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*Dalla lectura all'e-learning*

a cura di  
Andrea Romano



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## «...but the Muses will not live there». The transition from neoclassical education to scientific education in Dutch universities, 1830-1880

Leen Dorsman

In this paper some developments in the universities in the Netherlands in the nineteenth century are discussed, especially regarding the idea of science and some consequences of those ideas on the way of teaching in Dutch universities<sup>1</sup>. I concentrate on the (then) State University of Utrecht but my argumentation can easily be generalized to the rest of the Dutch university landscape (which consisted of the state universities of Leiden and Groningen and the Illustrious School in Amsterdam, which became a municipal university in 1876).

### *Neo-humanist education and the idea of science*

I will start with a very dominant and influential figure, the Utrecht professor Philip Willem van Heusde (1778-1839) who was a professor of History, Antiquities, Rhetoric and Greek at the University of Utrecht. Van Heusde was not a great scholar, but a famous teacher. Like before him in the sixteenth century Melanchthon was called the *Praeceptor Germaniae*, Van Heusde was called *Praeceptor Hollandiae* by his pupils.

His neo-humanist approach was not in the critical philological tradition, but more concerning the content of classical, especially Greek and – within that – Platonic thought. Love for refinement, beauty and truth was at the center of his teaching as well as the idea of ‘common sense’ or *sens commun*. This was based on the philosophy of the Dutch philosopher Frans Hemsterhuis (1721-1790) and above all the Scottish philosopher Thomas Reid (1710-1796). It is a philosophy that tries to overcome scepticism by accepting so called ‘self-evident truths’ like the existence of a world outside us. According to Van Heusde, this corresponded perfectly with the Dutch national character<sup>2</sup>.

Van Heusde had strong ideas about education, which was for him mostly a form of moral education. In 1829 he published a book named *Letters about the Nature and Tenor of Higher Education*<sup>3</sup>. It is a

<sup>1</sup> Note that I use the term ‘sciences’ in a broad sense, which includes the natural sciences as well as the humanities. This is derived from the Dutch word *wetenschappen*, which is similar to the German *Wissenschaften*. When I mean the natural sciences I will indicate that as such.

<sup>2</sup> See: JACOBUS MATTHEUS MARIA DE VALK (ed.), *Philip Willem van Heusde. Wijsbegeerte van het gezond verstand*, Baarn, Ambo, 1989, p. 13-35.

<sup>3</sup> PHILIP WILLEM VAN HEUSDE, *Brieven over den aard en de strekking van Hooger Onderwijs*, Utrecht, Johannes Altheer, 1829. About Van Heusde for example: JOKE ROELEVINK, *Historia Gentium: Philip Willem van Heusde and the Teaching of History at the University of Utrecht in the First Decade of the XIXth Century*, «LIAS. Sources and Documents Relating to the Early Mod-

paedagogical treatise, based upon his optimistic theory of the perfectability of man by education, which mirrors the influence of the Enlightenment on his ideas. Higher education at the university had an important role in this and had to teach and stimulate independent thinking. One of the important aims of higher education was character building.

Van Heusde admits in one of the letters in his book that the nineteenth century is, as he called it – in italics – *de eeuw der wetenschappen*, the age of the sciences. In this age it was important for him that most subjects at the university were taught in Latin. Not algebra, not vernacular literature of course and not contemporary law, but for the rest, also for the sciences, the use of Latin was recommended. Van Heusde did also not believe in specialization, but in a broad education, free from interference of the state. One cannot, he said, build academies or universities like one builds houses or palaces. Cabinets, libraries, auditoria, one could build them and they would harvest admiration of posterity. But, he said: «the Muses will not live there». The Muses in his view needed freedom, not rules, regulations and preconditions. If so, they would leave and settle elsewhere. It is clear that this was not an incentive to build laboratories and workshops in the university. In other words: such a view did little to stimulate modern science.

