding, Orion, Päll, *O Dorpat*, 19, 23, 282–285, 408, 425–427; Viiding, "Õnnelik olgu su samm", 371; Päll "Vanakreeka keel Tartu Ülikoolis", 31–32; Viiding, *Die Dichtung neulateinischer Propemptika*, 110–114, 198, 216, 228–230.

<sup>72</sup> Johann Friedrich von Recke, Karl Eduard Napiersky, *Allgemeines Schriftsteller- und Gelehrten-Lexikon der Provinzen Livland, Esthland und Kurland*, 1 (Mitau: J. F. Steffen-hagen u. Sohn, 1831), 101–102.

<sup>73</sup> Kalnin, "Arstiteadus ja loodusteadused", 230.

<sup>74</sup> *Album rectorum Universitatis Tartuensis 1632–1997*, 20.

<sup>75</sup> Magilnitski "Mediki universitetov v Tartu i Pyarnu", 182–183.

1637 and Segvardus Olai Wallander's *Oratio de homine* from 1640. Fridericus Heinius (Friedrich Hein) came from Rostock like Johann Below. He was the son of Henricus Heinius, professor of law at *Academia Gustaviana*. Friedericus Heinius studied theology<sup>76</sup> and in his oration there were numerous quotations from the Old Testament and allusions to characters from the Old and New Testament.

Heinius begins his speech *De medicina* with the statement that we all see every day how fragile the human body is and therefore it is clear that it suffers easily from all kinds of changes, diseases among them. Heinius continues with a lament about the misery of human life and about the fact that diseases afflict people. The most outstanding doctor according to Heinius is God. The author stresses that Jesus often healed people with a single word. Afterwards he handed these abilities on to his disciples, which Heinius expresses as the *Christus medicus* tradition.<sup>77</sup> God also brings remedies out of the earth in the form of medicinal plants. Medicine is a noble art and this is indicated by the fact that several rulers have practiced it, e.g., Mithridates, king of Pontus, while several outstanding philosophers, like Democritus, Plato and Aristotle, have written about medicine. Heinius stresses that by us, i.e., Europeans, it is praiseworthy that many people have dedicated themselves to medical studies. He praises Tartu's medical conditions and the dissections that have been carried out here. He lauds the mild climate of Tartu, which causes vigorous growth of the medicinal plants. Nothing can be more enjoyable than knowledge in the field of salubrious medicine and use of this knowledge for the benefit of society. Heinius says that unfortunately there are people who consider medicine totally useless, and stresses that medicine is valuable, as it supports life and health. Heinius defines medicine by means of the Latin word *medium*: medicine is like the central way between the missing and the excessive. Hippocrates also mentioned medicine as adding where something is missing, and removing where there is too much. The opinion of Heinius is that a corporally healthy human being should live as wholesome a life as possible and not torment himself with the rules of a strict diet. He stresses the importance of exercise, which keeps a man young for a long time. In addition to the Bible, Heinius also quotes ancient authors – Herodotus, Horace, Vergil and Columella – and he names outstanding doctors who

<sup>76</sup> On 31 July 1641, Fridericus Heinius responded to a theological disputation, presided by professor Andreas Virginius.

<sup>77</sup> Timo Joutsivuo, "Ruumiin vai sielun hoitoa? Kristinusko, sairaus ja lääketiede", *Terveyden lähteillä. Länsimaisen terveyskäsitysten kulttuurihistoriaa*, ed. by Timo Joutsivuo ja Heikki Mikkeli (Helsinki: Suomen Historiallinen Seura, 1995), 79.

have written in Latin or Greek. One of the doctors of modern times, Jean Fernel, is mentioned.<sup>78</sup> Heinius mentions medical schools as well – the ancient Greeks had an empirical, dogmatic, and methodical school, and Paracelsus' school was added to them later.<sup>79</sup> At the end of Heinius' disputation there is a congratulatory poem by the first student of medicine at the University of Tartu, David Cunitius.

No dissections of human cadavers are known from the period of *Academia Gustaviana* in Tartu, and tuition in the field of medicine was rather poor and episodic. Heinius' speech could thus be interpreted as an attempt not only to praise medicine in Tartu, but also to prettify the situation. The facts that he came from Rostock like professor of medicine Johann Below and that he was the son of another professor in Tartu seem to confirm this suggestion.

