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Inner Experience

An Analysis of Scientific Experience
in Early Modern Germany



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Abstract

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In the last decades a number of studies have shed light on early modern scientific experience. While some of these studies have focused on how new facts were forced out of nature in so-called experimental situations, others have charted long-term transformations. In this dissertation I explore a rather different facet of scientific experience by focusing on the case of the Prussian university town Halle in the period from the late seventeenth till the mid-eighteenth century. At this site philosophers, theologians and physicians were preoccupied with categories such as *inner senses*, *inner experience*, *living experience*, *psychological experiments* and *psychometrics*. In the study I argue that these hitherto almost completely overlooked categories take us away from observations of external things to the internal organisation of experience and to entirely internal objects of experience. Rather than seeing this internal side of scientific experience as mere theory and epistemology, I argue that it was an integral and central part of what has been referred to as the *cultura animi* tradition, that is, the philosophical and medical tradition of approaching the soul as something in need of cultivation, education, disciplination and cure.

The study contains four empirical chapters. In the first chapter I analyse the meaning and function of experience in Christian Wolff's philosophy understood as spiritual exercise and *cultura animi*. In the second chapter I examine experience in the theologian Hermann Francke's *cultura animi*, focusing particularly on the relation between scientific experience and what scholars have referred to as religious experience. In the third chapter I chart aesthetic experience in Alexander Baumgarten's aesthetics. In the fourth chapter I examine the role of experience in the medicine of Georg Ernst Stahl, Friedrich Hoffmann and their followers. The analysis of medical experience channels the discussion into questions regarding the relation between the *cultura animi* tradition and the kind of attitudes, practices and processes that have been connected to modern objectivity.

Keywords: scientific experience, inner experience, inner senses, living experience, psychometrics, psychological experiments, *cultura animi*, spiritual exercise, meditation, aesthetics, Pietism, Enlightenment, Christian Wolff, Hermann Francke, Alexander Baumgarten, Georg Ernst Stahl, Friedrich Hoffmann

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To my Family

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1. Writing histories of scientific experience

In recent decades historians of science and philosophy have brought to the fore the historicity of *scientific facts, truth, objectivity, evidence, probability* and *experience*.¹ These categories, previously held to be beyond the purview of history, have been exposed as dramatically moulded by historical context.² Scholars have explored the techniques regulating the manufacturing of facts and truths in the

¹ The history of scientific facts and truth has been studied at some length by Steven Shapin and Simon Schaffer. See: Simon Schaffer, "Making Certain," *Social Studies of Science* 14, no. 1 (1984): 137–52; Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985); Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994); Steven Shapin, *Never Pure: Historical Studies of Science as If It Was Produced by People with Bodies, Situated in Time, Space, Culture, and Society, and Struggling for Credibility and Authority* (Baltimore: Johns Hopkins University Press, 2010).

The emergence of scientific facts has also been charted by Barbara Shapiro: Barbara J. Shapiro, *A Culture of Fact: England, 1550–1720* (Ithaca, NY: Cornell University Press, 2000). Christian Licoppe has examined the notion of scientific evidence: Christian Licoppe, *La formation de la pratique scientifique: le discours de l'expérience en France et en Angleterre, 1630-1820*, Textes à l'appui. Série Anthropologie des sciences et des techniques (Paris: La Découverte, 1996).

Lorraine Daston and Peter Galison have charted objectivity from the mid-nineteenth century until the present in: Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007). See also: Lorraine Daston, "Objectivity and the Escape from Perspective," *Social Studies of Science* 22, no. 4 (1992): 597–618. Daston has also edited a volume on scientific observation: Lorraine Daston, "The Empire of Observation, 1600–1800," in *Histories of Scientific Observation*, ed. Lorraine Daston and Elizabeth Lunbeck (Chicago: The University of Chicago Press, 2011).

Ian Hacking has studied the history of statistics and probability: Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction and Statistical Inference*, 2nd ed. (Cambridge: Cambridge University Press, 2006).

Peter Dear has looked at the concept of experience in the early modern period: Peter Dear, "Totius in Verba: Rhetoric and Authority in the Early Royal Society," *Isis* 76, no. 2 (1985): 144–61; Peter Dear, "Jesuit Mathematical Science and the Reconstruction of Experience in the Early Seventeenth Century," *Studies in History and Philosophy of Science* 18, no. 2 (1987): 133–75; Peter Dear, "From Truth to Disinterestedness in Seventeenth Century," *Social Studies of Science* 22, no. 4 (1992): 619–31; Peter Dear, *Discipline and Experience: The Mathematical Way in the Scientific Revolution, Science and Its Conceptual Foundations* (Chicago: The University of Chicago Press, 1995); Peter Dear, "The Meanings of Experience," in *The Cambridge History of Science Volume 3: Early Modern Science*, ed. Katharine Park and Lorraine Daston (Cambridge: Cambridge University Press, 2006); Peter Dear, *The Intelligibility of Nature: How Science Makes Sense of the World* (Chicago: The University of Chicago Press, 2006).

² Recent historians of science have tended to move from "concepts" to "categories". In so doing they underline that the phenomena they study must be approached as essentially social and practical rather than just theoretical. Following his line of thought, throughout this dissertation I refer to epistemic categories such as scientific experience, or, more specifically, inner experience, living experience and the like.

laboratory and in the field, as well as the ways in which these were reproduced and circulated in the larger community. As part of this focus, a number of ground-breaking studies have shed light on the role of experience in scientific knowledge production.³

Steven Shapin and Simon Schaffer have studied British experimental philosophy, and thus drawn attention to the way in which natural philosophers in the early modern period gathered to observe how new facts were forced out of nature in so-called experimental situations.⁴ Other scholars, such as Peter Dear, Katharine Park and Lorraine Daston, have analysed long-term transformations, focusing particularly on the transition from Aristotelian-scholastic to experimental experience.⁵ While these lines of analysis have provided valuable insights, one striking tendency still remains: regardless of the variety and scope of the studies, scientific experience has been analysed primarily in terms of experiments and observations of things in nature.

In this study I explore a rather different facet of scientific experience by focusing on the case of the Prussian university town of Halle from the late seventeenth until the mid-eighteenth century. Here philosophers, theologians and physicians such as Christian Wolff, Hermann Francke, Alexander Baumgarten, Georg Ernst Stahl, Friedrich Hoffmann and others became preoccupied with categories such as *inner senses*, *inner experience*, *living experience*, *psychological experiments* and *psychometrics*.⁶ These hitherto overlooked categories take us away from things in nature towards the internal organisation of experience and to completely internal objects of experience, thereby calling for a revision of some of the scholarly assumptions regarding the scope and limits of early modern scientific experience.

*The aim of this study is thus to analyse early modern scientific experience by focusing on categories such as inner senses, inner experience, living experience, psychological experiments and psychometrics.*⁷ Rather than seeing these categories as abstract theoretical con-

³ Dear, “Totius in Verba”; Dear, “Jesuit Mathematical Science”; Dear, “From Truth to Disinterestedness”; Dear, *Discipline and Experience*; Dear, “The Meanings of Experience.”

⁴ Shapin and Schaffer, *Leviathan and the Air-Pump*; Shapin, *A Social History of Truth*.

⁵ Dear, “The Meanings of Experience”; Dear, *Discipline and Experience*; Dear, “From Truth to Disinterestedness”; Dear, “Jesuit Mathematical Science”; Dear, “Totius in Verba”; Katharine Park, “Observation in the Margins, 500–1500,” in *Histories of Scientific Observation*, ed. Lorraine Daston and Elizabeth Lunbeck (Chicago: The University of Chicago Press, 2011); Daston, “The Empire of Observation.”

⁶ Here it is again worth remarking that I work in the tradition of the historical analysis of epistemic categories. Approaching these as “categories” rather than “concepts” is a way of acknowledging that scientific knowledge production is essentially social and practical.

⁷ This study analyses early modern scientific experience. As such it should be seen as a contribution to the recent historisation of epistemic categories such as *truth*, *objectivity* and the like. This means that it has little to do with the phenomenological analysis of *lived experience* (which has nothing to do with *living experience*) and *life-worlds*, and with the related attempt to analyse subjective experience throughout history. For the phenomenological approach see for instance: Wolfgang Müller-Funk, *Erfahrung und Experiment: Studien zu Theorie und Geschichte des Essayismus* (Berlin: Akademie-Verlag, 1995).

tributions to an early modern epistemological project or as embryonic attempts at modern scientific disciplines, I analyse them in terms of *spiritual exercise* and *cultura animi*. The *cultura animi* tradition featured a broad spectrum of discourses providing analyses of the faculties of the soul as well as practical exercises regarding how to cultivate, educate, train, govern, discipline and cure the mind from the passions. In this dissertation I claim that the *cultura animi* tradition provides a key for how to understand categories such as inner senses, inner experience, living experience and the like. Before turning to the more specific meaning and context of the *cultura animi* tradition, however, I will briefly account for the delimitations of the study.

Geographically and chronologically the study is delimited to Halle and to the period from the late seventeenth until the mid-eighteenth century. With the foundation of the new university in 1694, the town became the home of some of Germany's most reform-oriented and radical theologians, philosophers and physicians. The combination of different interests and approaches gave rise to an extraordinarily rich intellectual culture that dominated the German intellectual landscape throughout the first half of the eighteenth century. In this culture intellectuals strived to experience, understand and articulate the soul, often by using terms and phrases such as inner experience, living experience and the like. After the 1750s, however, the Halleian discussion of the soul would, if not disappear, at least change in ways that means it falls outside the scope of this dissertation.

Thematically the study spans a broad spectrum of fields and disciplines such as philosophy, rhetoric, medicine and theology. A challenge here has been to identify and integrate different scholarly discussions in the analysis. This includes, for example, the analysis of scientific observations and experiments within the history of science, the analysis of imagination and the use of vivid images within the history of rhetoric, the analysis of imaginary illness and the role of imagination within the history of medicine and the analysis of the internal senses within Pietism studies. Throughout the dissertation I use these analyses, which often exist separately without much interdisciplinary overlap, to reconstruct and shed light on categories such as inner experience and inner senses. In this sense the study is to be regarded as interdisciplinary.

The geographical, chronological and thematic delimitations raise questions of generalisation. While the study focuses on Halle in the period from the late seventeenth until the mid-eighteenth century, my ambition is to shed light on larger epistemic structures and processes. Ideally, my study will thus open up a window towards and encourage further study of these structures and processes.

Towards a new understanding of early modern philosophy and science

In recent decades an increasing number of scholars have pushed for a new history of early modern philosophy and science. Questioning the predominant line of exegetic and epistemological readings, these scholars have broken new ground by analysing early modern philosophy and science in terms of *practice*, *spiritual exercise* and *cultura animi*. In this section I argue for the necessity of adopting a similar reading when analysing categories such as inner senses, inner experience and living experience.

For the last two centuries the history of philosophy has been characterised by what Knud Haakonssen has referred to as the *epistemological paradigm*, that is, the idea that the theory of knowledge has been and should be at the core of all sound philosophy.⁸ Guided by this idea, historians of philosophy have tended to write the history of philosophy as a series of more or less successful attempts to solve epistemological problems. According to Haakonssen this tendency predominated almost universally until the so-called new history gained ground during the course of the 1970s and 1980s.⁹ At the core of this new history was a pronounced contextual awareness that led historians of philosophy to acknowledge the importance of placing different philosophical problems in the contexts in which they were written. This not only contributed to a more accurate historical understanding but also offered a unique and necessary historical perspective on philosophy and philosophical problems.¹⁰ One historian of philosophy who has been pivotal for my own study and who pushed strongly for the contextual approach was Pierre Hadot.¹¹ Hadot broke with the tradition of epistemological readings, which had often depicted ancient philosophy as inconsistent and embryonic, and argued that ancient philosophy was a radically different activity than what we recognise as philosophy today. Rather than being a merely theoretical activity, ancient philosophy mingled theory and practice in an attempt to affect the entire human organism. To be engaged in philosophy was a way of life, a way of improving and perfecting one's own self through regular spiritual exercises. Hadot's radical reinterpretation of ancient philosophy has become an eye-opener for a generation of historians of philosophy. Of particular interest is the recent tendency to also apply this perspective

⁸ Haakonssen Knud, "The Idea of Early Modern Philosophy," in *Teaching New Histories of Philosophy: Proceedings of a Conference, University Center for Human Values, Princeton University, April 4-6, 2003*, ed. J. B. Schneewind (Princeton, NJ: Princeton University, 2004).

⁹ Ibid.

¹⁰ Mark Larrimore, "Evil and Wonder in Early Modern Philosophy: A Response to Susan Neiman," in *Teaching New Histories of Philosophy: Proceedings of a Conference, University Center for Human Values, Princeton University, April 4-6, 2003*, ed. J. B. Schneewind (Princeton, NJ: Princeton University, 2004).

¹¹ Pierre Hadot, *Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault*, ed. Arnold I. Davidson, trans. Michael Chase (Malden: Blackwell, 1995); Pierre Hadot, *What Is Ancient Philosophy?*, trans. Michael Chase (Cambridge, MA: Harvard University Press, 2002).

on early modern philosophy. The case of Descartes has especially captured the interest of scholars who have analysed in some detail his education in Christian spiritual exercises at the Jesuit school at La Flèche.¹² As part of the daily routine, these exercises aimed at training and directing the mind towards God. It was this experience of therapeutic self-practices that eventually fuelled and nourished Descartes' methodological project, with its emphasis on the cultivation of the mind.¹³

In parallel to reconsidering the *epistemological paradigm*, historians of science have similarly broken with the twentieth century history of science and especially with the idea of "the scientific revolution."¹⁴ Dissatisfied with this analysis they have rejected both the idea of any singular temporally and spatially located scientific revolution and the idea of any unified science whatsoever. Instead, they agree that there was an array of different cultural practices aimed at understanding, controlling and explaining nature. The focus on scientific practices went hand in hand with the view of scientific knowledge as a social product, something that in turn aroused an interest in the more precise ways in which scientific facts and truths were produced by people in concrete situations. In the previously mentioned study *Leviathan and the Air-Pump*, Shapin and Schaffer examine the way in which scientific knowledge was produced in experimental situations.¹⁵ These situations were often public events where people gathered in order to witness how hitherto unknown facts were forced out of nature through the use of experimental devices such as air-pumps and microscopes. At the core of these situations were a number of epistemic techniques. These included frequent replications of experiments, scrupulous note-taking and the use of a number of reliable witnesses, preferably gentlemen from the upper classes. Taken together these techniques served to establish new facts of nature, which were then circulated and spread to the larger community. This process relied on what has been referred to as virtual witnessing, meaning that the larger community could later virtually witness the experiments being conducted by reading rigorous literal descriptions and illustrations of the experiments. In its entirety, the whole process, from the actual performance of the experiment to the circulation of the new knowledge to the larger community, points to the essentially social character of early modern knowledge production.

¹² For a more detailed discussion of such readings see the next chapter.

¹³ For this particular claim see: Arthur Thomson, "Ignace de Loyola et Descartes: L'influence des exercices spirituels sur les oeuvres philosophiques de Descartes," *Archives de philosophie* 35 (1972): 61–85; Walter John Stohrer, "Descartes and Ignatius Loyola: La Flèche and Manresa Revisited," *Journal of the History of Philosophy* 17, no. 1 (1979): 11–27; Gary Hatfield, "The Senses and the Fleshless Eye: The Meditations as Cognitive Exercises," in *Essays on Descartes' Meditations*, ed. Amélie Oksenberg Rorty (Berkeley: University of California Press, 1986); Bradley Rubidge, "Descartes's Meditations and Devotional Meditations," *Journal of the History of Ideas* 51, no. 1 (1990): 27–49.

¹⁴ Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996), 3.

¹⁵ Shapin and Schaffer, *Leviathan and the Air-Pump*.

Continuing along the same line of analysis, Shapin has further cultivated the social track in *A Social History of Truth*, arguing that early modern experimental philosophy relied on relations of trust.¹⁶ In early modern British experimental philosophy trust was embodied in the gentleman, the early modern paradigm of the kind of person one could trust to speak the truth. As a member of the British elite the gentleman was a trustworthy representative for disinterested reason, a man of his word, able to control interferences from lower impulses and passions. As such he served as a basic constituent in natural philosophy as a system of knowledge production both by working as a trustworthy agent within the system and by being identified as a warrantor for truth by the larger community. By highlighting the central role of the gentleman Shapin shows that people served a much more profound and integral part in the production of scientific truths than just being the performers of the experiments.