Although Van Heusde didn't favour *state* intervention in the sciences, he was patriotic enough to praise the *nation*. His lessons in history were meant to learn his students how to analyse historical developments as well as the present. He wanted to create sensible and prudent citizens who were able to grasp what we nowadays call the grand narrative of history, the long line of the development of humanity. He didn't want to breed researchers, but men that were able to make the right decisions in life and politics. And he got proof that he was going into the right direction. When in 1830 about 250 students from the University of Utrecht formed a military company and went with the regular army on a campaign against the rebellious Belgians in the south of the Netherlands Van Heusde gave them a valedictory speech at the border with the south. He also welcomed them back in 1831: «These days our fatherland has shown an uncertain and hesitating Europe how an independent nation thinks and acts... We, your teachers, tried to make you realize this deeper and deeper». The students themselves had proven to understand this in the campaign of 1831 and this experience would make independent beings of them, favouring justice and truth. This must have been one of Van Heusde's finest hours as a teacher and educator<sup>4</sup>.

The students of Van Heusde were devoted to him. There are many testimonies in all kinds of autobiographical material about how wonderful a man he was and how right he was. It is hard to prove exactly and even harder to quantify what his influence really was, but a fact is that much of his enthusiastic students became teachers, vicars or professors all over the Netherlands. There is no reason to doubt that his line of thought has influenced the slowing down of the development of modern scientific thinking and the teaching of the natural and medical sciences in a modern way. It was however only partly by his books that Van Heusde was honoured with the title of *Praeceptor Hollandiae*: it was mostly by word of mouth by people who attended his lectures. Those were very popular, but also the privatissimum was the place in which his influence was exercised. He had also a very personal contact with his students and read books with them in the evenings.

ern History of Ideas», 13/1 (1986), p. 123-138; LEEN DORSMAN, *Van OB 1815 naar WHW 1985: van 'geleerde stand' naar 'zelfstandige beoefening der wetenschap'. Het hoger onderwijs en de disciplines* in LEEN DORSMAN-PETER JAN KNEGTMANS, *Van Lectio tot Power Point. Over de geschiedenis van het onderwijs aan de Nederlandse universiteiten*, «Universiteit en Samenleving», vol. 8, Hilversum, Verloren, 2011, p. 115-129.

<sup>4</sup> JOHANNA ROELEVINK, *Gedictend verleden. Het onderwijs in de algemene geschiedenis aan de universiteit te Utrecht, 1735-1839*, Amsterdam/Maarssen, APA-Holland Universiteits Pers, 1986, p. 311-315; LEEN DORSMAN, *Marcheren voor het Vaderland. De Utrechtsche Jagers in de Tiendaagse Veldtocht*, «Oud-Utrecht», 87/6 (2014), p. 186-189.

So there is a reason to believe that in the first half of the nineteenth century the neo-humanist or neo-classical tendency from the University of Utrecht became dominant and slowed down the growth of modern science in the Netherlands. This neo-humanist tendency was also rather conservative in the ways of spreading the new ideas: it was mostly by the traditional lectures and partly by the *privatissimum*, both originating in the early modern university. That the lecture was predominant corroborates the thesis that William Clark defends in his book *Charisma and the Origins of the Research University*. Clark wrote:

The two essential academic activities from medieval Scholasticism up to nineteenth-century Romanticism were the lecture and the disputation... Despite innovations in the Enlightenment and the Romantic era, the lecture has remained more the same than it has changed since the Scholastics, or even since Aristotle and the Peripatetics.

In his view it is the disputation and not the lecture, or called *lectio* in the early modern period, that is at the basis of the modern research university<sup>5</sup>.