The second medical oration held during the professorship of Johann Below was that of Segvardus Olai Wallander *De homine* from 1640. The author originated from Mariestad in Sweden and began his studies at the University of Tartu in 1637, receiving a scholarship at *Academia Gustaviana* from 1638–43; he was pedell (university servant) between 1644 and 1646.<sup>80</sup>

Wallander's oration *De homine* was held on 28 March 1640. The author begins his speech with rhetoric about the misery of human life, pointing to the story of Croesus and Solon told by Herodotus in his *Historiae*. Then he explains the origin of man, quoting Plato, Theophrastus, Ovid, Cato, and Paracelsus, as well as the Old Testament. Wallander claims that the Latin word *homo* has come from the word *humus* and explains the double nature of Man, consisting of the body and soul. In connection with Man's origin from the mud of the earth, the author explains the influences of different elements – air, fire, water, and earth – on humans, and the connection of these elements with human anatomy and the four tempers, thus pointing to the harmony of microcosm and macrocosm.<sup>81</sup> Henrik Sandblad characterizes the central part of Wallander's oration as a kind of anatomical-physiological compendium, which in conventional rhetoric seems to be quite rare. He believes that Wallander belongs among the few students who have taken courses in the medical faculty and demonstrates his knowledge in that field.<sup>82</sup> On the final pages of his oration, Wallander quotes Wittenberg

<sup>78</sup> Jean Fernel (1497–1558) was the greatest French physician of the Renaissance. He introduced the term 'physiology' to describe the study of the body's function.

<sup>79</sup> Friedrich Hein, *Oratio de medicina* (Dorpat: Lit. Acad., 1637).

<sup>80</sup> Tering, *Album Academicum*, 173.

<sup>81</sup> Olai Wallander Segvardus, *Oratio de homine* (Dorpat: Lit. Acad., 1640).

<sup>82</sup> Sandblad, *Om Dorpats universitet*, 219.

theologian Balthasar Meisner (1581–1626) in the question of the similarity of Man and God. The author ends his speech by enumerating the factors that corrupt men. Wallander's work can be considered as a symbiosis of medical and theological approach to subject matter.

Orations held at *Academia Gustaviana* belonged to the studies of rhetoric and were held on the order of professor of rhetoric Laurentius Ludenius (1592–1654), whose task was to supervise and help students in this field. Ludenius himself wrote the forewords to almost every oration at *Academia Gustaviana*, and this is the case also of orations *Oratio de medicina* and *Oratio de homine*. Professor Laurentius Ludenius was a very productive author; during his Tartu period (1635–54), 85 disputations and a collection with 38 disputations (1643) were printed.<sup>83</sup> Ludenius' works were dedicated to different themes and among the works presided by him in Tartu one can find also *Disputatio physica de homine*, held by Johannes Erici Stregnensis on 27 October 1638 in order to apply for master's degree in philosophy. As compared to Wallander's speech on the same topic, i.e., human beings, Ludenius' and Stregnensis' disputation abounds with all sorts of information, but is a dry formalistic defining of subject matter, based largely on Aristotle. Man is defined like a microcosm, consisting of body and soul. First a precise anatomical composition of man is given and later relationship between body and soul are discussed, including questions about spirit, tempers, divisions of soul, senses, and intellect.<sup>84</sup>

The latter themes, i.e., soul and senses, were generally popular in the disputations of *Academia Gustaviana*,<sup>85</sup> but the philosophical study of the soul and its properties was not considered an independent discipline. It was considered a part of physics or natural philosophy, in which the human soul was studied as the formal cause of man.<sup>86</sup>

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<sup>83</sup> Katre Kaju, "Laurentius Ludenius, Professor an der Universitäten Greifswald und Dorpat (1592–1654)", *Die Universität Greifswald in der Bildungslandschaft des Ostseeraums*, ed. by Dirk Alvermann, Nils Jörn und Jens E. Olesen, Nordische Geschichte, 5 (Münster: LIT Verlag, 2007), 223–228.

<sup>84</sup> Laurentius Ludenius, Johannes Erici Stregnensis, *Disputatio physica de homine* (Dorpat, Typis Acad., 1638).

<sup>85</sup> This kind of work was presided mainly by two professors of natural sciences at *Academia Gustaviana* – Petrus Schomerus and his successor Johannes Erici Stregnensis.

<sup>86</sup> Kallinen, *Change and stability*, 246–247.