Peter Harrison acknowledges Shapin and Schaffer's interpretation that the solutions to the problems of knowledge were also the solutions to the problem of social order. The reason why this is true, however, is that the problems of knowledge and of social order in the Middle Ages and the early modern period had a common origin in the more deep-seated problem of human sin. In *The Fall of Man and the Foundations of Science* Harrison argues that the myth of the Fall of man informed the problem of knowledge and influenced the discussion of method in early modern nascent natural philosophy.¹⁷ According to the myth, Adam had been in possession of perfect knowledge in paradise. With his Fall came the deprivation of knowledge and the hopeless regression of reason and the senses to the level where all knowledge was fragmentary and incomplete. Harrison's story of the new science is not the story of an optimistic belief in human reason and its capacities, but the story of the deprived condition of the human intellect and of the attempts to find ways to compensate for this deficiency. Harrison makes the interesting case that the new scientific practice emerged as a direct response to the problem of the Fall. As a social practice the new experimental philosophy dealt with the Fall by securing knowledge through collaboration. The epistemic techniques that Shapin and Schaffer have presented as characteristic for experimental philosophy were thus ways of ensuring truth despite the deficiency of the individual intellect.

While historians of philosophy and science struggled with similar problems and brought forth similar shifts in perspective quite independently, one recent tendency is the conflation of Hadot's analysis and the new social history of science.¹⁸ This is especially relevant in terms of the conflation of analytical con-

¹⁶ Shapin, *A Social History of Truth*.

¹⁷ Peter Harrison, *The Fall of Man and the Foundations of Science* (Cambridge: Cambridge University Press, 2007).

¹⁸ Ian Hunter, *Rival Enlightenments: Civil and Metaphysical Philosophy in Early Modern Germany* (Cambridge: Cambridge University Press, 2001); Matthew L. Jones, *The Good Life in the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (Chicago: The University of Chicago Press,

cepts such as *spiritual exercises*, scientific *practices* and scientific *personhoods* or *personas*. Fused together these concepts have brought about a revaluation of early modern philosophy. In the study *Francis Bacon and the Transformation of Early-Modern Philosophy*, Stephen Gaukroger argues that Bacon reformed both the practice and the practitioners of philosophy by effecting a fundamental transformation of philosophy from a contemplative discipline exemplified in the *persona* of the moral philosopher, to a communal enterprise exemplified in the *persona* of the experimental philosopher.¹⁹ What replaced the contemplatively and esoterically oriented moral philosopher was thus the experimental philosopher, a person who planted his observations and experiments firmly in the public realm.

A second study following a similar line of analysis is Matthew L. Jones' *The Good Life in the Scientific Revolution*.²⁰ Jones depicts the triptych of Descartes, Pascal and Leibniz, showing how they all envisioned their scientific work as useful for cultivating virtue and pursuing a good life. While Shapin, Schaffer and others have emphasised the importance of gentlemanly virtues in the production of scientific knowledge in the early modern age, Jones examines mathematics and philosophy as spiritual exercises pursued for the purpose of realising a good virtuous life. What Descartes, Pascal and Leibniz saw in mathematics and philosophy were thus ways of exercising and perfecting reason. Siding with recent historians of science and philosophy, Jones breaks with the epistemological reading by revealing early modern mathematics and philosophy not as merely theoretical attempts to solve the problem of knowledge, but as socially inclined therapeutic practices where the pursuers explored different ways of cultivating and perfecting the mind.

A third treatise that further supports Hadot's perspective is Sorana Corneanu's excellent study *Regimens of the Mind*.²¹ Corneanu rejects the view of the early modern experimental philosopher as a practitioner of a science based on an impersonal method that required the suspension of personal virtues. To put it more clearly, she rejects the reading of the British experimental philosopher as a representative for a disengaged objective attitude. In this regard, Corneanu levels criticism at Gaukroger, Harrison and Shapin. "According to Peter Harrison, objectivity was a feature of the external dependability of impersonal methods, meant to placate individual corruption. According to Stephen Gaukroger, objectivity was an outcrop of the value of intellectual honesty that went into the making of the new persona of the natural philosopher."²² Likewise, Shapin and Schaffer have recognised objectivity as "a moral value that comes into play at

2006); Sorana Corneanu, *Regimens of the Mind: Boyle, Locke, and the Early Modern Cultura Animi Tradition* (Chicago: The University of Chicago Press, 2011)

¹⁹ Stephen Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy* (Cambridge: Cambridge University Press, 2001).

²⁰ Jones, *The Good Life in the Scientific Revolution*.

²¹ Corneanu, *Regimens of the Mind*.

²² *Ibid.*, 11.

the level of the community. But it is also the case that, as such, it remains exterior to the person and is thus indifferent to the question of the cultivation of self-transforming virtues.”²³ In contrast to these views Corneanu understands the features of “objectivity” as “virtuous dispositions acquired by disciplines meant to transform the “temper” of the philosophers’ minds.”²⁴ By interpreting British experimental philosophy as a deeply therapeutic self-transformative moral practice, Corneanu raises the importance of what she refers to as the *cultura animi* tradition. At the core of this tradition was the genre of texts dealing with the human soul and its faculties. These texts approached their subject as fundamentally *paideia* or *askesis* rather than purely *theoria*. That is, they offered not only analysis of the psyche and its faculties but also prescriptions for how to remedy, cultivate, educate and train the mind. As this tradition funnelled into natural philosophy, already existing practices for how to exercise the faculties of judgement and will, or how to master passions and affects, merged with the new interest in scientific method. To exercise one’s own ability to think methodologically was to exercise and cultivate one’s moral character.

Another study that usefully conjoins Hadot’s notion of spiritual exercises with Shapin and Schaffer’s social history of science is Ian Hunter’s reading of Leibniz in *Rival Enlightenments*.²⁵ Hunter draws on the concept of *persona* to show that Leibniz’s philosophy relied on exercises of abstraction aimed at forming a certain kind of self. Treating empirical objects as confused perceptions of quasi-divine clear and distinct ideas, Leibniz’s *Principes de la philosophie ou monadologie* (*The Principles of Philosophy, or Monadology*, 1714) was designed to cause a turn from the outer to the inner world. Hunter criticises the usual epistemological reading of Leibniz and argues that Leibniz’s method of abstraction should be understood as a speculative practice performed by the philosopher on himself.²⁶ What was the overall purpose of this exercise? Drawing on Renaissance neo-Platonism, Leibniz understood virtue to be the habit of acting in accordance with wisdom. Wisdom, which Leibniz defined as the “science of felicity”, was not just theoretical, but resulted from the exercise in which the philosopher perfected his own understanding of the world. By perfecting his cognition of the world the philosopher also perfected his own being as a philosopher. Hunter’s analysis does not stop at placing Leibniz in the context of spiritual exercises. On the contrary, he shows that Leibniz managed to tap into the cultural authority of the *Schulmetaphysik* and channel it into a new conception of philosophy and the philosopher. This undertaking should be understood against the background of the civil philosophers’ attempt to extirpate the whole genre of natural theology. In contrast to civil philosophers such as Samuel Pufendorf and Christian Thomasius, Leibniz rechanneled natural theology rather

²³ Ibid.

²⁴ Ibid.

²⁵ Hunter, *Rival Enlightenment*.

²⁶ Ibid., 109.

than extirpate it. Hunter argues that Leibniz was in fact “attempting to transfer the philosophical meditation of the Christian faith – together with all the power and prestige attached to it – from the custodianship of confessional theologians to that of rationalist metaphysicians.”²⁷ According to Hunter, we see here the emergence of a philosophical *persona* that would be advanced by many eighteenth century German philosophers, from Leibniz to Wolff and Kant.

Having accounted for some of the recent readings of early modern philosophy and science I will now highlight three principal features that have inspired the present study. The first and maybe most salient feature is the shift from abstract theories to concrete practices and exercises. With practice as the new catchword, historians of science have explored the many ways in which scientific knowledge was produced in concrete situations, by whom it was produced and how it was communicated. Similarly, historians of philosophy have replaced the picture of philosophy as theory with that of philosophy as practice and spiritual exercise.

The second feature is the acknowledgement of philosophy as moral education and *cultura animi*. Shapin has for instance argued that British experimental philosophy was intimately linked to the gentleman as a trustworthy truth-teller. While Shapin thus sees the gentleman as an important cog in the wheel of knowledge production, Jones instead sees scientific knowledge production as a cog in the creation of a moral self. Following a similar line of analysis Corneanu argues that British experimental philosophy was pursued as a regimen of the mind aimed at temperance and control. Similarly, Hunter charts Leibniz’s philosophy as a systematic exercise in how to perfect the mind, thereby realising the *persona* of the metaphysical sage as the embodiment of virtue and wisdom.

The third feature is the tendency to analyse philosophical *personhoods* or *personae*. While the analytical concept of *persona* has been ascribed various meanings, recent historians of philosophy and science have often used it to capture the manifestation and representation of an office.²⁸ While Gaukroger has argued that Bacon effected a transition from the *persona* of the moral philosopher to that of the experimental philosopher, Hunter sees in Leibniz’s texts the *persona* of the metaphysical sage. When I analyse various personhoods or *personae* in this study I lean against this kind of social constructivist usage of *persona*.

²⁷ Ibid., 115.

²⁸ For the usage of *persona* as an analytical category within history see: Conal Condren, “The Persona of the Philosopher and the Rhetorics of Office in Early Modern England,” in *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*, ed. Stephen Gaukroger, Ian Hunter, and Conal Condren (Cambridge: Cambridge University Press, 2009); Stephen Gaukroger, “The Persona of the Natural Philosopher,” in *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*, ed. Conal Condren, Stephen Gaukroger, and Ian Hunter (Cambridge: Cambridge University Press, 2006); Lorraine Daston and Otto H. Sibum, “Introduction: Scientific Personae and Their Histories,” *Science in Context* 16, no. 1–2 (2003): 1–8.

In this study the reading of early modern philosophy as practice, spiritual exercise and *cultura animi* provides the key to categories such as inner experience. That is, only by acknowledging early modern philosophy and science as practical cultures occupied equally with the soul and its faculties as with the world and its phenomena, can we hope to understand the early modern preoccupation with the internal side of experience. Another way of expressing this would be to say that the failure to acknowledge the *cultura animi* has laid the ground for an analysis of experience as something restricted to the external senses and the external world. This dissertation is an attempt to break with this narrow focus.

It should by now be clear that the *cultura animi* provides the key to categories such as inner experience. But what do I mean by *cultura animi* more precisely, and how will I use it throughout the analysis? Corneanu uses *cultura animi* to capture a broad and trans-disciplinary spectrum of discourses, coming from various fields such as philosophy, psychology, rhetoric, theology etc.²⁹ Uniting these discourses was the analysis of the faculties of the mind as well as prescriptions for how to practically cultivate, educate, train, govern, discipline and cure the mind. By accentuating the common features of these discourses, Corneanu refers to the *cultura animi tradition*. In line with Corneanu's usage, I refer to the *cultura animi tradition*, or just to *cultura animi* or *culture of the soul* throughout this dissertation. Sometimes, however, I further subdivide this tradition into different *cultura animi* discourses, such as the *philosophical cultura animi discourse*, the *medical cultura animi discourse* and the *religious cultura animi discourse*. This involves singling out and focusing on a specific discipline, genre or discourse. The reason I use this further subdivision is that I am interested in how categories have taken form at the intersection between different *cultura animi* discourses. This, in turn, is important for my overall argument that early modern scientific experience must be understood in relation to a broad spectrum of discourses and practices that at first glance might seem to have little to do with scientific experience.

Material, method and translations

This study takes into account a wide range of sources. The bulk of the material consists of extensive academic textbooks, often over 500 pages long. In most cases these textbooks were written to present and teach a certain school, discipline or topic to Halleian students. As they are written for an educational purpose, the textbooks provide unique information regarding *how* to experience. For instance, they often include detailed instructions in how to observe, experiment etc. After the textbooks my source materials have included a large number of dissertations and other academic treatises. While being typically shorter and written in Latin rather than German, the dissertations have proved useful

²⁹ Corneanu, *Regimens of the Mind*, 4–5.

especially when it comes to the analysis of more technical topics such as the relation between the different internal senses. A third, less central, category of source materials has been dictionaries. In this dissertation I have used dictionaries to trace the impact and spread of concepts. In addition to textbooks, dissertations and dictionaries, I have also used a rather disparate collection of complementary sources such as biographies, correspondence, pamphlets, lecture catalogues and matriculation registers. These more peripheral sources have in some cases provided key information regarding how to understand and contextualise categories such as inner experience and living experience. This is for instance the case with Francke's biographical discussion of how *living experience* and *knowledge* played a vital role in his life. When categories such as these are discussed in private correspondence and personal notes – and here of course it remains to be determined how private these were – they can sometimes be successfully juxtaposed against the claims made in published texts.

Closely connected to the sources is the question of method. *How* do I analyse the selected sources? Firstly, I have identified texts containing terms and phrases such as *inner experience*, *inner senses*, *living experience*, *psychometrics*, *psychological experiment* etc. Secondly, I have analysed the meaning and functions of these terms and phrases. This analysis has not happened prior to the reconstruction of the cultural context. Rather, the cultural context is, so to say, extracted together with the meaning of terms and phrases. Throughout this dissertation I refer to this cultural context as the *cultura animi tradition* or sometimes as just *cultura animi* or *culture of the soul*.

My analysis differs from the typical line of epistemological reading on two principal counts. Firstly, whereas the epistemological reading tends to focus on a narrow selection of often highly abstract philosophical texts, I reconstruct categories such as inner senses and inner experience in a broad span of discourses taken from fields as varied as philosophy, rhetoric, medicine and theology. Secondly, whereas the epistemological reading has approached terms and phrases as abstract theories, I have put much effort in reconstructing not only the theoretical but also the practical function of categories such as the inner senses. To realise that the inner senses must be understood not only in terms of theories but also as practices and exercises, we only need to take a brief look at the role of memory and imagination in philosophical and scientific demonstrations, in medical therapies, in rhetorical exercises such as the production of vivid images, or in religious exercises such as penance or passion meditation. It is thus by taking into account several discourses belonging to various fields, and by approaching these equally as practical and theoretical, that it becomes possible to reconstruct categories such as internal senses and inner experience.

To summarise, the method revolves around the identification and reconstruction of a broad spectrum of discourses and practices. In particular the analysis of how inner senses, inner experience etc., were meant to work as practices and exercises, and in the longer run as integral parts of the early modern *cultura animi*, separates this study from the typical line of conceptual analysis that

characterises many of the traditional readings of Wolff, Francke and Baumgarten. These readings, I argue, tend to misunderstand the overall project of which these categories were part.

Most of the quotes in this dissertation are translations from German or Latin. In some cases I have used critical English editions. In other cases I have translated either from critical German editions or simply directly from the German or Latin originals. In order to make my analysis as transparent as possible I have chosen to always provide the original quotes in the footnotes.

Disposition

This dissertation is divided into four empirical chapters. The first chapter, *The Wolffian ladder of experience*, charts Christian Wolff's philosophy. In the first section of the chapter I focus on the quartet of Descartes, Leibniz, Tschirnhaus and Wolff. I particularly highlight the notion of clear and distinct ideas, concepts and definitions, placing these in the context of the early modern *cultura animi* tradition. In the second section I analyse the meaning and function of scientific experience as an integral part of this *cultura animi*. The main argument is that Wolff relied on an understanding of experience that revolved more around the internal processing and refinement of perceptions stored in memory than actual observations of things in nature. In the third section I complicate this picture by examining Wolff's engagement in experimental philosophy. The section raises principal questions regarding the relation between singular observations made in experimental situations and the kind of internal operation that Wolff relied on.

The second chapter, *Francke and the living experience of God* charts the Halleian theologian Hermann Francke and his notion of living experience. In the first section I analyse religious experience. Drawing on recent scholarly studies, I argue that early modern religious experience was typically inner, affectual and pursued through spiritual exercises such as prayer and meditation. Against this background the category of the living, and in particular Francke's notions of living experience, knowledge and faith, appear as specific, local manifestations of religious experience. In the last part of the section I finally show that the living played a crucial role in the kind of pedagogy that Francke himself referred to as *cultura animi*, a pedagogy that formed the backbone of the large-scale Halleian institution known as the Orphanage. In the second section I add complexity to the picture of living experience as a development of the larger category of early modern religious experience. More specifically, I argue that it also took form in connection with the philosophical and rhetorical discourses on vividness and vivid images. Taking this into account, Francke's notion of living experience appears as the joint product of both religious and scientific experience. These forms of experience, to varying extents and in contrast to scholarly assumptions, both revolved around the inner.