### *Renewal of the natural and medical sciences*

Interestingly the new ideas that slowly developed in the Netherlands also came from Utrecht. It was there that in the middle of the century, about ten years after the death of Van Heusde, a group of scholars worked who are sometimes called 'the Utrecht School in the natural sciences'. They worked successfully on various subjects. For instance there was Christophorus H.D. Buys Ballot (1817-1890), who formulated the well known meteorological law that is named after him (in the Northern Hemisphere, if a person stands with his back to the wind, the low pressure area will be on his left). Besides Buys Ballot there was the physiologist Frans Donders (1818-1889), the chemist Gerrit Jan Mulder (1802-1880) and the botanist/zoologist Pieter Harting (1813-1885). The most important feature of the work of the last three mentioned is the introduction of modern ideas from the natural sciences into medicine. From then on, like everywhere in Europe, medical science for the first time became really effective. And they were part of this revolution. On the background worked the philosopher Cornelis Opzoomer (1821-1892) who provided them with his philosophy of experience as he named it and which was really an empirical, positivist epistemology. Opzoomer was a charismatic person and his colleagues were also, alongside the students, attending his lectures. For two years also Jacques Moleschott (1822-1893) worked with this group, the materialist who is well known by his quotation «ohne phosphor keine Gedanken», no thoughts without phosphor, and who later on became famous in Italy as a senator and as a professor in Turin and at the Sapienza in Rome.

As a *pars pro toto* for this 'Utrecht School' group I will take Pieter Harting, because there is an interesting aspect in his work and his thought on education. Harting published a lot, not only scientific work on a variety of subjects, but also various autobiographical texts and treatises on the university and on compulsory school attendance of which he was, together with his brother, a strong advocate. Harting had particular ideas about higher education which differed from those of Van Heusde, but also had some similarity with them. In his publication *Thoughts on higher education in our fatherland* Harting made it clear

<sup>5</sup> WILLIAM CLARK, *Academic Charisma and the Origins of the Research University*, Chicago and London, The University of Chicago Press, 2006, p. 68. ROELEVINK, *Gedictoord Verleden*, p. 313 points at the fact that Van Heusde's «grand narrative» of the development of humanity perfectly fits in with the educational form of the lecture.

that the nineteenth century was not only the age of science in general, but specifically the age of natural sciences<sup>6</sup>. He advocated the modern experimental scientific method and it was for a reason that in 1854 he was the founder of the first botanical laboratory in the Netherlands. Already as a young man he was convinced that the natural sciences needed very much more sophisticated instruments. That is why he experimented with microscopes which he, when working with them, tried to make them better. There is for instance a Wollaston microscope in the Utrecht University Museum which was improved by Harting himself. He also wrote on the history of microscopes, published a three volume manual on them, which was translated into German and he collected all kinds of those instruments<sup>7</sup>. The Museum still owns this collection, including an original Van Leeuwenhoek microscope. Harting thought it very useful for his students to practice with microscopes, so he organized a microscope practicum to get them accustomed to the instruments and to train their skills. The lab was one of the best in Europe.

Harting was, like his colleagues from the Utrecht School, a rather modern researcher, well informed about the latest theories in his field. He knew much foreign scientists with whom he corresponded and whom he visited. He was also one of the first in the Netherlands to accept Darwin's theory on evolution. One might think that this combination of being a modern scientist on the one hand and having an interest in his students and in education in general on the other hand would have led to ideas about the university as an institution in which students were trained as scientists themselves.

This was, interestingly, not the case. Without mentioning him, Harting followed the line of thought of Van Heusde. Every phase in the psychological development of the child into a young person should, according to Harting, correspond with a certain schooltype<sup>8</sup>. The university then should correspond with the phase in which the student is able to work on his own, guided by the professor. A lot of the things that were done at the university belonged to the secondary school. Too much of the preparatory work with students was exercised at the university and Harting criticized the politicians for it. He also blamed the role of Latin at the university which he thought was too great and had hindered the development of the sciences in the Netherlands.