### *Sebastian Wirdig*

After Johann Below left Tartu, the post of professor of medicine remained unoccupied for some years. In 1646, Sebastian Wirdig (1613–87) was invited to occupy that post. Wirdig had become master of philosophy at the University of Wittenberg in 1638, then went to Rostock in 1640 and was matriculated to the university there in 1641. He defended the degree of doctor of medicine in Königsberg on 1 September 1644.<sup>87</sup>

Sebastian Wirdig first arrived in Tartu in 1646, but was soon invited to the island of Lolland in Denmark in order to help fight the plague epidemics.<sup>88</sup> His professorship at Tartu lasted from 1647–54, and he was rector of the university in 1651. In 1650, Wirdig sold the epoch-breaking anatomical work of Andreas Vesalius *De humani corporis fabrica* to the library of *Academia Gustaviana*.<sup>89</sup> In fear of war with Russia, he returned to Rostock in 1654. In 1655, Wirdig became professor of medicine at the University of Rostock. From 1671 he was also the personal doctor of Duke Gustav Adolf of Mecklenburg-Güstrow.<sup>90</sup> Wirdig was the last professor of medicine at *Academia Gustaviana*.

As seen in the catalogue of lectures from November 1651 to November 1652, Wirdig dealt with psychiatry in his lectures – problems of imagination and reason, and problems of memory, delirium, melancholy, mania, and rabies. In the catalogue of lectures printed in 1653, it is stated that he will treat *Universae Medicinae Ideam* next year. This is also the last trace of anything about medical lectures at *Academia Gustaviana*. In the catalogue of lectures from 1655, it is said that there is no professor of medicine in Tartu.<sup>91</sup> Among other works written by Wirdig, this section focuses on his doctor's disputation *Disputatio de palpitatione cordis* from 1644, as this work is written before Wirdig's arrival to Tartu and probably influenced the disputationes presided by him at *Academia Gustaviana*.

In the introduction (*proemium*), Wirdig quotes modern medical authors who describe cases where people have lived without some internal organs – lungs, liver, spleen, uterus, or cerebrum. The modern authors quoted in

<sup>87</sup> Brennsohn, *Die Aerzte Livlands*, 433.

<sup>88</sup> *Album rectorum Universitatis Tartuensis 1632–1997*, 27.

<sup>89</sup> Arvo Tering, "Ülikooli raamatukogu," *Tartu Ülikooli ajalugu 1632–1982*, I, 251.

<sup>90</sup> Brennsohn, *Die Aerzte Livlands*, 433.

<sup>91</sup> Juhani Vasar, *Tartu ülikooli ajaloo allikaid = Quellen zur Geschichte der Universität Tartu (Dorpat) I* (Tartu: Tartu Ülikooli Kirjastus, 1932), 181–85.

Wirdig's work include Thomas Bartholin,<sup>92</sup> Jean Fernel, and Daniel Sen-nert. The two last authors are named among the best practitioners.

Wirdig considers the heart to be the most marvellous and noble of all organs, a source of human nature, thus quoting Hippocrates and Galen. Wirdig first defines the subject matter of his thesis – palpitation of heart – on the basis of different authors, ancient and modern. Then he describes different factors that are believed to cause this kind of affliction. Among the causes the previous authors mention are superabundance of blood, copious humour in pericardium, and dry bile in arteries. Wirdig himself claims that the most obvious cause is increased activity of the heart. Other obvious reasons are problems that are burdensome to heart, like diseases, humours, vapours, flatus, worms, heat, poison, or a defect of vital spirits. Then symptoms and treatments of heart palpitations are described, including internal and external remedies, food, clean air, and surgical means are mentioned. The latter is mainly phlebotomy. The thesis ends with medical statements that are often disputed between physicians. Wirdig divided these statements into five parts: anatomical, physiological, pathological, dietetic, and therapeutic. In the last statement of the latter section, Wirdig claims that chemistry is an art that is extremely necessary for a physician.<sup>93</sup>

Wirdig's other works are: *Ad lectiones suas med. invitat.* from 1655, *De iis, quae medic. scire oportet* from 1655, *Disputatio de scorbuti theoria et therapia* from 1658, *Disputatio de gangraena et sphacelo* from 1667, *Disputatio de scorbuto* from 1671, and *Nova medicina spirituum, curiosa scientia et doctrina unanimiter hucusque neglecta...* from 1673.<sup>94</sup> It is known that after having left Tartu, Wirdig practiced so called spiritual pathology.<sup>95</sup> This idea is reflected in his last and most well-known work *Nova medicina spirituum*.