The third chapter, *Baumgarten and the aesthetic experience*, analyses the meaning and function of experience in Alexander Baumgarten's aesthetics. In the first section I place Baumgarten's aesthetics in the context of philosophy as *cultura animi* and spiritual exercises, thus opposing typical epistemological and disciplinary readings of aesthetics as a theory of knowledge or as an attempt to found a modern scientific discipline. In the second section I analyse aesthetic experience, here arguing that it, much like Francke's notion of living experience, gravitated towards the inner and the affectual. In support of this reading I problematise the dominating assumption that early modern experience was essentially about observing external things with the external senses. In the third and last section I argue that aesthetic experience took form as the joint product of scientific, rhetorical and religious discourses on experience, which, in turn, reflect the two overall forms of scientific and religious experience. Thus seen, aesthetics appears as yet another example of an essentially inner and affectual experience, fuelled by both scientific and religious experience.

In the fourth and last chapter, *Medicina cultura animi and experimental psychology*, I analyse the meaning and function of experience in the medicine of Georg Ernst Stahl and Friedrich Hoffmann and their followers. In the first section I analyse medical experience, focusing especially on the relation to early modern scientific experience. The main argument is that medical experience both reflects and differs from the kind of early modern scientific experience brought forth by recent historians of science. In the second section I analyse the meaning and function of experience in Stahlian medicine. In addition to underscoring the role of scientific observations and experiments, I draw attention to the way in which the Stahlian discourse also drew on the larger category of religious experience. Thus seen, the Stahlian discourse appears as yet another example of how scientific experience revolved around the inner and affectual. In the third section I focus on Hoffmann, and on the second generation of physiologists and their attempt to measure the human soul and to launch an experimental psychology. In relation to the Stahlian case, I draw attention to the way in which Hoffmann and his followers advanced an ideal of disinterested reason. For them the soul was just another object of scientific study, subordinated to the mechanical laws of nature. In the last part of the section I discuss how to understand this ideal in relation to the *cultura animi* and to the modern ideal of an objective, value-free science. The main argument is that eighteenth-century Halle provides key information regarding the process that turned philosophy and science from an essentially moral project to an enterprise relying on the ability to abstain from subjective emotions and values.



Figure 1. Die Stadt Halle. Ansicht von Süden, 1720, engraving, Archiv und Bibliothek der Franckeschen Stiftungen.



Figure 2. Halle in Sachsen, 1667, engraving, Archiv und Bibliothek der Franckeschen Stiftungen.



Figure 3. Abbildung der vornehmsten Prospecten der Königl. Preussisch-Magdeburg und des Saal-Craises Haupt-Stadt Halle, 1715, engraving, Archiv und Bibliothek der Franckeschen Stiftungen.

2. The Wolffian ladder of experience

In his *Lebensbeschreibung* (*Biography*, 1841) Christian Wolff describes his arrival in Halle late in 1706.³⁰ Encouraged and supported by Leibniz, his expectations of the recently founded university were high. As the engine of an on-going university reform, the University of Halle had quickly established itself as the most modern and progressive university in Germany, in large part due to its focus on a curriculum tailored for the education of public officials.³¹ Thus profiled, the University of Halle seemed to be the right place for Wolff to elaborate his vi-

³⁰ This introduction is based on Wolff's own account as presented in his *Lebensbeschreibung* (published by Heinrich Wuttke in 1841) and should thus not be seen as my own celebratory history of Wolff's triumphs. Christian Wolff, "Christian Wolffs eigene Lebensbeschreibung herausgegeben mit einer Abhandlung über Wolff von Heinrich Wuttke," in *Christian Wolff Biographie*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 10 (Hildesheim: Olms, 1980), 146; Johann Christoph Gottsched, "Historische Lobschrift des Weiland hoch- und wohlgebohrnen Herrn Christians, des H.R.R. freyherrn von Wolf," in *Christian Wolff Biographie*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 10 (Hildesheim: Olms, 1980), 29. In addition to Wolff's *Lebensbeschreibung* and Gottsched's *Lobschrift* the *Christian Wolff Biographie* also contains Friedrich Christian Baumeister's *Vita, facta et scripta Christiani Wolffii philosophi*. Taken together the three writings provide the principal sources on Wolff's life.

Although this dissertation revolves round intellectuals in the Prussian university town Halle, I will keep the discussion of the town to a minimum. For the history of early modern Halle see: Thomas Müller-Bahlke and Holger Zaunstöck, eds., *Das Ansehen der Stadt: Halle in historischen Ansichten* (Halle: Verlag der Franckeschen Stiftungen, 2009); Werner Freitag, Andreas Ranft, and Katrin Minner, *Geschichte der Stadt Halle* (Halle: Mitteldeutscher Verlag, 2006); Werner Freitag, *Halle 806 bis 1806: Salz, Residenz und Universität: Eine Einführung in die Stadtgeschichte* (Halle: Mitteldeutscher Verlag, 2006); Holger Zaunstöck, ed., *Halle zwischen 806 und 2006: Neue Beiträge zur Geschichte der Stadt* (Halle: Mitteldeutscher Verlag, 2001).

³¹ This point has been made by both Notker Hammerstein and Günter Mühlhpfordt who in addition to the connection to the Prussian state also render the University of Halle a central role in the emerging German Enlightenment. See: Notker Hammerstein, "Halles Ort in der deutschen Universitätslandschaft der Frühen Neuzeit," in *Aufklärung und Erneuerung: Beiträge zur Geschichte der Universität Halle im ersten Jahrhundert ihres Bestehens (1694–1806)*, ed. Günter Jerouschek and Arno Sames (Hanau: Verlag Werner Dausien, 1994); Notker Hammerstein, "Die deutschen Universitäten im Zeitalter der Aufklärung," *Zeitschrift für historische Forschung* 10 (1983): 73–89; Günter Mühlhpfordt, *Halle-Leipziger Aufklärung: Kernstück der Mitteldeutschen Aufklärung*, ed. Günter Mühlhpfordt (Halle: Mitteldeutscher Verlag, 2011); Günter Mühlhpfordt, "Halle-Leipziger Aufklärung – Kern der Mitteldeutschen Aufklärung, Führungskraft der Deutschen Aufklärung, Paradigma in Europa (Zur ersten und zweiten Blüte der Universität Halle)," in *Aufklärung und Erneuerung: Beiträge zur Geschichte der Universität Halle im ersten Jahrhundert ihres Bestehens (1694–1806)*, ed. Günter Jerouschek and Arno Sames (Hanau: Verlag Werner Dausien, 1994). For a detailed history of the University of Halle see also Schrader's classical two-volume study: Wilhelm Schrader, *Geschichte der Friedrich-Universität zu Halle* (Berlin, 1894).

sion of a new useful and all-encompassing philosophy. Once established as a professor in mathematics, however, Wolff soon encountered problems. Mathematics turned out to be a largely neglected discipline that attracted few students, while Christian Thomasius dominated philosophy in a way that left little room for competitors.³² Additionally, Wolff notoriously had a poor relationship with the university's theologians. Being thus stuck in an unrewarding position and surrounded by opponents, few circumstances seemed to point towards a breakthrough. However, this was soon to change as Wolff was unexpectedly offered the opportunity to take over teaching experimental philosophy from the physician Friedrich Hoffmann, who left Halle to be the physician-in-ordinary to the King in 1709.³³ After buying the right equipment Wolff thus started to teach experimental philosophy, probably by lecturing and experimenting in his own home.³⁴ It was through this new and fashionable discipline that Wolff first managed to attract a larger group of students. At the same time, he started to expand his teachings into the other domains of philosophy, something that eventually led him to writing the series of books referred to as the *German philosophy*.³⁵ In a programmatic preface Wolff boldly proclaimed that the

³² Wolff, "Christian Wolffs eigene Lebensbeschreibung," 146–47.

³³ Ibid.

³⁴ Ibid., 146. In the early modern age it was not unusual for philosophers to conduct experiments in their own homes. For the experimental site, see: Shapin, *Never Pure*, 59–88; Larry Owens, "Pure and Sound Government: Laboratories, Playing Fields, and Gymnasias in the Nineteenth-Century Search for Order," *Isis* 76, no. 2 (1985): 182–94. Although it's hard to prove that Wolff conducted experiments in his home in the early eighteenth century, it is well known that he did so as he returned to Halle and established himself in the house that today has been transformed into a museum (Christian Wolff Haus).

³⁵ Throughout this dissertation I will use the English shortnames in reference to Wolff's German philosophy. The German philosophy included the *German Logic* (*Vernünfftige Gedancken von den Kräften des menschlichen Verstandes und ihrem richtigen Gebrauch in der Erkenntnis der Wahrheit*, 1712/13), *German Metaphysics* (*Vernünfftige Gedancken von Gott, der Welt und der Seele des Menschen, auch allen Dingen überhaupt*, 1719/20), *German Ethics* (*Vernünfftige Gedancken von der Menschen Thun und Lassen zur Beförderung ihrer Glückseligkeit*, 1720), *German Politics* (*Vernünfftige Gedancken von dem gesellschaftlichen Leben der Menschen, und insonderheit dem gemeinen Wesen*, 1721), *German Experimental Physics* (*Allerhand nützliche Versuche*, 1721–23), *German Physics* (*Vernünfftige Gedancken von den Würckungen der Natur*, 1723), *German Teleology* (*Vernünfftige Gedancken von den Absichten der natürlichen Dingen*, 1724) and the *German Physiology* (*Vernünfftige Gedancken von dem Gebrauche der Theile in Menschen, Thieren und Pflanzen*, 1725). For the full references see: Christian Wolff, *Vernünfftige Gedancken von den Kräften des menschlichen Verstandes und ihrem richtigen Gebrauche in Erkenntnis der Wahrheit*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 1 (Hildesheim: Olms, 1978); Christian Wolff, *Vernünfftige Gedancken von Gott, der Welt und der Seele des Menschen, auch allen Dingen überhaupt*, ed. Charles A. Corr, Christian Wolff Gesammelte Werke, 1. Abt., Deutsche Schriften, Bd. 2 (Hildesheim: Olms, 1983); Christian Wolff, *Vernünfftige Gedancken von der Menschen Thun und Lassen, zu Beförderung ihrer Glückseligkeit, den Liebhabern der Wahrheit mitgetheilet*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 4 (Hildesheim: Olms, 2006); Christian Wolff, *Vernünfftige Gedancken von dem gesellschaftlichen Leben der Menschen und insonderheit dem gemeinen Wesen zur Beförderung der Glückseligkeit des menschlichen Geschlechts*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 5 (Hildesheim: Olms, 1996); Christian Wolff, *Allerhand nützliche Versuche, dadurch zu genauer Erkenntnis der Natur und Kunst der Weg gebähnet wird*, 3 vols., Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 20 (Hildesheim: Olms, 1982); Christian Wolff, *Vernünfftige*

only rescue for a world dominated by people who are “children in reason but men in malice” was the devoted cultivation of virtue and reason through philosophy.³⁶ But if Wolff’s proclamation may seem bold in its bombastic pomposity it was not completely without substance. It was underpinned by a massive encyclopaedic system driven by a scrupulously elaborated method that regulated exactly how a philosopher should organise his mind in order to reach cognitive and moral perfection. To engage in this system meant to devote oneself to hard and uncompromised mental training, that is, to engage oneself in a philosophical culture of the soul or a *cultura animi*. In this *cultura animi*, experience was cultivated and refined through an internal operation of the mind.

This chapter draws on recent scholarly studies to place Wolff within the context of philosophy as spiritual exercises and *cultura animi*.³⁷ According to this perspective, philosophical study was a matter of devoting oneself to the continuous practice of a number of spiritual exercises that ultimately served to perfect the mind and realise the ideal of the philosophical sage as the embodiment of

Gedanken von den Wirkungen der Natur, den Liebhabern der Wahrheit Mitgetheilet, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 6 (Hildesheim: Olms, 2010); Christian Wolff, *Vernünfftige Gedancken von den Absichten der natürlichen Dinge, den Liebhabern der Wahrheit Mitgetheilet*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 7 (Hildesheim: Olms, 1980); Christian Wolff, *Vernünfftige Gedancken von dem Gebrauche der Theile in Menschen, Thieren und Pflantzen, den Liebhabern der Wahrheit Mitgetheilet*, ed. Charles A. Corr, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 8 (Hildesheim: Olms, 1980).

Having finished his German philosophy Wolff set out to present his philosophy to a wider audience by writing a similar series of works in Latin, including among others a *Latin Logic*, *Psychology*, *Cosmology*, *Physics*, *Ethics* and *Politics*. Of these the most important works for this study have been the *Latin Logic* or *Philosophia rationalis sive Logica* (1728) and the *Psychologia empirica* (1732). The *Latin Logic* is available in three volumes in *Christian Wolff Gesammelte Werke*. Christian Wolff, *Philosophia rationalis sive Logica: Pars I*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 1.1 (Hildesheim: Olms, 1983); Christian Wolff, *Philosophia rationalis sive Logica: Pars II*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 1.2 (Hildesheim: Olms, 1983); Christian Wolff, *Philosophia rationalis sive Logica: Pars III*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 1.3 (Hildesheim: Olms, 1983). The first volume, which contains an overview of Wolff’s entire philosophy, has been translated into English by Richard J. Blackwell. See: Christian Wolff, *Preliminary Discourse on Philosophy in General*, trans. Richard J. Blackwell (Indianapolis: Bobbs-Merrill, 1963). The *Psychologia empirica* is, together with the *Psychologia rationalis*, available in *Christian Wolff Gesammelte Werke*. The prolegomena to the works have also been translated into English by Robert J. Richards. See: Christian Wolff, *Psychologia empirica, methodo scientifica pertractata, qua ea, quae de anima humana indubia experientiae fide constant, continentur et ad solidam universae philosophiae practicae ac theologiae naturalis tractionem via sternitur*, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 5 (Hildesheim: Olms, 1968); Christian Wolff, *Psychologia rationalis, methodo scientifica pertractata, qua ea, quae de anima humana indubia experientiae fide innotescunt, per essentiam et naturam animae explicantur, et ad intimiorem naturae ejusque auctoris cognitionem profutura proponuntur*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 6 (Hildesheim: Olms, 1994); Christian Wolff, “Christian Wolff’s Prolegomena to Empirical and Rational Psychology: Translation and Commentary,” trans. Robert J. Richards, *Proceedings of the American Philosophical Society* 124, no. 3 (1980): 227–39.

³⁶ Wolff, *German Metaphysics*, Vorrede. “Kinder am Verstande, aber Männer an Boßheit”.

³⁷ For a discussion of such readings see the next section.

virtue and wisdom. By reading Wolff in this manner, I break new ground in two ways. Firstly, I break with the long tradition of decidedly epistemological and exegetical readings of Wolff.³⁸ According to such readings, the central scholarly task is to analyse and situate Wolff within a tradition that revolves around a number of abstract, often epistemological philosophical problems. Secondly, I break with predominating histories of scientific experience.³⁹ While these histories have focused primarily on the ways in which early modern philosophers observed and conducted experiments, I'm more interested in how they organised experience internally, and how they made completely internal objects of experience the focal point. In this chapter the most revealing example of this inner side of scientific experience becomes Wolff's empirical psychology, that is, the empirical science of the soul.

This chapter starts by placing the rationalist quartet of Descartes-Leibniz-Tschirnhaus-Wolff in the context of early modern philosophy as spiritual exercises. In particular, I highlight the notion of clear and distinct ideas, concepts and definitions, arguing that these were the products of methodologically guided exercises rather than some epistemological criteria. Thus contextualised, the turn towards reason appears not as an epistemological turn but as a turn to an exercise-oriented *cultura animi*. The second section explores experience as an integral part of this *cultura animi*. I draw on recent histories of experience to make the case that Wolff build on an *Aristotelian-scholastic* understanding of experience where the internal refinement of perceptions stored in memory played a more important role than actual observations of things in nature. In the third section I argue that Wolff did not draw exclusively on the Aristotelian-scholastic experience, but that in his experimental philosophy he leaned towards what has been labelled experimental experience. While scholars have depicted these two forms of experience as based on opposite logics, I argue that Wolff, true to his ambition of overbridging the gap between scholastic and modern philosophy, incorporated experimental philosophy as an integral but subordinated part of his overall philosophy.