When Harting asked himself what universities are for, he mentioned two things. The first one is the university in which scientific research is done for its own sake, without interference from the outside world. The second thing is the idea that the university is only in the second place an institution for scientific research. It is in particular an educational institution: not to create scientists, but to create useful citizens for society<sup>9</sup>. What we see here is a reknowned, influential scientist who in his laboratory is training students the scientific method, but for whom the university is not the place to deliver little scientists. What he really wanted was to improve the practical skills of his students, who were mostly medical students. That was what his microscope practicum was meant for. The interesting thing here is that Harting as a scientist was complete in tune with his time. He understood the new and important position of the natural sciences. In his *Thoughts on higher education* he seemed to be aware of the fact that the scientific method of the natural sciences had found its way to other sciences like psychology and economics. But as an educator he still had his reserves on what was happening. Part of that doubt was also that he didn't like the tendency to specialize he saw – mainly – in Germany. Neither did he like the way this worked out for the university as an institution.

<sup>6</sup> PIETER HARTING, *Gedachten over het hooger onderwijs in ons vaderland*, Tiel, H.C.A. Campagne, 1858.

<sup>7</sup> ID., *Das Mikroskop*, Braunschweig, Friedrich Vieweg und Söhne, 1866.

<sup>8</sup> Cf. VAN HEUSDE, *Brieven over den aard*, ch. V, p. 65-78.

<sup>9</sup> See also BERT THEUNISSEN, 'Nut en nog eens nut'. *Wetenschapsbeelden van Nederlandse natuuronderzoekers 1800-1900*, Hilversum, Verloren, 2000, p. 57-78.

What we see here is a university professor who belonged to those who made an important step forward in scientific work, but who still had a weak spot for the broad education that was *en vogue* a generation earlier. His students worked in the laboratory, and this was very new, but only as a way to train their practical skills. It was only with the introduction of the new law on higher education in the Netherlands in 1876 that other ideas became predominant. From then on students were trained to be scientists. But then Harting had come almost to the end of his career.

### *Theology and scientific thinking*

So far for the natural sciences. Harting, by the way, was not the only one in that field; his fellow member of the Utrecht School, the chemist Gerrit Jan Mulder, had similar ideas. For him character building should still be one of the main features of the university of the nineteenth century. And also the influential philosopher Cornelis Opzoomer tried to find a balance between neo-humanist ideas and modern views on the role of science.

When we look beyond the natural sciences to other disciplines, for instance to theology, we see some other interesting features regarding education and scientific thinking.

I already pointed at William Clark's *Charisma and the Origins of the Research University* who gives the educational side of the university a far more distinctive role in the transformation of the university into a research institution than to ideas concerning the nature of science. The disputation, which is an interactive kind of educational genre, can maybe in late nineteenth century terms be translated into the lab work where the students together with the professor or the lab assistant do their research training. This is not restricted to the natural sciences. An analogy can be found in something like the history seminar of Leopold von Ranke in Germany from the 1820's on and which served as an example for the 'scientification' of history throughout the western world. The lecture or *lectio* in this model of Clark is the old-fashioned one-way communication of the professor as a self-contained talking head and which has little to do with modern ideas about scientific education. This is not completely true, because the dictation classes, in which the professor recites the same text as he recited also the years before, were slowly petering out during the nineteenth and early twentieth century. But they still existed during the second half of the nineteenth century.

A specific variety of the, according to Clark, old fashioned *lectio* I found in Dutch universities in the nineteenth century. It is the so called *Openingscollege*, or Opening Lessons, a kind of lecture that many professors held at the beginning of the new academic year, somewhere at the end of September. At the *Openingscollege* all students, freshmen and senior students, who were expected to follow his classes in the year to come gathered to listen to the professor's lecture that had the character of a welcoming speech as well as the character of some kind of announcement of what was coming. Sometimes it contained warnings for new students, sometimes it was a lecture about some topicality. An example of the last was the publishing of a new and disturbing book, for instance Ernest Renan's *Vie de Jésus* in 1863. The Opening Lessons are found in all universities and in all subjects, but it was mostly the theologians that had them printed. And especially at Utrecht University they were printed quite often. For my purpose it is important that these lectures are repeatedly about the problem of the modern scientific approach, especially the approach of the natural sciences in the divinity faculties. Themes were for example the role of textual criticism, causality and the epistemological status of miracles and supernatural phenomena. They are interesting, because one can see these theologians struggle with the new scientific demands. And it is also important to see that especially this kind of lecture is used to address the freshmen in the lecture