Under the supervision of Sebastian Wirdig, two medical disputations were written in Tartu, and these have been considered the only medical disputations defended at *Academia Gustaviana*. These two works are

<sup>92</sup> Thomas Bartholin (1616–80) was a Danish physician, mathematician, and theologian. He is best known for his work in the discovery of the lymphatic system in humans and for his advancements of the theory of refrigeration anesthesia, being the first to describe it scientifically. Bartholin originated from a family that was famous for its pioneering scientists. Three generations of the Bartholin family contributed to anatomical science and medicine in the seventeenth and eighteenth centuries: Thomas Bartholin's father Caspar Bartholin the Elder (1585–1629), his brother Rasmus Bartholin (1625–98), and his son Caspar Bartholin the Younger (1655–1738).

<sup>93</sup> Sebastian Wirdig, *Disputatio de palpitatione cordis cum positionibus 40 intermedicos frequenter controversis sub finem annexis* (Königsberg: Reusner, 1644).

<sup>94</sup> Brennsohn, *Die Aerzte Livlands*, 433.

<sup>95</sup> Sandblad, *Om Dorpats universitet*, 229.

Andreas Arvidi's disputation *De natura et constitutione medicinae* from 1648 and Olaus N. Oestenius' disputation *De dysenteria* from 1651. Andreas Arvidi (ca. 1620–73) is an important person in the field of Swedish literature, as he compiled the first handbook of poetics in Sweden, *Manuductio ad poesin suecanam*, published in 1651.<sup>96</sup> The book has significantly influenced Swedish poetry. Andreas Arvidi studied natural sciences at the faculty of philosophy of *Academia Gustaviana* and debated and held orations on different subjects in Tartu, including physics, astronomy, mathematics, botany, medicine, theology, and ethics.

Andreas Arvidi's medical disputation was held on 2 September 1648, and on the verso of the title page Andreas Arvidi is said to be the author,<sup>97</sup> whereas in the majority of cases professors wrote the disputationes of their students. When compared to Heinius' oration, the style of which is baroque and inflated and the approach to the subject diffuse, it can be said that Arvidi's disputation has a very clear and logical framework. Arvidi defines medicine through the etymology, homonymy, and synonymy of the word. Medicine as a phenomenon is defined by Arvidi as one of the arts, as he finds that it corresponds in every way to the definition of art by Aristotle in his *Nicomachean ethics* (VI.4): "an art is a rational quality, concerned with making, that reasons truly."<sup>98</sup> Arvidi discusses the causes and purposes of inventing medicine and also the different divisions of medicine.

When speaking about medical schools, Andreas Arvidi highlights the empirical, methodical, dogmatic or rational (Galenic), and spagyrical or hermetic (Paracelsian) school and explains the personalities behind these schools. There are no quotations from the Bible in the work of Arvidi, but there are quotations from Aristotle, Themistius, Ovid, Diodorus, Pliny, and Hippocrates, and the influence of the works of Aristotle and Hippocrates is apparent in the argumentation. In addition to the fact that Arvidi's disputation reveals the author's knowledge of Greek and Roman authors, he is also well familiar with the contemporary medical authorities of the sixteenth and seventeenth centuries. Modern authors from this period, however briefly mentioned in Heinius' oration, have an important role in

<sup>96</sup> Tering, *Album Academicum*, 123.

<sup>97</sup> Sebastian Wirdig, Andreas Arvidi Stregnensis, *Disputatio medica de natura et constitutione medicinae* (Dorpat: Vogel, 1648).

<sup>98</sup> Aristotle, *The Nicomachean ethics with an English translation by H. Rackham*, The Loeb Classical Library (Cambridge, MA; London: Harvard University Press, 1990), 334–335.

Arvidi's disputation. The author quotes J. Fernel, Th. Bartholin, and D. Sennert several times.<sup>99</sup>

The author of the second medical disputation, Olaus Oestenius (1625–82), studied medicine under the supervision of professor Sebastian Wirdig and was promoted to licentiate of medicine<sup>100</sup> at the University of Helmstedt in 1657 with the dissertation *Disputatio medica de arthritide*. He later worked as town physician in Göteborg.<sup>101</sup> Olaus Oestenius' disputation *De dysenteria* was the only medical work from the *Academia Gustaviana* period to receive close attention in the *Tartu University History* from 1982, and the author of the chapter "Medicine and natural sciences", Viktor Kalnin, gave it a ringing endorsement.<sup>102</sup> The work is dedicated to various clergymen in Sweden, probably the supporters of Oestenius' studies.