³⁸ This strand of epistemological and exegetical readings has traditionally occupied a predominating role within the field of Wolff studies. A central task here has been to situate Wolff within an epistemological tradition leading from Descartes to Kant. For good examples of such readings see: Mariano Campo, *Cristiano Wolff e il razionalismo precritico*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 9 (Hildesheim: Olms, 1980); Jean École, *La métaphysique de Christian Wolff*, 2 vols., Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente Bd. 12.1-2 (Hildesheim: Olms, 1990); Juan Ignacio Gómez Tutor, *Die wissenschaftliche methode bei Christian Wolff*, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente Bd. 90 (Hildesheim: Olms, 2004). Although scholarly thorough, these and similar readings have completely left out the Hadotian perspective, which at present is almost completely absent from the field.

³⁹ See: Shapin and Schaffer, *Leviathan and the Air-Pump*; Dear, *Discipline and Experience*; Dear, "The Meanings of Experience."

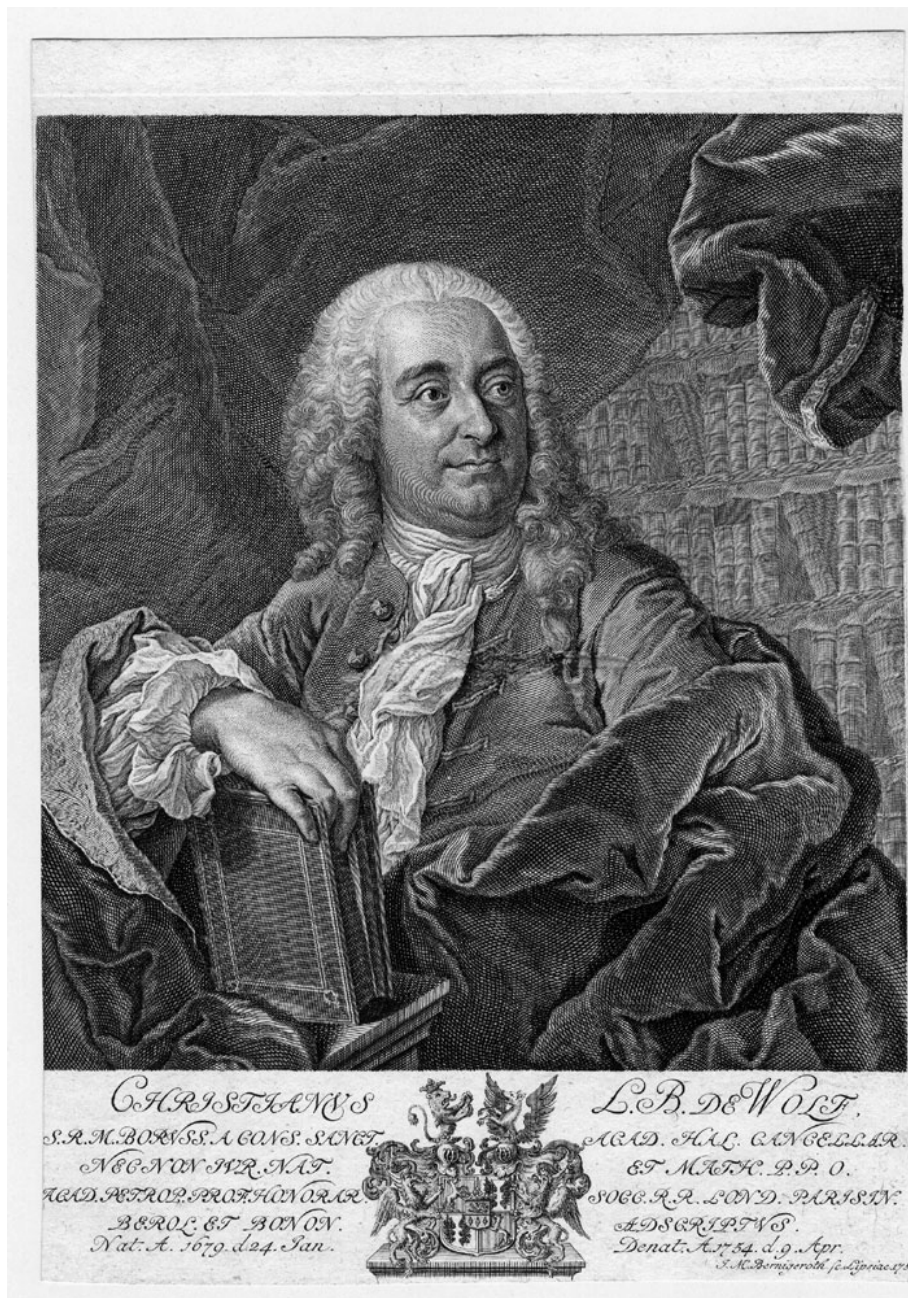


Figure 4. Johann Martin Bernigeroth, *Christianus L. B. de Wolff*, 1754, engraving, Universitätsbibliothek Salzburg.

A philosophical *cultura animi*

Hadot's reading of ancient philosophy as a way of life has doubtlessly struck a chord within the history of philosophy. While initially restricted to the case of ancient philosophy, recent scholars have now also started to acknowledge its significance for early modern philosophy.⁴⁰ Breaking with the epistemological paradigm, these scholars have argued that early modern philosophy took form in a melting pot of philosophical and religious exercises and that the ultimate reward of these exercises did not lie in epistemology per se, but in the perfection of reason and ultimately in the realisation of the philosophical sage as the embodiment of virtue and wisdom.⁴¹ I elaborate this idea further at the start of this chapter by charting the notion of clear and distinct as discussed in the tradition of Descartes, Leibniz, Tschirnhaus and Wolff, focusing first on recent readings and then contributing with my own analysis of Wolff. The principal point that I aim to make is to show that the notion of clear and distinct, which was at the very core of the early modern philosophical project, should be seen against the background of philosophy as spiritual exercises. If we allow our-

⁴⁰ For such readings see: Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*; Hunter, *Rival Enlightenment*; Jones, *The Good Life in the Scientific Revolution*; Corneanu, *Regimens of the Mind*.

In addition to these monographs there are also a number of articles situating Descartes in the context of philosophy as spiritual exercise. More specifically, these articles have scrutinised the *Meditationes de prima philosophia*, often connecting it to the religious spiritual exercises that Descartes was taught during his time at la Flèche. The question here has been whether and to what extent Descartes based the *Meditationes* on these exercises and whether the text therefore ought to be regarded as part of the meditation genre. See: Thomson, "Ignace de Loyola et Descartes: L'influence des exercices spirituels sur les oeuvres philosophiques de Descartes"; Stohrer, "Descartes and Ignatius Loyola: La Flèche and Manresa Revisited"; Amélie Oksenberg Rorty, "The Structure of Descartes' Meditations," in *Essays on Descartes' Meditations*, ed. Amélie Oksenberg Rorty, Major Thinkers Series 4 (Berkeley: University of California Press, 1986); L. Aryeh Kosman, "The Naive Narrator: Meditation in Descartes' Meditations," in *Essays on Descartes' Meditations*, ed. Amélie Oksenberg Rorty, Major Thinkers Series 4 (Berkeley: University of California Press, 1986); Hatfield, "The Senses and the Fleshless Eye"; Zeno Vendler, "Descartes' Exercises," *Canadian Journal of Philosophy* 19, no. 2 (1989): 193–224; Rubidge, "Descartes's Meditations and Devotional Meditations"; Dennis L. Sepper, "The Texture of Thought: Why Descartes' Meditations Is Meditational, and Why It Matters," in *Descartes' Natural Philosophy*, ed. Stephen Gaukroger, John Andrew Schuster, and John Sutton, Routledge Studies in Seventeenth-Century Philosophy 3 (London: Routledge, 2000); John Cottingham, "Descartes as Sage: Spiritual Askesis in Cartesian Philosophy," in *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*, ed. Conal Condren, Stephen Gaukroger, and Ian Hunter (Cambridge: Cambridge University Press, 2006); Theodor Kobusch, "Descartes' Meditations: Practical Metaphysics: The Father of Rationalism in the Tradition of Spiritual Exercises," in *Philosophy as a Way of Life: Ancients and Moderns: Essays in Honor of Pierre Hadot*, ed. Michael Chase, Stephen R. L. Clark, and Michael McGhee (Malden: Wiley-Blackwell, 2013).

⁴¹ See: Hunter, *Rival Enlightenment*; Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*; Jones, *The Good Life in the Scientific Revolution*; Conal Condren, Stephen Gaukroger, and Ian Hunter, eds., *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*, Ideas in Context 77 (Cambridge: Cambridge University Press, 2006); Corneanu, *Regimens of the Mind*; Michael Chase, Stephen R. L. Clark, and Michael McGhee, eds., *Philosophy as a Way of Life: Ancients and Moderns: Essays in Honor of Pierre Hadot* (Malden, MA: Wiley-Blackwell, 2013).

selves to look from this perspective, we will see that the turn to reason, which has long since been regarded as a characteristic of the “rationalists”, took form not as an epistemological doctrine but as *cultura animi* and spiritual exercise. This, in turn, has repercussions for the way in which we understand early modern scientific experience and in particular Wolff’s turn to the soul and to scientific psychology.

Descartes

The impact of the Roman Catholic tradition of spiritual exercises on Descartes has caught much scholarly attention.⁴² Gary Hatfield suggests that Descartes was influenced by two particular traditions of such exercises.⁴³ The first type was the Ignatian tradition, the essentials of which are expressed in Ignatius of Loyola’s *Exercitia spiritualia* (*Spiritual Exercises*, 1548).⁴⁴ These exercises revolved around three meditations aimed at the edification of the three powers of the soul – memory, understanding and will. First, memory, including imagination, was used to contemplate matters such as original sin, hell, and the passion of Christ, preferably by calling forth vivid images of perdition, the suffering of Christ and the like. From this, the understanding then drew implications regarding what to strive for and what to avoid, and lastly these implications were used to strengthen and fortify the will. Descartes, who was fostered at the Jesuit school at la Flèche, where the Ignatian exercises constituted a part of the daily routine, was well familiar with this approach. The second type of spiritual exercises was present in the Augustinian tradition.⁴⁵ Writers in this tradition further elaborated the Neo-Platonic tendency of Augustine. In the early seventeenth century this line of thought had a French proponent in the form of Eustace of St. Paul whose *Exercices Spirituels* (*Spiritual Exercises*, 1630) was widely read and

⁴² The impact of these traditions on Descartes has in fact been recognised by scholars since the 1930s. Since then the more exact nature of this impact has been debated. See: Thomson, “Ignace de Loyola et Descartes: L’influence des exercices spirituels sur les oeuvres philosophiques de Descartes”; Stohrer, “Descartes and Ignatius Loyola: La Flèche and Manresa Revisited”; Hatfield, “The Senses and the Fleshless Eye”; Rubidge, “Descartes’s Meditations and Devotional Meditations.”

For a critical edition of Descartes’s writings see Adam and Tannery’s: René Descartes, *Oeuvres de Descartes: Volume VIII*, ed. Charles Adam and Paul Tannery (Paris: Léopold Cerf, 1905). For a critical English translation see: René Descartes, *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, 3 vols. (Cambridge: Cambridge University Press, 1985).

⁴³ Hatfield, “The Senses and the Fleshless Eye.”

⁴⁴ In addition to Hatfield’s reading the impact of this particular tradition on Descartes has been studied by: Thomson, “Ignace de Loyola et Descartes: L’influence des exercices spirituels sur les oeuvres philosophiques de Descartes”; Stohrer, “Descartes and Ignatius Loyola: La Flèche and Manresa Revisited”; Rubidge, “Descartes’s Meditations and Devotional Meditations.”

⁴⁵ Hatfield’s thesis of the impact of the Augustinian tradition has been criticised by Rubidge. See: Rubidge, “Descartes’s Meditations and Devotional Meditations.”

discussed in the 1620s even though it was first published in 1630. The work made a strong impression on Descartes who first discovered it through his contact with the Parisian oratory in the 1620s.⁴⁶

As Hatfield and others have convincingly argued, the Roman Catholic tradition of spiritual exercises provided Descartes with a blueprint for his own mature philosophical project.⁴⁷ When writing the *Meditationes de prima philosophia* (*Meditations on First Philosophy*, 1641) he not only adopted a literal genre but actually structured the text as a philosophical meditation where the reader was led, through a process of doubt, from the external world to the internal world and all that could be clearly (*clarus, clairement*) and distinctly (*distinctus, distinctement*) perceived.⁴⁸ Following this path the reader does not simply accept an epistemological criterion but realises truth as a result of the meditative process.

Although Hatfield attaches great importance to the notion of clear and distinct ideas, he neither analyses its historical origin nor its more specific role in the *Meditationes* or in Descartes' overall philosophy.⁴⁹ One scholar who does,

⁴⁶ Hatfield, "The Senses and the Fleshless Eye," 48. See also: Robert Gotwald Remsburg, *Wisdom and Science at Port-Royal and the Oratory: A Study of Contrasting Augustinianism* (Yellow Springs, OH: The Antioch Press, 1940).

⁴⁷ For specific readings of the *Meditationes* as meditations see: Rorty, "The Structure of Descartes' Meditations"; Kosman, "The Naive Narrator: Meditation in Descartes' Meditations"; Hatfield, "The Senses and the Fleshless Eye"; Vendler, "Descartes' Exercises"; Sepper, "The Texture of Thought: Why Descartes' Meditationes Is Meditational, and Why It Matters."

Readings of Descartes' philosophy as spiritual exercises often opposes traditional epistemological and metaphysical readings. The claim is usually that such readings fail to account for the historical context wherefore they also fail to understand central aspects of Descartes philosophical project. While I think that this is true to some extent there are also many thorough epistemological and metaphysical readings. For examples, see: Georges Dicker, *Descartes: An Analytical and Historical Introduction*, 2nd. ed. (Oxford: Oxford University Press, 2013); Bernard Williams, *Descartes: The Project of Pure Enquiry*, Rev. ed. (London: Routledge, 2005); Margaret Dauber Wilson, *Descartes* (London: Routledge, 2015); Anthony Kenny, *Descartes: A Study of His Philosophy* (New York: Random House, 1968).

⁴⁸ René Descartes, "Meditations on First Philosophy," in *The Philosophical Writings of Descartes: Volume II*, ed. John Cottingham, Robert Stoothoff, and Dugald Murdoch, 3 vols. (Cambridge: Cambridge University Press, 1985). See also: René Descartes, "Meditationes de prima philosophia," in *Oeuvres de Descartes: Volume VIII*, ed. Charles Adam and Paul Tannery (Paris: Léopold Cerf, 1905).

⁴⁹ For Descartes' discussion of clear and distinct perceptions and ideas see especially: Descartes, "Meditations on First Philosophy," 24; Descartes, "Meditationes de prima philosophia," 35; René Descartes, "Discourse on the Method," in *The Philosophical Writings of Descartes: Volume I*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985), 120; René Descartes, "Discours de la méthode," in *Oeuvres de Descartes: Volume VI*, ed. Charles Adam and Paul Tannery (Paris: Léopold Cerf, 1902), 18; René Descartes, "Rules for the Direction of the Mind," in *The Philosophical Writings of Descartes: Volume I*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985), 13–15; René Descartes, "Regulae ad directionem ingenii," in *Oeuvres de Descartes: Volume X*, ed. Charles Adam and Paul Tannery (Paris: Léopold Cerf, 1908), 366–70; René Descartes, "Principles of Philosophy," in *The Philosophical Writings of Descartes: Volume I*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1985), 193–222; René Descartes, "Principia philosophiae," in *Oeuvres de Descartes: Volume VIII*, ed. Charles Adam and Paul Tannery (Paris: Léopold Cerf, 1905), 5–39.

however, is Stephen Gaukroger. Gaukroger argues that Descartes's notion of clear and distinct ideas has been traced back to two traditions.⁵⁰ First there is the Stoic tradition. According to the Stoics, knowledge is the result of cognitive impressions received from the external world.⁵¹ Insofar as these impressions are clear and distinct we can be assured of their truths. Although Descartes may have been familiar with this doctrine from Book 7 of Diogenes Laertius's *Lives of Eminent Philosophers*, Gaukroger considers it unlikely that he simply adopted it in its Stoic form.⁵² Instead, a more influential source of inspiration may have been the Quintilian rhetorical tradition. According to Quintilian, the success of the orator depended on his ability to create powerful psychological images that would cause the desired effects in the minds of the listeners.⁵³ To attain this ability Quintilian advocated the constant practice of numerous exercises, among which the production of vivid and clear images occupied a central role. Ideally, these vivid and clear images were produced to completely fill the souls of the listeners, thus making them prone to believe the orator. As a part of the overall vision of creating a new political and spiritual elite in early modern France, the leadership at La Flèche adopted Quintilian's rhetoric, including its many exercises, as the principal means of educating citizen-orators. Being educated at La Flèche, Descartes probably adopted the notions of vivid and clear images from the rhetorical tradition, thus making it the cornerstone of his own philosophical project.⁵⁴ If Gaukroger's hypothesis is correct, it shows that the notions of clear and distinct were originally forged within a psychological rather than an epistemological framework.