halls about this specific topic. They were warned that they would be confronted in the next years with ideas that might come as a shock to them. The simple devotion they learned at home would be met with new scientific ideas about for instance the divine nature of Christ, something they maybe never questioned before. The freshmen were also warned against the idea that the different professors all agreed about theological issues<sup>10</sup>.

In these lectures you can see the defense lines some orthodox theologians build up against modernity. On the other hand you can find in these lectures how they themselves struggled with this matter. Sometimes this led them to rather personal outpourings about their position and state of mind in relation to this problem. A few times their uncertainty was expressed in their view on the nature of the university as the place where they belonged, because its freedom of thought protected them from interference of the church (contrary to the catholic Seminarium where scientific content was dictated from Rome downwards) but which on the other hand was the place where disturbing new ideas were expressed. In summary, they hesitatingly accepted new scientific ideas, but also acknowledged how threatening modern scientific research could be to the devote Christian. In their Opening Lessons some of them spoke quite honestly about their own doubts and their difficult position between scientific truth and revealed truth with a capital T.

The Opening Lesson is thus a special kind of lecture with its own rules. Sometimes they were printed, sometimes we only know about them from lecture notes taken by students which we find in the archives. The special status of these lessons can also be found in the autobiography of a Leiden professor in the Faculty of Medicine, who named those lectures *speeches*, using the English word and thus indicating that they were different from other types of lessons. The same word was used a few years later by an Utrecht professor in Theology, indicating that the opening lecture had more the shape of a talk, not so official, more personal.

### *Conclusion*

These are some first thoughts about a project I am thinking of to study the way teaching changes in the nineteenth century. I am especially interested in the relationship between ideas about modern science on the one hand and the specific shape the lessons of the professor take. We saw how an influential neo-humanist professor in the first part of the nineteenth century could be so influential, not because he was a great scholar, but because he had a reputation as an outstanding teacher. It was partly through personal contact and especially through his survey lectures that he had such a huge influence. Not through exciting new scientific ideas. Then we saw a generation later a professor in the natural sciences who took the important step to bring his students into his laboratory. However, because he had certain ideas about education that are only partly about science education, he uses the lab only to train particular skills, like skills to use a microscope, but not to train his students as future scientists. His lab was in educational terms more a practicum than an experimental laboratory.

And then we saw the theologians, who were struggling with the whole idea of a scientific approach: they stood as it were between scientific truth and revealed truth with a capital T. It was hard for them

<sup>10</sup> LEEN DORSMAN, 'Toespraak bij de hervatting zijner lessen: universiteit, wetenschap en religie in het (theologisch) openingscollege in de tweede helft van de negentiende eeuw', in LEEN DORSMAN-PETER JAN KNEGTMANS, *Theologie, waarheidsliefde en religiekritiek*, «Universiteit en Samenleving», vol. 10, Hilversum, Uitgeverij Verloren, 2014, p. 9-25.

to tell their students such doubt in their regular classes, but they found a way to discuss the problem in their opening lessons at the beginning of each new academic year.

Thus, in the nineteenth century there seems to be an explicit relationship between the view on what science is or should be and the way the professors taught or maybe better: the shape of their lessons was adapted to their view on the idea of modern science. My contribution contains some preliminary remarks on this subject and a first attempt to get a grip on it, but I would like to investigate it further in a more elaborate project in the near future.