Oestenius, who is the author and respondent of the disputation at the same time, gives the explanation of the name *dysentery* – its definition, distinction, reasons, symptoms and treatment. He speaks about air, food, drink, surgery, pharmacy, and the necessity of avoiding physical exercise. He also talks about the mitigation of pain in the case of dysentery. Some specific remedies that he mentions are mistletoe from oak, sealed earth, Armenian clay, fresh theriac, and calcinated human bones. These remedies are said to be recommended by D. Sennert and other contemporary physicians.<sup>103</sup> The influence of the teachings of Hippocrates, Paracelsus, and the views of Renaissance doctors on contagion can be felt in the work.

The two works presided by Sebastian Wirdig in *Academia Gustaviana* deal with totally different themes, but still the quoted medical authorities in both works coincide with those quoted in Wirdig's own doctoral thesis. One can presume that the students used it along with some other books from Wirdig's personal library while compiling their own disputations.

<sup>99</sup> More about this work: Rein, "Andreas Arvidi disputation", 7–28. Regretfully there is a mistake in this article, as it states that Erasmus Bartholin (1625–98) is amongst the authors quoted by Andreas Arvidi in his medical work. It is more probable that Arvidi quoted Thomas Bartholin, who is mentioned in Sebastian Wirdig's doctoral thesis as well.

<sup>100</sup> Michaela Trieb, *Die Medizinische Fakultät der Universität Helmstedt (1576–1810)* (Wiesbaden: Harrassowitz, 1995), 147.

<sup>101</sup> Tering, *Album Academicum*, 254.

<sup>102</sup> Kalnin, "Arstiteadus ja loodusteadused", 231–232.

<sup>103</sup> Sebastian Wirdig, Olaus Oestenius, *Disputatio medica de dysenteria* (Dorpat: J. Vogelius, 1651).

### *Conclusions*

The death of Johannes Raicus, first professor of medicine in Tartu, was a heavy blow to the medical faculty of *Academia Gustaviana*. The pioneering ideas of Paracelsus can also be traced in other medical works, although they do not appear as clearly as in the works of Raicus. The influence of Wittenberg professor Daniel Sennert, whose student Raicus was in Wittenberg, is especially noticeable in the works written in Tartu in the field of medicine and natural sciences during the *Academia Gustaviana* period.

Neither of the two professors of medicine at *Academia Gustaviana* – Johann Below or Sebastian Wirdig – was an outstanding scientist when they came to Tartu, and their careers in Tartu were just springboards for them to achieve better positions. During the studies of learned men who obtained their posts in the first half of the seventeenth century, new epoch-breaking ideas like William Harvey's doctrine about circulation of blood or Cartesianism had not reached open discussion yet. It was during the second period of the Swedish university – *Academia Gustavo-Carolina* (1690–1710) – when the first autopsies took place at the University of Tartu, as well as lectures on surgery. Philosophizing over medicine as a phenomenon and over the nature of human beings are some of the typical features in works of medical content of *Academia Gustaviana* period in Tartu (1632–56). One could say that the medical works of *Academia Gustaviana* are interesting from the point of view of contacts between medicine and other disciplines, which could be one of the subjects of future research.

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### KOKKUVÕTE: *Meditiiniprofessorid ja meditiinalased teadustööd Tartu gümnaasiumis ja Academia Gustaviana's*

Arstiteaduse ajalugu Tartu ülikoolis algab enne selle asutamist, sest meditiinilisi teemasid käsitleti juba Tartu gümnaasiumis. 1630. aastal määrati sinna tööle endine Uppsala ülikooli professor Johannes Raicus (u 1580–1632), kes oli sel ajal juba tunnustatud arstiteadlane. Raicuse Saksamaal ja Rootsis valminud tööd osutavad sellele, et ta tegeles üsna keeruliste

meditsiiniprobleemidega, kirjutades töid halvatusest, muhkkatkust, podagrast ja tiisikusest. Rootsis on teda peetud sealseks kõige väljapaistvamaks Paracelsuse ideede propageerijaks. Tegelikult püüdis Raicus meditsiinis ühendada iidseid Hippokratese ideid moodsate Paracelsuse omadega, röhutades keemia osatähtsust meditsiinis.