Following along the lines of Gaukroger's analysis, Matthew Jones argues that Descartes drew on the Renaissance rhetorical, poetical and musical traditions.⁵⁵ In these traditions Descartes saw the ideal of direct, intuitive and complete knowledge. Appealing to sensation and imagination, orators, poets and musi-

⁵⁰ Stephen Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas," *Journal of the History of Ideas* 53, no. 4 (1992): 585–602.

⁵¹ For the stoic theory of cognition see especially: Michael Frede, "Stoics and Skeptics on Clear and Distinct Impressions," in *The Skeptical Tradition*, ed. Myles Burnyeat, Major Thinkers Series 3 (Berkeley: University of California Press, 1983); Michael Frede, "Stoic Epistemology," in *The Cambridge History of Hellenistic Philosophy*, ed. Keimpe Algra et al. (Cambridge: Cambridge University Press, 2005); Richard Sorabji, *Perception, Conscience and Will in Ancient Philosophy* (Farnham: Ashgate, 2013).

⁵² Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas," 590. For the more exact passage in Laertius see: Diogenes Laertius, *Lives of Eminent Philosophers. Volume II*, ed. Robert Drew Hicks, The Loeb Classical Library 184 (Cambridge, MA: Harvard University Press, 1995), 7.46. Throughout this dissertation I have used the English titles when the originals are in Greek.

⁵³ For the more precise passage in Quintilian's *Institutio Oratoria* see: M. Fabius Quintilianus, *Institutio Oratoria*, ed. H. E. Butler, The Loeb Classical Library (Cambridge: Cambridge University Press, 1985), VI, ii, 27–35.

⁵⁴ Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas," 594. Similar points regarding Descartes' relation to the rhetorical tradition has been made by Jones: Jones, *The Good Life in the Scientific Revolution*, 55–86.

⁵⁵ Jones, *The Good Life in the Scientific Revolution*.

cians seemed to be able to affect souls in ways that far surpassed the ability of any philosopher. Descartes was inspired by this ability to move the soul, and applied it in his philosophical project. In particular, Jones stresses that it is in this context that Descartes' notions of intuition and clear and distinct ideas are to be viewed. In *Regulae ad directionem ingenii* (*Rules for the Direction of the Mind*, 1684/1701) Descartes argued that for intuition to happen the intuited propositions must be understood clearly and distinctly and all at once rather than bit by bit.⁵⁶ The ideal example of intuitive knowledge here is mathematics, according to Descartes. As soon as one sees a mathematical correlation or solution in one's inner eye, one instantly knows with perfect clarity and distinctness that it's true and that it cannot be otherwise. A further condition for intuition is that it requires a pure and attentive mind. In contrast to more epistemological readings of Descartes, Jones emphasises that we need to understand that we are dealing with properties of the mind that could and should be improved through exercises. Fostered in the tradition of spiritual exercises at La Flèche, the ultimate key to clear and distinct knowledge did not reside in some epistemological criterion but in devoted, diligent and frequent exercise and training.

Leibniz

Having placed Descartes' notion of clear and distinct ideas in the context of philosophy as spiritual exercises, Jones provides a similar reading of Leibniz.⁵⁷ He points out that Leibniz was initially quite positive to the possibility of clear and distinct knowledge of ideas themselves. However, in the course of his work with quadrature and series, he reconsidered his position and after 1672 he levelled some serious criticism at Descartes. As Jones has pointed out, Leibniz criticised Descartes' notion of intuitive truths for relying on ineffable standards for truth and falsity rather than systematic and clearly articulated criteria.⁵⁸ Such standards held little chance of producing wide assent to knowledge and thereby ending debates. What was worse, Descartes' notion poorly described real human knowledge of complex notions, since it falsely subsumed all knowledge under intuitive, that is, evident and simultaneously grasped knowledge. To avoid these pitfalls Leibniz set out to elaborate his own series of dichotomies for classifying human knowledge: clear (*clara*) versus obscure (*obscura*), distinct

⁵⁶ Descartes, "Rules for the Direction of the Mind," 13–15; Descartes, "Regulae ad directionem ingenii," 366–70.

⁵⁷ Jones, *The Good Life in the Scientific Revolution*. In comparison to the many readings of Descartes's philosophy as spiritual exercises there are only a few such readings of Leibniz. In addition to Jones's study see: Hunter, *Rival Enlightenment*.

⁵⁸ Jones, *The Good Life in the Scientific Revolution*, 220.

(*distincta*) versus confuse (*confusa*).⁵⁹ He proposed that if one has a clear notion, for instance, one could enumerate sufficient marks to distinguish one thing from another. If this notion is also distinct one can display all the features necessary for the formation of nominal definitions.⁶⁰ To exemplify, notions of colours tend to be clear and confused, meaning that they are easy to discern but yet difficult to capture in nominal definitions. In contrast, the goldsmith, for example, tends to have a clear and distinct conception of gold, meaning that in addition to having a clear conception of gold, he can also discern its essential features and wrap them up in a nominal definition.⁶¹ As suggested in this overview, the dichotomies provided Leibniz with a system for forming nominal definitions. As Jones points out, the role of these nominal definitions was to serve as a means in the quest for more complete knowledge. “Through forming and defending nominal definitions one comes to more distinct knowledge of the invariant qualities underlying phenomena and thereby can grasp and appreciate some part of the harmony behind apparent chaos.”⁶²

Leibniz sympathised with and praised the kind of spiritual exercises that Descartes promoted in a compendium entitled *De vita beata* (*The Good Life*, 1676).⁶³ In the very same text Leibniz also discussed meditation as “a general confession of one’s life to one’s self.”⁶⁴ To successfully pursue such activity it was important to write down the rules one should follow and keep a journal of one’s progress. Elaborating further on the topic of meditation, Leibniz composed a seven-step programme, starting with mathematics and ending with tranquility:

1. “start with mathematics”;
2. apply mathematics to the “laws of movement” and “to jurisprudence”;
3. continue with “first philosophy or the knowledge of God and the soul”;

⁵⁹ Gottfried Wilhelm Leibniz, “Meditations on Knowledge, Truth, and Ideas,” in *Philosophical Essays*, trans. Roger Ariew and Daniel Garber (Indianapolis: Hackett Pub. Co, 1989); Gottfried Wilhelm Leibniz, “Meditationes de cognitione, veritate et ideis,” in *Sämtliche Schriften und Briefe. Reihe 6 Bd. 4: Philosophische Schriften 1677–Juni 1690*, ed. Heinrich Schepers and Martin Schneider (Berlin: Akademie-Verlag, 2015).

⁶⁰ Although it falls outside the scope of this dissertation, Alberto Vanzo has drawn attention to the rather complex discussion of nominal definitions in German eighteenth-century philosophy. See: Alberto Vanzo, “Kant on the Nominal Definition of Truth,” *Kant-Studien: Philosophische Zeitschrift Der Kant-Gesellschaft* 101, no. 2 (2010): 150.

⁶¹ The dichotomy of *adequate-inadequate* (*adaequata-inadaequata*) was sometimes added to these categories. In its purest form adequate representations are complete and perfect. While sensual representations were seen as being always infected with a certain measure of confusion, adequate representations were purely intellectual. Moreover, since as a consequence of the fall of man the human being was forever deprived from absolute knowledge, adequate knowledge, in its purest form, was reserved for God.

⁶² Jones, *The Good Life in the Scientific Revolution*, 221.

⁶³ Gottfried Wilhelm Leibniz, “De vita beata,” in *Sämtliche Schriften und Briefe. Reihe 6 Bd. 3: Philosophische Schriften 1672–1676*, ed. Heinrich Schepers and Werner Schneiders (Berlin: Akademie-Verlag, 1980).

⁶⁴ *Ibid.*, 662. “une confession generale de sa vie à soy même”.

4. “establish a good morality”;
5. “divide the remaining time between the duties of life, conversation, the pleasures of the senses, experiences, imaginative things, abstract contemplations”;
6. “continuously practice the rules one has set for oneself”;
7. “pass the rest of life in profound tranquillity.”⁶⁵

In composing this list, Leibniz drew on Descartes who in the *Principia philosophiae* (*Principles of Philosophy*, 1644) had stressed that mathematics provided practices for the perfection of judgment, and in the longer term, for the realisation of a life regulated by philosophy.⁶⁶ In his reading of Leibniz’s philosophy as spiritual exercise, Jones draws a parallel to Hadot’s interpretation of Marcus Aurelius’s *Meditations*.⁶⁷ Just as the *Meditations* should be read less as a finished philosophical treatise than as a collection of spiritual exercises composed for one’s own usage, Leibniz’s enormous *Nachlass* of philosophical, mathematical and political papers were, at least in part, products of his own project for philosophical perfection.⁶⁸

Although more detailed and elaborate, Jones’s reading of Leibniz has much in common with the analysis provided by Hunter in *Rival Enlightenment*.⁶⁹ Focusing on Leibniz’s metaphysics, Hunter argues that Leibniz’s *Principes de la philosophie ou monadologie* (*The Principles of Philosophy, or Monadology*, 1714) was designed to cause a turn from the outer to the inner world.⁷⁰ “In fact, it is an exercise in unifying the person around a single “I” or self – a metaphysical moral personality – whose God-likeness consists in apprehending the apparently autonomous and differentiated historical world from a single point of a priori intellection.”⁷¹ In this project Leibniz’s two principles – *the principle of contradiction* and *the principle of sufficient reason* – played an important role. According to the former, one

⁶⁵ Ibid., 666–67. “commencer par les mathematiques”, “loix des mouvemens”, “à la jurisprudence”, “la premiere philosophie, ou connoissance de Dieu et de l’ame”, “établir une bonne morale”, “partager le reste du temps entre les devoirs de la vie, les conversations, les plaisir des sens, les experiences, les imaginations, les contemplations abstraites”, “practiquer continuellement les regles dont on est convenu avec soy même”.

⁶⁶ Descartes, “Principles of Philosophy”; Descartes, “Principia philosophiae.”

⁶⁷ Jones, *The Good Life in the Scientific Revolution*, 252. See also: Pierre Hadot, *The Inner Citadel: The Meditations of Marcus Aurelius*, trans. Michael Chase (Cambridge, MA: Harvard University Press, 2001).

⁶⁸ Jones, *The Good Life in the Scientific Revolution*, 226–28.

⁶⁹ Hunter, *Rival Enlightenment*; Ian Hunter, “The Love of a Sage or the Command of a Superior: The Natural Law Doctrines of Leibniz and Pufendorf,” in *Early Modern Natural Law Theories: Contexts and Strategies in the Early Enlightenment*; [Conference “European Natural Law Theories in the Early Enlightenment, 1650 - 1750” Held in Senate House, University of London, on September 2nd and 3rd 1999], ed. Tim J. Hochstrasser and Peter Schröder, Archives Internationales D’histoire Des Idées 186 (Dordrecht: Kluwer, 2003).

⁷⁰ See: Gottfried Wilhelm Leibniz, “The Principles of Philosophy, or Monadology,” in *Philosophical Essays*, trans. Roger Ariew and Daniel Garber (Indianapolis: Hackett Pub. Co, 1989); Gottfried Wilhelm Leibniz, *Principes de la nature et de la grâce fondés en raison, et, Principes de la philosophie ou monadologie*, ed. André Robinet, 4th ed. (Paris: Presses Univ. de France, 2001).

⁷¹ Hunter, *Rival Enlightenment*, 107.

should judge things that involve a contradiction as false. According to the latter, one should not regard anything as true without having sufficient reason for doing so. One must thus always show why there are sufficient reason for things to be one way and not the other. These principles provided Leibniz with the important method of abstraction through which the philosopher was able to gradually ascend from confused sensory perception – via a ladder of progressively simpler definition – until he finally arrived at a priori axioms, laws and clear and distinct definitions. Hunter criticises the usual epistemological reading of Leibniz and argues that Leibniz’s method of abstraction should be understood “as a speculative practice performed by the philosopher on himself.”⁷² What was the overall purpose of this exercise? Drawing on Renaissance Neo-Platonism Leibniz understood virtue as the habit of acting in accordance to wisdom. Leibniz defined wisdom as “the science of felicity” and felicity as “a lasting state of pleasure.”⁷³ Pleasure, in turn, was “a knowledge or feeling of perfection, not only in ourselves, but also in others.”⁷⁴ Wisdom as the science of felicity was not just theoretical, but resulted from the exercise in which the philosopher perfected his own understanding of the world. By perfecting his knowledge of the world the philosopher also perfected his own being as a philosopher.

Tschirnhaus

In spring 1678 Leibniz wrote a letter to his colleague, the German philosopher and mathematician Ehrenfried Walter von Tschirnhaus, explaining how to reach “the most distinct notions” by resolving “any idea whatsoever into those of which it is composed.”⁷⁵ The discussion of clear and distinct concepts was a recurring topic in a correspondence that continued for many years. At least partly as a result of the intellectual exchange with Leibniz, Tschirnhaus pub-

⁷² Ibid., 109.

⁷³ Gottfried Wilhelm Leibniz, “Felicity,” in *Leibniz: Political Writings*, ed. Patrick Riley, 2nd ed., Cambridge Texts in the History of Political Thought (Cambridge: Cambridge University Press, 1988), 83; Gottfried Wilhelm Leibniz, “La Felicite,” in *G. W. Leibniz Textes Inédits, Volume II*, ed. Gaston Grua (Paris: Presses Universitaires de France, 1948), 579. “la science de la felicité”, “un Estat durable de plaisir”.

⁷⁴ Leibniz, “Felicity,” 83; Leibniz, “La Felicite,” 579. “un sentiment de la perfection non seulement en nous, mais aussi en autrui”.

See also: Hunter, *Rival Enlightenment*, 102.

⁷⁵ Gottfried Wilhelm Leibniz, “Leibniz an Ehrenfried Walter von Tschirnhaus, Ende Mai 1678,” in *Sämtliche Schriften und Briefe. Reihe 2 Bd. 1: Philosophischer Briefwechsel*, ed. Gerda Utermöhlen, Sabine Sellschopp, and Wolfgang Bungies (Berlin: Akademie-Verlag, 2006); Gottfried Wilhelm Leibniz, “Letter to Walter von Tschirnhaus May, 1678,” in *Philosophical Papers and Letters*, ed. Leroy E. Loemker, 2nd ed., Synthese Historical Library 2 (Dordrecht: D. Reidel Pub. Co, 1976). “notitias distinctissimas”, “idea quaelibet in alias ex quibus componitur facillimè resolvi possit”.

lished the monumental treatise *Medicina mentis* in (*Medicine of the Mind*, 1687).⁷⁶ Drawing on Descartes, Spinoza, Leibniz and many others, the *Medicina mentis* was Tschirnhaus's own attempt to fulfil the vision of a universal method based on mathematics. In the treatise he discussed how one should proceed in order to reach clear and distinct definitions and axioms. Much like Leibniz, he saw such definitions and axioms as the result of an internal process of comparison and abstraction, where confused notions were systematically refined into clear and distinct notions that could be used in the formation of definitions and axioms.⁷⁷

Traditional readings of Tschirnhaus have either been markedly epistemological or focused on scientific contributions such as, most famously, his discovery of how to produce porcelain.⁷⁸ However, a number of more recent scholars have acknowledged the rather obvious context of the early modern *cultura animi*. One example of such reading is Manuela Sanna who sees the choice of title as an explicit reference to the *cultura animi* tradition.⁷⁹ According to this tradition, the goal of philosophy is to cure the soul of the diseases of the passions. Similarly, Cornelis-Anthonie van Peursen has pointed out that the "term 'medicina' makes clear that philosophy has to be useful for daily life, offering tranquillity, moderation of passions, and corporal and spiritual health."⁸⁰ Peursen adds that the phrase *medicina mentis* also illustrates that Tschirnhaus followed the classical

⁷⁶ Ehrenfried Walter von Tschirnhaus, *Medicina mentis et corporis* (Hildesheim: Olms, 1964). The *Medicina mentis* is also available in a German critical edition. See: Ehrenfried Walter von Tschirnhaus, *Medicina mentis sive artis inveniendi praecepta generalia: Erstmalig vollständig ins Deutsche übersetzt und kommentiert von Johannes Haussleiter*, trans. Johannes Haussleiter, Acta Historica Leopoldina (Leipzig: Johann Ambrosius Barth, 1963).

⁷⁷ This topic is discussed throughout the second part of the treatise. See: Tschirnhaus, *Medicina mentis et corporis*, 22–271.

⁷⁸ An exception here is Jacob Rohrlachen's 1709 biography. According to Rohrlachen, Tschirnhaus was primarily interested in the cultivation of virtue and in the temperance and control of the passions. Later on this reading seems to have been replaced with accounts of Tschirnhaus as a modern scientist. In Hermann Weissenborn's 1866 biography, Tschirnhaus is thus portrayed as a mathematician and as an inventor of new methods and technical inventions. Although it would require a more thorough analysis, Rohrlachen and Weissenborn's biographies indicate a historiographical shift from *cultura animi* to epistemological and disciplinary readings. See: Jacob Rohrlachen, *Lebens und Todes-Geschichte des Weltberühmten Ritters und Herrn Herrn Ehrenfried Walther von Tschirnhaus auff Kiesslings-Wald und Stoltzenberg* (Görlitz, 1709); Hermann Weissenborn, *Lebensbeschreibung des Ehrenfried Walter v. Tschirnhaus auf Kiesslingswalde und Würdigung seiner Verdienste* (Eisenach, 1866). For modern, more or less epistemological and disciplinary readings, see also: Günter Mühlpfordt, *Ehrenfried Walther von Tschirnhaus (1651–1708): zu seinem 300. Todestag am 11. Oktober 2008* (Leipzig: Leipziger Universitätsverlag, 2008); Rudolph Zaunick, *Ehrenfried Walther von Tschirnhaus* (Dresden: Hellerau Verlag, 2001); Siegfried Wollgast, *Ehrenfried Walther von Tschirnhaus und die deutsche Frühaufklärung*, Sitzungsberichte der Sächsischen Akademie der Wissenschaften zu Leipzig, Philologisch-Historische Klasse, 128,1 (Berlin: Akademie-Verlag, 1988); E. Winter, *E. W. von Tschirnhaus und die Frühaufklärung in Mittel- und Osteuropa* (Berlin, 1960).

⁷⁹ Manuela Sanna, "E. W. von Tschirnhaus' Anthropologische Hypothese Der Ars Inveniendi," *Studia Leibnitiana* 31, no. 1 (1999): 57.

⁸⁰ C. A. Van Peursen, "E. W. Von Tschirnhaus and the Ars Inveniendi," *Journal of the History of Ideas* 53, no. 3 (1993): 397.

tradition of understanding “method” as “road” or “way to go.”⁸¹ Drawing on Sanna and Peursen, I wish to further highlight the context of the *cultura animi*. What makes Tschirnhaus especially interesting is the way in which the work of producing distinct concepts and definitions was explicitly connected to the *cultura animi*. In the preface of the *Medicina mentis* Tschirnhaus stated that the aim of the book was to “show a way...through which our intellect can be perfected in the best possible way.”⁸² Elaborating this claim further, he described this method as “above all an infallible remedy by which the true and the false can definitely be recognised and the one can be distinguished from the other.”⁸³ Tschirnhaus linked to the *cultura animi* tradition in identifying the passions as the root of evil. The passions paved the way for immoral actions by blurring human judgement. For this reason it was of utter importance to analyse in detail how the philosopher would use his reason in order to arrive at truth and keep the passions at bay.

Tschirnhaus is also interesting due to the fact that he played an important role in the Halleian intellectual milieu. First, he influenced Wolff by serving as his supervisor in the early eighteenth century. Second, he also played an important role in Halleian science more generally. This is largely due to a short textbook entitled *Gründliche Anleitung zu nützlichen Wissenschaften* (*Basic Guide to the Useful Sciences*, 1698).⁸⁴ In this popular textbook he made an outline for how the useful sciences could be cultivated not for its own sake but as a means of perfecting the soul, curing it from the diseases of the passions. In the introduction to the book Tschirnhaus stressed that the goal of all humans is to “keep the body free from pain and the soul free from distress.”⁸⁵ He added that there is not better way to reach tranquillity and peace of mind than to “devote oneself sincerely and honestly to virtue.”⁸⁶ To do this meant to seek truth, something that in turn required “senses”, “intellect” and “faith.”⁸⁷ Discussing these three factors Tschirnhaus particularly stressed the exercise of the senses and of reason through science. While the *Medicina mentis* focused primarily on mathematics and logic, the *Gründliche Anleitung* revolved around experimental and mechanical philosophy. As Tschirnhaus saw it, the key was to present science in a practical and interesting way. If this succeeded, the youth would “show such a great desire that they would get up early and not be able to refrain from their

⁸¹ Ibid.

⁸² Tschirnhaus, *Medicina mentis et corporis*, Ad lectorem. “viam ostendere, qua intellectus noster...optime perficitur.”

⁸³ Ibid. “infallibile ante omnia remedium, quo verum & falsum certo cognosci, unumque ab altero discerni queat, determinandum esse.”

⁸⁴ Ehrenfried Walter von Tschirnhaus, *Gründliche Anleitung zu nützlichen Wissenschaften, absonderlich zu der Mathesi und Physica, wie sie anitzo von den gelehrtesten abgehandelt werden* (Stuttgart-Bad Cannstatt: Friedrich Frommann, 1967).

⁸⁵ Ibid., 7. “den Leib ohne Schmerzen, und das Gemüth ohne Unruhe zu erhalten”.

⁸⁶ Ibid. “der Tugend sich aufrichtig und ernstlich zu ergeben”.

⁸⁷ Ibid., 8. “sensus”, “intellectus”, “fides”.

study.”⁸⁸ He added that it is generally known that the youth is receptive to desires and that this is true both for the harmful passions and the more virtuous desire for knowledge. For this reason it is desirable to “excite in them an own desire, so to speak, a *passionem dominantem*, through which all other harmful passions are suppressed by a stronger one.”⁸⁹ By proceeding in this way, one would systematically replace the desire for acknowledgment and fame with the desire for truth.

Wolff

While the reading of Descartes, Leibniz and Tschirnhaus’s philosophy as spiritual exercises have now become one among a number of established readings, the same cannot be said about Wolff.⁹⁰ Instead, readings of Wolff have remained decisively epistemological.⁹¹ In contrast to such readings, I argue that we should understand Wolff’s philosophy, including the intimate connection to Descartes, Leibniz and Tschirnhaus, in the context of philosophy as spiritual exercises. In so doing, we can better understand the kind of project that he was involved in. This, in turn, sheds new light on the inward turn to the mind and on the role of experience within it. In particular, it opens up for a reinterpretation of Wolff’s empirical psychology that takes us away from the epistemological and disciplinary readings that have often been suggested by historians of philosophy and psychology.

When he studied philosophy at the Magdalenengymnasium in Breslau, Wolff soon discovered Descartes’ philosophy and Tschirnhaus’ *Medicina mentis*.⁹² This encounter spurred a prolonged interest in methods that in turn led to the writ-

⁸⁸ Ibid., 19. “eine so große Begierde gezeigt, daß sie frühe aufgestanden, und nicht können vom studieren gebracht werden”.

⁸⁹ Ibid. “einen eigenen Trieb bey ihnen excitirte, und so zu sagen wie eine *passionem dominantem*, dadurch alle andere schädliche *passiones*, als von einer stärkeren müssen unterdrucket werden”.

⁹⁰ Here it is worth mentioning that von Tschirnhaus has captured far less scholarly interest than Descartes, Leibniz and Wolff. That said, recent scholars have been surprisingly open to the *cultura animi* reading. One reason for this is probably that the title and plan of the *Medicina mentis* invites such reading even if one is not familiar with the Hadotian reading of philosophy.

⁹¹ See some of the most comprehensive and influential readings: Gómez Tutor, *Die wissenschaftliche methode bei Christian Wolff*; Luigi Cataldi, *Christian Wolff und das System des klassischen Rationalismus: die philosophia experimentalis universalis/Christian Wolff e il sistema del razionalismo classico: la philosophia experimentalis universalis*, Christian Wolff *Gesammelte Werke*, Abt. 3, Materialien und Dokumente Bd. 62 (Hildesheim: Olms, 2001); École, *La métaphysique de Christian Wolff*; Campo, *Cristiano Wolff e il razionalismo precritico*.

⁹² Wolff, “Christian Wolffs eigene Lebensbeschreibung,” 116. For details on Wolff’s early philosophical development see also: Hans Werner Arndt, “Einführung,” in *Vernünfftige Gedancken von den Kräften des menschlichen Verstandes und ihrem richtigen Gebrauche in Erkenntnis der Wahrheit*, ed. Hans Werner Arndt, Christian Wolff *Gesammelte Werke*, Abt. 1, Deutsche Schriften, Bd. 1 (Hildesheim: Olms, 1978).

ing of a dissertation on practical philosophy in 1703, under the supervision of Tschirnhaus.⁹³ Leibniz praised the work, and in 1704 Wolff dedicated a second dissertation on algebra to him.⁹⁴ This became the starting point for a long-standing correspondence that had a profound influence on Wolff.⁹⁵ When he went to Halle in 1706 it was on the advice and with the support of Leibniz.⁹⁶ While initially having difficulties attracting students to his lectures in mathematics, his commission as teacher in experimental philosophy in 1709 marked the starting point for rapid career progress that culminated in the presentation of his philosophical system in a series of books commonly referred to as his *German Philosophy*. The first fundamental, and probably also the most popular and widespread, presentation of this system came with the publication of the *German Logic*.⁹⁷ The book was published in 1713 and soon acquired status as the main textbook on the Wolffian method. With its success followed several editions, a translation into Latin in 1730 and eventually a whole mini-genre of Wolffian textbooks in logic.⁹⁸ In the mid 1730s the book is said to have been used at all the universities and high schools run by Wolffians.⁹⁹

That the *German Logic* became the principal textbook in the Wolffian method is not the only reason I have made it the focal point of this analysis. The second reason has to do with the *kind* of book it constituted. When composing the *German Logic*, Wolff did so in close proximity to Tschirnhaus' *Medicina mentis*.¹⁰⁰ As van Peursen has pointed out, Tschirnhaus composed his treatise within a post medieval tradition that considered logic mainly as an applied science: a guidance for rational thinking that ultimately served the purpose of curing the mind from the diseases of the passions.¹⁰¹ Placed in this context, Wolff's *German Logic* appears in a new light; it was the *kind* of book that exercised and perfected the soul in both a cognitive and a moral meaning. This theme appears already in the opening sentence of the preface where Wolff emphasises that

⁹³ Christian Wolff, "Philosophia practica universalis, mathematica methodo conscripta," in *Meletemata mathematico-philosophica: quibus accedunt dissertationes*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 35 (Hildesheim: Olms, 2003).

⁹⁴ Christian Wolff, "Dissertationis algebraicae de algorithmo differentiali," in *Meletemata mathematico-philosophica: quibus accedunt dissertationes*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 35 (Hildesheim: Olms, 2003). For Leibniz's verdicts on Wolff's dissertation see: Wolff, "Christian Wolffs eigene Lebensbeschreibung," 133–34.

⁹⁵ For the correspondence between Wolff and Leibniz see: Gottfried Wilhelm Leibniz and Christian Wolff, *Briefwechsel zwischen Leibniz und Christian Wolff aus den Handschriften der Koeniglichen Bibliothek zu Hannover*, ed. C. I. Gerhardt (Hildesheim: Olms, 1963). For a critical discussion of Leibniz's influence see: Charles A. Corr, "Christian Wolff and Leibniz," *Journal of the History of Ideas* 36, no. 2 (1975): 241–62.

⁹⁶ Wolff, "Christian Wolffs eigene Lebensbeschreibung," 145. See also: Arndt, "Einführung," 22.

⁹⁷ Wolff, *German Logic*.

⁹⁸ Arndt, "Einführung," 92–99. See also: Max Wundt, *Die deutsche Schulphilosophie im Zeitalter der Aufklärung* (Hildesheim: Olms, 1964), 211–30.

⁹⁹ Arndt, "Einführung," 97.

¹⁰⁰ *Ibid.*, 16–17.

¹⁰¹ Van Peursen, "E. W. Von Tschirnhaus and the Ars Inveniendi."

since man has received his reason as the most precious gift from God it is his duty to preserve and perfect it.

The human being has not received anything more splendid from God than his intellect: As soon as he loses his intellect he becomes either a child or as savage as a wild animal, whereby he also becomes unable to honour God and to serve humans. Thus, the more someone knows how to use his intellect, the more he can be called a human.¹⁰²

Continuing along these lines, Wolff stressed that the only way to strengthen the powers of reason is by using them.

There is thus no other means of arriving at this knowledge, than by thoroughly understanding the truths that have been demonstrated, and then investigating how they might have been discovered, and then, whence having acquired the ability to reflect, endeavour to search things which still are unknown to us, yes, even things which have not yet been discovered by anyone.¹⁰³

By thus emphasising the culture of reason as a moral obligation, Wolff cunningly prepared for what was to follow: a systematic and detailed instruction in how to master the Wolffian philosophical method. At the core of this method was the formation of clear (*klar*) and distinct (*deutlich*) concepts (*Begriff*) and definitions (*Erklärung*). Drawing on Leibniz, Wolff discussed the colour red as an example of a clear and obscure (*undeutlich*) concept.¹⁰⁴ While the human being can clearly distinguish red as a distinct whole he is nevertheless unable to provide the criteria for *how* he does it. To attain a distinct concept one must distinguish the defining features, that is, all that makes a thing into this or that kind of thing. This was best done through systematic comparison and abstraction. Once a clear concept had been obtained it was equally important to keep it in mind. Here Wolff gave concrete advice to the student.

To hinder that the concepts once obtained are lost, we ought to think of them oft and beware, so that we do not confuse ourselves with too many things at once. In the sciences, it is particularly advisable that we write down clear concepts once we have obtained them because they do not dissolve as easily on paper as they do in memory. These are useful rules for the students, that they shall diligently repeat what they have learned, not all at once, but that they shall deal with it all in such an order as the knowledge of one

¹⁰² Wolff, *German Logic*. “Der mensch hat nichts vortreflichers von GOtt empfangen, als seinen Verstand: Denn so bald er nur in demselben verrücket wird, so halb wird er entweder ein Kind, oder ärger als ein wildes Thier, und ist also ungeschicht, GOtt zu ehren und den Menschen zu dienen. Solchergestalt kan einer um so vielmehr ein Mensch genennet werden, je mehr er die Kräfte seines Verstandes zu gebrauchen weiß.”

¹⁰³ Ibid. “Also ist kein anderes Mittel, zu dieser Erkänntniß zu gelangen, als wenn man gründlich demonstirte Wahrheiten recht begreifen lernet, darnach untersucht, wie sie hätten können erfunden werden, und wenn man dadurch eine Fähigkeit nachzusinnen erlanget, Sachen zu suchen sich bemühet, die uns noch unbekandt sind, ja auch wohl noch sonst von niemanden erfunden worden.”

¹⁰⁴ Ibid., 129.

depends on the knowledge of another, and that they shall diligently write down what good they hear or what they think best out of own accord.¹⁰⁵

To form and maintain clear concepts the student was to practice both mental techniques (attention, repetition etc.) and physical techniques (writing). These techniques were intimately linked to the next step in the Wolffian method: the formation of definitions. A definition was attained when all the defining features of a thing had been obtained and delimited from other features. Here one was to take precautions not to define a thing in other equally ambiguous words or to get stuck in circular definitions. Having spotlighted these pitfalls Wolff continued by stressing, just as he did in the case of the concepts, the role of comparison and abstraction. This was then followed by an exhortation.