Tartu päevilt pärineb Johannes Raicuse sulest väitekiri *Disputatio physico-medica votiva εἰς ἑρμηνίαν συργεντὶ μὲν Δορπάτι νέον κολλεγίου ρειον* (Loodusteaduslik-meditsiiniline pühendumdisputatsioon juba kerkivale Tartu uuele kuninglikule kollegiumile), mille üle väitles Tartu gümnaasiumis 1631. aasta 26. märtsil Petrus Turdinus, hilisem *Academia Gustaviana* teoloogiaüliõpilane. Disputatsioon on jaotatud kaheks osaks: esimeses antakse ülevaade Tartu ümbruse pinnase ja vee keemilisest koostisest, paikkonna endemelistest haigustest ja nende ravist; töö teises osas käsitletakse mineraalvete kasutamist ravis. J. Raicus suri tõenäoliselt enne *Academia Gustaviana* avamist ega jõudnud asuda talle määratud meditsiiniprofessori kohale rajatavas ülikoolis.

Aastatel 1632–56 jöudis Tartu *Academia Gustaviana*'s töötada kaks meditsiiniprofessorit – Johann Below (1601–68) ja Sebastian Wirdig (1613–87), kes aga kumbki ei olnud Tartusse saabudes väljapaistvad teadlased. Pigem oli Tartus töötamine neile hüppelauaks parema tööpaiga saamiseks.

*Academia Gustaviana* arstiteaduskonnas oli tudengeid võrreldes teiste teaduskondadega väga vähe ning ka meditsiinalaste tööde hulk oli Tartu ülikoolis 17. sajandil üsna väike. Samas ei pruukinud meditsiinalaste tööde autoriks alati olla arstiteaduskonna üliõpilased. Johann Belowi professuuri ajal (1632–42) ei kaitstud Tartus ühtegi meditsiinidisputatsiooni, küll aga peeti sel ajal kaks meditsiinilist oratsiooni – Fridericus Heinius *De medicina* (Meditsiinist) 1637. aastal ja Sigvardius Olai Wallanderi *De homine* (Inimesest) 1640. aastal. Ka loodusteaduslikes töödes puudutati meditsiiniprobleeme.

Aastatel 1646–54 oli Tartu ülikooli meditsiiniprofessori ametis Sebastian Wirdig, kelle juhendamisel valmisid kaks arstiteaduslikku disputatsiooni, mida peetakse ainsateks *Academia Gustaviana*'s kaitstud meditsiinväitekirjadeks. Need kaks tööd olid Andreas Arvidi (u 1620–73) disputatsioon *De natura et constitutione medicinae* (Meditsiini olemusest ja ülesehitustest) 1648. aastal ja Olaus N. Oesteniuse (1625–82) väitekiri *De dysenteria* (Düsenteeriast) 1651. aastal.

*Academia Gustaviana* arstiteaduskonna arengu kohta võib väita, et esimese meditsiiniprofessori Johannes Raicuse surm pärssis seda oluliselt. Tollases meditsiinis uudseid Paracelsuse ideid – näiteks keemia osatähtsuse

rõhutamist arstiteaduses – võib siiski täheldada ka teistes *Academia Gustaviana* meditsiinitöödes. Märgatav on Tartu töödes toetumine Wittenbergi meditsiiniprofessorile D. Sennertile, kes püüdis leida kompromissi Galenose ja Paracelsuse õpetuste vahel.

*Academia Gustaviana* (1632–56) meditsiinilise sisuga tööde puhul võib mõne tüüpilise joonena välja tuua filosofeerimise meditsiini kui nähtuse üle ja inimese käsitlemise erinevatest vaatenurkadest. Võib väita, et need arstiteaduslikud tööd on huvitavad eelkõige erinevate distsipliinide põimimise seisukohast. 17. sajandi esimesel poolel ametisse astunud arstide õpingute ajal ei olnud uued teedrajavad ideed, nagu William Harvey vereerringeõpetus või kartesiaanlus, veel avaliku diskussioonini jõudnud. Alles Rootsiaegse Tartu ülikooli teise tegevusperioodi *Academia Gustavo-Carolina* ajast (1690–1710) on teada, et Tartus hakkasid toimuma inimlaipade lahkamised ja loengud kirurgiast.