It should not be denied that it is somewhat difficult to find the definitions of things in the way that has been described, because it will not only require that one already knows a lot but also that one has already been practicing reflection [Nachsinnen]. Beginners are therefore not to make themselves any trouble.¹⁰⁶

The stress on difficulty and the dissuasion of beginners again highlights the importance of practice and training. Far from depicting some static ability or knowledge, the formation of distinct definitions required the devoted and frequent practice of spiritual exercises.

Although much was achieved through the formation of clear and distinct definitions, this did not in itself suffice for scientific knowledge.¹⁰⁷ According to

¹⁰⁵ Ibid., 136. "Damit nun die einmahl erlangten Begriffe sich nicht verschlimmern; so müssen wir uns dieselben öfters vorstellen, und uns fleißig in acht nehmen, daß wir uns nich mit vielen Dingen auf einmahl verwirren. Absonderlich aber ist in Wissenschaften ratsam, daß wir die einmahl erlangten deutlichen Begriffe aufschreiben: denn auf dem Papier lassen sie sich nicht so leichte auslöschen, als sie in dem Gedächtnisse verlöschen. Dieses sind nützliche Regeln für die Studirenden, daß sie fleißig wiederholen, was sie einmahl gelernt, nicht vielerley auf einmahl, auch alles in solcher Ordnung, wie die Erkenntniß des einen von der Erkenntniß des andern dependiret, vornehmen, und was sie gutes hören, oder was bey eigenem Nachsinnen ihnen einfället, fleißig aufschreiben."

¹⁰⁶ Ibid., 150. "Es ist nicht zu leugnen, daß es etwas schwer fället, auf vorgeschriebene Weise die Erklärungen der Sachen zu finden: denn es wird nicht allein erfordert, daß man bereits viel wisse, sondern man muß sich auch im Nachsinnen schon ziemlich geübet haben. Derowegen haben sich Anfänger hiermit nicht zu belästigen."

¹⁰⁷ Wolff's philosophy and science has caught the interest of a number of scholars. For a selection of studies see: Gómez Tutor, *Die wissenschaftliche methode bei Christian Wolff*; Tore Frängsmyr, "Christian Wolff's Mathematical Method and Its Impact on the Eighteenth Century," *Journal of the History of Ideas* 36, no. 4 (1999): 656–57; Werner Schneiders, "Christian Wolff über Verstand und Vernunft," in *Nuovi studi sul pensiero di Christian Wolff*, ed. Sonia Carboncini and Luigi Cataldi Madonna, *Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente*, Bd. 31 (Hildesheim: Olms, 1992); Werner Schneiders, "Deus est philosophus absolute summus: Über Christian Wolffs Philosophie und Philosophiebegriff," in *Christian Wolff, 1679-1754: Interpretationen zu seiner Philosophie und deren Wirkung mit einer Bibliographie der Wolff-Literatur*, ed. Werner Schneiders, *Studien zum achtzehnten Jahrhundert* 4 (Hamburg: Felix Meiner, 1983); École, *La métaphysique de Christian Wolff*, 65–174; Hans-Jürgen Engfer, "Zur Bedeutung Wolffs für die Methodendiskussion der deutschen Aufklärungsphilosophie: Analytische und synthetische Methode bei Wolff und

the Wolffian notion of philosophical knowledge, the final goal is not knowledge of *what* occurs but knowledge of *why* things occur, that is, knowledge of the causes of things.¹⁰⁸ Ultimately, the formation of concepts and definitions served the higher purpose of demonstrative knowledge. The role of demonstrative knowledge is reflected in Wolff's definition of science as "an ability of the intellect to irrevocably demonstrate everything one assumes from irrefutable principles [Gründen]."¹⁰⁹ At the core of demonstrative knowledge was, of course, the demonstration (*Demonstration*). The demonstration signified an operation of the mind where increasingly complex truths were extracted, through syllogistic reasoning, from a few definitions (*Erklärung*), axioms (*Grund-Sätze*) and indubitable experiences (*richtige/klare Erfahrung*).¹¹⁰ To explain the demonstrative method for his readers Wolff turned to concrete examples:

I once made the definition: everything that makes the surrounding things visible is a light. Now, I find from experience: the moon makes everything around me visible. Thus I conclude: The moon is a light.¹¹¹

beim vorkritischen Kant," in *Christian Wolff, 1679–1754: Interpretationen zu seiner Philosophie und deren Wirkung mit einer Bibliographie der Wolff-Literatur*, ed. Werner Schneiders, Studien zum achtzehnten Jahrhundert 4 (Hamburg: Felix Meiner, 1983); Charles A. Corr, "Christian Wolff's Treatment of Scientific Discovery," *Journal of the History of Philosophy* 10 (1972): 323–34; Charles A. Corr, "Certitude and Utility in the Philosophy of Christian Wolff," *The Southwestern Journal of Philosophy* 1, no. 1/2 (1970): 133–42. Although these studies explore Wolff's science and method in detail both when it comes to its technicalities and to its influence, they contribute little to the understanding of Wolff's philosophy as an exercise-oriented *cultura animi*.

¹⁰⁸ Wolff, *German Logic*, 115. For the meaning and context of Wolff's notion of philosophy see: Schneiders, "Deus est philosophus absolute summus: Über Christian Wolffs Philosophie und Philosophiebegriff"; Werner Schneiders, "Der Philosophiebegriff des philosophischen Zeitalters: Wandlungen im Selbstverständnis der Philosophie von Leibniz bis Kant," in *Wissenschaften im Zeitalter der Aufklärung: Aus Anlass des 250jährigen Bestehens des Verlages Vandenhoeck & Ruprecht*, ed. Rudolf Vierhaus (Göttingen: Vandenhoeck & Ruprecht, 1985); Werner Schneiders, "Philosophie und Philosoph: Zur Selbstdeutung des Philosophierens im 18. Jahrhundert," in *Aufklärung und Modernität: eine Freundesgabe für Peter-Eckhard Knabe*, ed. Jürgen Klein, Edgar Mass, and Jürgen Ritte (Tübingen: Stauffenburg, 2006).

Wolff followed the Aristotelian-scholastic tradition according to which knowledge is scientific only insofar as it reveals causes as opposed to mere facts. See: Aristotle, *Posterior Analytics*, *The Complete Works of Aristotle: The Revised Oxford Translation* 1 (Princeton, NJ: Princeton University Press, 1984), 71^b, 73^a. For the Aristotelian-scholastic notion of science see also: Robert Pasnau, "Science and Certainty," in *The Cambridge History of Medieval Philosophy*, ed. Robert Pasnau and Christina van Dyke (Cambridge: Cambridge University Press, 2010); Nicholas Jardine, "Epistemology of the Sciences," in *The Cambridge History of Renaissance Philosophy*, ed. Charles B. Schmitt, Quentin Skinner, and Eckhard Kessler (Cambridge: Cambridge University Press, 1988); Eileen Serene, "Demonstrative Science," in *The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism, 1100–1600*, ed. Norman Kretzmann, Anthony Kenny, and Jan Pinborg (Cambridge: Cambridge University Press, 1982).

¹⁰⁹ Wolff, *German Logic*, 115. "eine Fertigkeit des Verstandes, alles, was man behauptet, aus un widersprechlichen Gründen unumstößlich darzuthun."

¹¹⁰ *Ibid.*, 172.

¹¹¹ *Ibid.*, 163. "Ich habe einmahl die Erklärung gemacht: alles, was die umstehende Sachen sichtbar machet, ist ein Licht. Nun finde ich durch die Erfahrung: Der Mond machet alles um mich sichtbar: Derowegen schliesse ich: der Mond ist ein Licht."

While the definitions and axioms established the logical structure, the indubitable experience secured the connection to the empirical world by providing the demonstration with concrete empirical content.

In the last chapter of the *German Logic* Wolff continued the discussion of exercises.¹¹² In sharp contrast to those who claimed that innate logic was fully sufficient and far superior to acquired logic, Wolff stressed the importance of improving one's proficiency through exercises. More specifically, he advocated the critical study of books composed in accordance with the rules of logic. These books were to be examined in terms of their definitions, propositions demonstrations etc.; are they clear and distinct, consistent, circular, contradictory etc. By thus scrutinising books one improved one's own logical capacity at the same time as one revealed the shortcomings of academic arguments and texts.

If the *German Logic* was written as a practical instruction in how to organise one's thinking, the *German Metaphysics* (1719/20) and the *German Ethics* (1720) implemented these exercises as part of a larger metaphysical whole. In the very opening passage of the *German Metaphysics*, Wolff painted the picture of the philosopher (*Weltweiser*) as the saviour in a world marked by ignorance, immorality and misery.

Intellect, virtue and health are the three foremost things for which human beings in this world are to strive: yet on the whole nothing is held less important than these three. And the one who considers the present unhappy times he sees how they spring from the lack of intellect and virtue. People, who are children in reason but men in malice, plunge many in great unhappiness and misery.¹¹³

In the preface to the *German Ethics* he continued along these lines by stressing that "The unhappy times are a fruit of the vices; the happy a fruit of the virtue.... He who wishes to lead a virtuous life must know the virtues and know how to distinguish them from the great pretence that the vices sometimes have."¹¹⁴ The key to this vital knowledge, Wolff stressed, lay in clear and distinct definitions and in the rules of virtuous acting. Sometimes these rules prescribed concrete daily exercises:

1. When one wakes up early one shall consider what must necessarily be done during the day, and what might go wrong if one fails to do so. 2. Thereafter, one must strain oneself

¹¹² Ibid., 244–52.

¹¹³ Wolff, *German Metaphysics*, Vorrede. "Verstand, Tugend und Gesundheit sind die drey vornehmsten Dinge, darnach die Menschen in dieser Welt streben sollen: allein insgemein achtet man nichts weniger als diese drey. Und wer die gegenwärtigen unglückseligen Zeiten erweget, der siehet, wie sie aus Mangel des Verstandes und der Tugend herkommen. Leute, die Kinder am Verstande, aber Männer an Bosheit sind, stürzten viele in grosses Unglück und Verderben."

¹¹⁴ Wolff, *German Ethics*, Vorrede. "Die unglückseligen Zeiten sind eine Frucht der Laster: die glückseligen eine Frucht der Tugend.... Wer tugendhaft leben will, muß die Tugend kennen, und sie von dem grossen Scheine, den unterweilen die Laster haben, zu unterscheiden wissen."

to examine in what way each of these actions contributes to the perfection of our inner and outer condition.... 3. When one wishes to go to sleep, one must consider everything that one has done and not done during the day, and lastly, 4. examine how much we hereby have managed to contribute to the fulfilment of our final goal. When one does this work continuously, then the desired habit will soon be there.¹¹⁵

The passage illustrates the connection between knowledge and action. Once the philosopher had obtained clear and distinct knowledge of how things are and how he was to behave it was equally important to actually behave accordingly. To ensure this Wolff advocated the practice of daily exercises of self-examination in order to correct one's behaviour and, in the long term, in order to establish virtuous habits.

So, what was the overall purpose of Wolff's philosophical exercises? Why was it important to practice philosophy in this way? In his reading of Leibniz, Hunter stresses the philosophical practice as a practice performed by the philosopher on himself.¹¹⁶ By engaging in this practice the philosopher perfects his own being both cognitively and morally. This in turn makes him into a more perfect being, thereby bringing him closer to God. In a similar manner, Wolff saw the philosophical practice as a ladder leading towards cognitive and moral perfection; cognitive in the sense that it revolved around the perfection of one's cognitive abilities (much through the formation of clear and distinct concepts and definitions) and moral in the sense that cognitive perfection encourages (through natural law) virtuous action.¹¹⁷ In failing to acknowledge these features, as most epistemological and disciplinary readings do, one not only loses an important aspect but misunderstand what the Wolffian project was fundamentally about.

The dangerous Wolffian practice

So far I have placed Wolff in the context of early modern philosophy as *spiritual exercise* and *cultura animi*, stressing both the frequent emphasis on concrete exercises and the way in which these exercises were presented as a means of per-

¹¹⁵ Ibid., 105–6. “1. Wenn man frühe erwachet, soll man bedencken was den Tag über nothwendig zu thun ist, und was durch dessen Veranlassung sonst etwan noch vorfallen kan. 2. Hierauf soll man sich bemühen zu untersuchen, was eine jede von diesen Handlungen zur Vollkommenheit unseres innerlichen und äußerlichen Zustandes beytragen.... 3. Wenn man schlaffen gehen will, soll man sich auf alles besinnen, was man den Tag über gethan und unterlassen hat, und endlich 4. untersuchen, wie viel wir dadurch zu Erhaltung unserer letzten Absicht beygetragen. Wenn man diese Arbeit unausgesetzt fortreibet, so wird sich die verlangte Gewohnheit bald geben.”

¹¹⁶ Hunter, *Rival Enlightenment*, 109.

¹¹⁷ Following Leibniz Wolff argued that God has imprinted (natural law) in the human being a striving for lust as a “sense of perfection”. Given this striving the Wolffian method served the purpose of enabling the human being to discern the really good from that which appears as good due to confused knowledge. See: Wolff, *German Metaphysics*, 247, 260.

fecting the self both cognitively and morally. In this last part of the section I argue that the Wolffian *cultura animi*, far from being some abstract theoretical ideal, played a vital role in the series of events that led to Wolff's famous expulsion from Prussia in November 1723.

In 1720, the same year as he published both the *German Metaphysics* and *German Ethics*, Wolff was elected as the new Pro-rector of the university.¹¹⁸ With this new position of power his relationship to the theologians grew increasingly tense. In 1721 the open conflict became evident as Wolff delivered a Pro-rector speech where he compared his own practical philosophy with that of the Chinese, stressing the possibility of achieving a sound morality through reason alone, quite independently of revelation.¹¹⁹ When the theologians demanded that the speech should be censured, Wolff responded that it did not contain anything that was not already in his metaphysics and ethics.¹²⁰ The event spurred a heated debate that would eventually lead to Wolff's expulsion from Prussia on November 8, 1723.¹²¹ Soon after the expulsion the two sides began telling their own versions of what had happened.¹²² Wolff and his followers

¹¹⁸ Gottsched, "Historische Lobschrift," 50.

¹¹⁹ Christian Wolff, "Oratio de sinarum philosophia practica 1723," in *Meletemata mathematico-philosophica: quibus accedunt dissertationes*, Gesammelte Werke Lateinische Schriften, Abt. 2, Lateinische Schriften, Bd. 35 (Hildesheim: Olms, 2003). See also the German translation: Christian Wolff, "Rede von der Sittenlehre der Sineser," in *Gesammelte kleine philosophische Schriften VI*, ed. Gottlieb Friedrich Hagen, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 21.6 (Hildesheim: Olms, 1981).

¹²⁰ Gottsched, "Historische Lobschrift," Beylage X.

¹²¹ For King Frederick the Great's letter to Wolff see: Ibid., 65–66.

¹²² This was the beginning of a debate that would continue for many years. For the most influential writings of the first and most intensive phase of this debate see: Daniel Strähler, *Prüfung der vernünftigen Gedanken des Herrn Hoff-Rath Wolffes von Gott, der Welt und der Seele des Menschen, auch alle Dingen überhaupt: erstes und zweytes Stück*, Christian Wolff Gesammelte Werke, 3. Abt., Materialien und Dokumente, Bd. 53 (Hildesheim: Olms, 1999); Joachim Lange and Christian Wolff, *Bescheidene und ausführliche Entdeckung der falschen und schädlichen Philosophie in dem Wolffianischen Systemate Methaphysico von Gott, der Welt und dem Menschen*, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 56 (Hildesheim: Olms, 1999); Joachim Lange and Christian Wolff, "Des Herrn Doct. und Prof. Joachim Langens oder: Der Theologischen Facultaet zu Halle Anmerkungen über des Herrn Hoff-Raths und Professor Christian Wolffens Metaphysicam von denen darinnen befindlichen so genannten der natürlichen und geoffenbarten Religion und Moralität entgegen stehenden Lehren. Nebst beygefügtter Hr. Hoff-R. und Prof. Christian Wolffens Gründlicher Antwort," in *Kleine Kontroversschriften mit Joachim Lange und Johann Franz Budde*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 17 (Hildesheim: Olms, 1980); Joannes Franciscus Buddeus and Christian Wolff, "Herrn D. Joh. Francisci Buddei S.S. Theol. P.P.O. zu Iena Bedencken über die Wolffianische Philosophie mit Anmerkungen erläutert von Christian Wolffem, Hochfürstl. Hessischen Hof-Rath und Matheseos et Philosophiae Professore Primario zu Marburg. Der Kön. Grosz Britannischen und Kön. Preusis. Societäten der Wissenschaften Mitglieder," in *Kleine Kontroversschriften mit Joachim Lange und Johann Franz Budde*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, 1. Abt., Deutsche Schriften, Bd. 17 (Hildesheim: Olms, 1980); Christian Wolff, "Nöthige Zugabe zu den Anmerkungen über Herrn D. Buddens Bedencken von der Wolffischen Philosophie auf Veranlassung der Buddeischen Antwort heraus gegeben," in *Schutzschriften gegen Johann Franz Budde*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 18 (Hildesheim: Olms, 1980); Christian Wolff, "Klarer Beweiß, daß Herr D. Budde die Ihm gemachten Vorwürffe

promoted a story of jealous theologians seeking revenge for lost university chairs, while the theologians painted a picture of a heretic philosophy that lured Hallean students away from God, plunging them into atheism and despair.¹²³ As time passed, however, Wolff's expulsion and triumphal return to Halle in 1740 was inscribed in the larger story of the victory of reason and enlightenment over religion.¹²⁴ This story was well established in the nineteenth century and continued to dominate in the twentieth century. In the 1930s a scholar referred to the event as the "final struggle between pietism and rationalism", and as late as 2001 another influential scholar discussed it as the "culmination of the theological-political conflicts between Hallean pietism and enlightenment philosophy."¹²⁵ Today the Pietism-Enlightenment reading still provides the standard narrative although there are also a number of less polarised readings, emphasising the local context and especially personal factors such as the competition for university chairs.¹²⁶ In contrast to all these readings I argue that an important but hitherto overseen factor was the Wolffian practice itself. Having sharpened their skills in the Wolffian practice, philosophers began to test their skills on the theologians, thereby challenging their authority. How did they do this? What did this challenge look like?

einräumen und gestehen muß, Er habe aus Übereilung die ungegründeten Auflagen der Hälleschen Widersacher recht gesprochen zur Vertheidigung der Wahrheit heraus gegeben," in *Schutzschriften gegen Johann Franz Budde*, ed. Jean Ecole, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 18 (Hildesheim: Olms, 1980); Christian Wolff, *Ausführliche Nachricht von seinen eigenen Schriften, die er in deutscher Sprache heraus gegeben*, ed. Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 9 (Hildesheim: Olms, 1973).

¹²³ See: Lange and Wolff, *Bescheidene und ausführliche Entdeckung*; Lange and Wolff, "Des Herrn Doct. und Prof. Joachim Langens oder: Der Theologischen Facultaet zu Halle Anmerkungen über des Herrn Hoff-Raths und Professor Christian Wolffens Metaphysicam von denen darinnen befindlichen so genannten der natürlichen und geoffenbarten Religion und Moralität entgegen stehenden Lehren. Nebst beygefügter Hr. Hoff-R. und Prof. Christian Wolffens Gründlicher Antwort"; Buddeus and Wolff, "Bedencken über die Wolffianische Philosophie."

¹²⁴ Eduard Zeller, *Vorträge und Abhandlungen geschichtlichen Inhalts* (Leipzig, 1865), 108–39; Schrader, *Geschichte der Friedrich-Universität zu Halle*, 211–19.

¹²⁵ Ferdinand Joseph Schneider, "Das geistige Leben von Halle im Zeichen des Endkampfes zwischen Pietismus und Rationalismus," *Sachsen und Anhalt* 14 (1938): 137–66; Albrecht Beutel, "Causa Wolffiana: Die Vertreibung Christian Wolffs aus Preußen 1723 als Kulminationspunkt des theologisch-politischen Konflikts zwischen halleschen Pietismus und Aufklärungsphilosophie," in *Wissenschaftliche Theologie und Kirchenleitung: Beiträge zur Geschichte einer spannungsreichen Beziehung für Rolf Schäfer zum 70. Geburtstag*, ed. Ulrich Köpf and Rolf Schäfer (Tübingen: Mohr Siebeck, 2001).

¹²⁶ John Holloran, "Wolff in Halle – Banishment and Return," in *Christian Wolff und die europäische Aufklärung: Akten des 1. Internationalen Christian-Wolff-Kongresses, Halle (Saale), 4.-8. April 2004, Teil 5: Wolff und seine Schule, Wirkungen Wolffs, Wolff in Halle - Vertreibung und Rückkehr*, ed. Jürgen Stolzenberg and Oliver-Pierre Rudolph, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 105 (Hildesheim: Olms, 2007); Wilhelm Schmidt-Biggemann, "Metaphysik als Provokation: Christian Wolffs Philosophie in der Ideenpolitik der Frühaufklärung," in *Christian Wolff und die europäische Aufklärung: Akten des 1. Internationalen Christian-Wolff-Kongresses, Halle (Saale), 4.-8. April 2004, Teil 5: Wolff und seine Schule, Wirkungen Wolffs, Wolff in Halle - Vertreibung und Rückkehr*, ed. Jürgen Stolzenberg and Oliver-Pierre Rudolph, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 105 (Hildesheim: Olms, 2007).

In the *Ausführlicher Entwurf einer vollständigen Historie der Wolffischen Philosophie* (Detailed Sketch of a Complete History of the Wolffian Philosophy, 1735-38) and the *Anleitung zur Historie der Leibniz-Wolffischen Philosophie* (Introduction to the History of the Leibniz-Wolffian Philosophy, 1737) the Wolffian authors Carl Günther Ludovici and Georg Hartmann paint a picture of a brilliant and charismatic author and lecturer who attracted large groups of students.¹²⁷ According to Hartmann Wolff 1) brings clarity, and teaches students 2) how to think for themselves, 3) how to read books critically, 4) how to prepare clear and distinct presentations, 5) how to free oneself from prejudices and fanatical beliefs, 6) how to honour divine qualities and 7) how to reach religious truth.¹²⁸ In a similar way, Ludovici discusses in detail how the Wolffian students were to read Wolff's texts and learn his philosophy. The students were to start with mathematics and continue with metaphysics before proceeding to theology, natural philosophy and ethics.¹²⁹ When studying they were to approach the text with an active and critical mind, examining and scrutinising propositions and definitions as far as possible.¹³⁰ When it came to the actual learning, Ludovici listed three obligations. First, the philosophical apprentice was to learn to understand (*verstehen*) things by making definitions and propositions. Second, he was to learn to comprehend (*begreifen*) things by making demonstrations. Third, he was to exercise the mind in such a way that both understanding and comprehension came easily without much effort.¹³¹ In addition to these rather individualistic exercises he was also to practice his ability to reason and argue (*disputieren*) together with his fellow students.

According to Hartmann it was such a delight to visit Wolff's lectures that many theological students simply didn't want to go back to the theological lectures of Wolff's major rival, the theology professor Joachim Lange.¹³² In this context Ludovici remarks that for Lange the number of students decreased from about 300 to 30.¹³³ In addition to taking theology students, there are also

¹²⁷ Carl Günther Ludovici, *Ausführlicher Entwurf einer vollständigen Historie der Wolffischen Philosophie* 1.1, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 1.1 (Hildesheim: Olms, 1977); Carl Günther Ludovici, *Ausführlicher Entwurf einer vollständigen Historie der Wolffischen Philosophie* 1.2, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 1.2 (Hildesheim: Olms, 1977); Carl Günther Ludovici, *Ausführlicher Entwurf einer vollständigen Historie der Wolffischen Philosophie* 1.3, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 1.3 (Hildesheim: Olms, 1977); Georg Volkmar Hartmann, *Anleitung zur Historie der Leibnizisch-Wolffischen Philosophie*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 4 (Hildesheim: Olms, 1973).

¹²⁸ Hartmann, *Anleitung zur Historie der Leibnizisch-Wolffischen Philosophie*, 402-4.

¹²⁹ Ludovici, *Ausführlicher Entwurf* II, 306-8.

¹³⁰ *Ibid.*, 300-302.

¹³¹ *Ibid.*, 308-9.

¹³² Hartmann, *Anleitung zur Historie der Leibnizisch-Wolffischen Philosophie*, 382-83.

¹³³ Carl Günther Ludovici, *Sammlung und Auszüge der sämtlichen Streitschriften wegen der Wolffischen Philosophie*: 1/2, ed. Jean École, Gesammelte Werke Materialien und Dokumente, Abt. 3, Materialien und Dokumente, Bd. 2 (Hildesheim: Olms, 1976), 6.

indications that the Wolffian practice posed a more immediate threat to the theologians. In the *Lebensbeschreibung* Wolff claims that the theologians started to complain that students turned away from theology and that “some students demanded better definitions and proof from them [the theologians].”¹³⁴ A similar observation was made by Gottsched:

The philosophical hearers of our Mr. chancellor, came with a well prepared reason into the lectures of others; and could generally neither find the kind of light nor the kind of conviction that they were used to from Mr. Wolf’s lectures. Often they posed questions and objections to their teachers; partly regarding the insufficiency of their definitions; partly regarding some conclusions that were not sufficiently binding. Some of these young people, who could see their teacher’s weakness in both, became braver than students in their positions should be.¹³⁵

The image of the Wolffian students who used their newly acquired skills to question and examine others’ teachings cannot be dismissed as just a Wolffian construct. On the contrary, theologians themselves confirmed that there was such an issue. In a text on the harmful Wolffian philosophy Lange commented that theologians who had visited Wolff’s lectures started to doubt and question theological truths. These students became so arrogant that “they wanted to know everything better than others; although for some students the weakness of their intellect was evident to all, but not to themselves.”¹³⁶ Faced with the accusation of ruining the youth Wolff did not remain silent. In one of his writings he assures readers that the theology students themselves had praised the Wolffian philosophy for its usefulness within theology.¹³⁷ In another work he gives a direct response to Lange’s accusation by attacking Francke’s Orphanage.¹³⁸ “In many places the consistorialibus have complained that students, who have only studied in Halle [at the Orphanage], are neither capable of understanding theses nor proving them.”¹³⁹ The problem with these students, Wolff

¹³⁴ Wolff, “Christian Wolffs eigene Lebensbeschreibung,” 147. “einige studiosi bessere Erklärungen und Beweis von ihnen forderten.”

¹³⁵ Gottsched, “Historische Lobschrift,” 54. “die philosophischen Zuhörer unsers Hrn. Kanzlers, mit einer wohl vorbereiteten Vernunft in die Vorlesungen anderer kamen; und gemeiniglich in ihrem Vortrage, weder dasjenige Licht, noch die Ueberzeugung fanden, die sie in Hrn. Wolfs Vorlesungen gewohnt waren. Sie machten also ihren Lehrern bisweilen Fragen und Einwürfe; theils wegen derer Erklärungen, die mangelhaft; theils wegen mancher Beweise, die nicht bündig genug waren. Manche von diesen jungen Leuten nun, die zuweilen ihrer Lehrer Schwäche in beydem merkten, mochten dadurch muthiger werden, als Lehrlinge gegen ihre Vorgesetzten billig seyn sollten.”

¹³⁶ Lange and Wolff, *Bescheidene und ausführliche Entdeckung*, 6. “sie alles besser wissen wolten, als andere; wenn gleich bey einigen die Schwäche ihres Verstandes einem Jeden, nur ihnen selbst nicht, offenbar war.”

¹³⁷ Wolff, “Nöthige Zugabe,” Vorrede.

¹³⁸ Francke’s Orphanage was a large-scale educational institution located in a building complex in Halle. The Orphanage will be discussed in more detail in the next chapter.

¹³⁹ Lange and Wolff, “Des Herrn Doct. und Prof. Joachim Langens oder: Der Theologischen Facultaet zu Halle Anmerkungen über des Herrn Hoff-Raths und Professor Christian Wolffens Metaphysicam von denen darinnen befindlichen so genannten der natürlichen und geoffenbarten

continued, was that their reason was in such a bad shape, their knowledge so obscure and confused, that they basically succumbed to atheism through pure stupidity.

In the first section of this chapter I have painted the picture of Wolff's philosophy as a *cultura animi* practice marked by diligent studies and frequent concrete exercises. While restricting the analysis to Wolff's own textbooks, the case of the Wolff controversy suggests that Wolff's philosophy was not only presented as a practice but also received and used as such. The emerging picture is that of an applied philosophy where students engaged with the Wolffian philosophy for the purpose of acquiring very specific intellectual skills. These skills could then be used to reach truth and wisdom for the sake of one's own happiness as well as to tear down and diminish the edifices of other intellectual factions. In terms of the latter, the Wolffian practice sheds a new light on the conflicts leading to Wolff's expulsion. More specifically, it directly threatened theology both by attracting theology students and by openly challenging theologians in their own lectures.

In this section I have interpreted Wolff in close proximity to recent readings of early modern philosophy as a *cultura animi* marked by spiritual exercises. The shift from epistemology to *cultura animi* and spiritual exercises alters our understanding of the so-called "rationalists" by showing that the turn to the clear and distinct ideas of reason meant something different than has hitherto been assumed. The "rationalists" spearheaded a new culture of reason, rather than a new theory of knowledge, that had as its ultimate goal the realisation of the philosophical sage. From this perspective, the rationalist turn to reason was practical in the sense that it revolved around the cultivation of the soul through frequent and continuous exercises. My own contribution here has been to highlight Wolff as yet another example in this tradition. Drawing on Descartes and Leibniz, Wolff depicted philosophy as a continuous struggle to reach moral and cognitive perfection by systematically training oneself in the demonstrative method.

Inner experience

While recent historians of science have charted both the long-term transformations and the local manifestations of scientific experience, one tendency remains striking: regardless of the case in point the analysis revolves primarily around observations of natural objects.¹⁴⁰ In this section I complicate this pic-

Religion und Moralität entgegen stehenden Lehren. Nebst beygefügeter Hr. Hoff-R. und Prof. Christian Wolffens Gründlicher Antwort," 58. "Es wird ja an vielen Orten von consistorialibus geklagt, daß Studiosi, die in Halle allein studiert, gar keine thesin verstehen, vielweniger erweisen können."

¹⁴⁰ For this view see: Shapin and Schaffer, *Leviathan and the Air-Pump*; Dear, *Discipline and Experience*; Dear, "The Meanings of Experience"; Daston and Lunbeck, *Histories of Scientific Observation*.

ture in two ways. Firstly, focusing on the case of Wolff I reconstruct scientific experience as a continuous scale where perceptions were first received by the external senses and then further refined by the internal senses. Secondly, I explore the process of refining experience internally, here arguing that it should be seen as a part of the early modern *cultura animi*. Thus seen, the refinement of experience appears as an integral and logical part of the early modern project of cultivating, educating and training the mind.

The inner senses

Historians of philosophy have examined the role of inner senses and inner experience in Medieval and Renaissance philosophy. In contrast to the contemporary understanding of senses in terms of the five external senses, Medieval and Renaissance philosophers typically divided them into external and internal senses.¹⁴¹ This division had its origin in Latin, Arabic and Hebrew interpretations of the third book of Aristotle's *De Anima* (*On the Soul*) and of *De Memoria* (*On Memory*).¹⁴² In the Middle Ages this division was elaborated further within the framework of an overall faculty psychology. One of its more famous proponents was Avicenna who listed five internal senses: *common sense*, *imagination*, *fantasy*, *estimation* and *memory*.¹⁴³ While the notion of internal senses was commonly accepted among philosophers in around 1200, it was widely disputed how many there were and where they were located.¹⁴⁴ By the mid-fourteenth century, however, most Latin writers in the scholastic tradition held a more or less common conceptualisation of the internal senses. In an influential textbook written one century later, the German philosopher Gregor Reisch adopted

¹⁴¹ For the Medieval discussion of external and internal senses see: Henrik Lagerlund, ed., *Forming the Mind: Essays on the Internal Senses and the Mind/body Problem from Avicenna to the Medical Enlightenment* (Dordrecht, The Netherlands: Springer, 2007); D. W. Hamlyn, *Sensation and Perception: a History of the Philosophy of Perception* (London: Routledge & Kegan Paul; The Humanities Press, 1961); E. Ruth Harvey, *The Inward Wits: Psychological Theory in the Middle Ages and the Renaissance*, Warburg Institute Surveys 6 (London: Warburg Institute, 1975); Harry A. Wolfson, "The Internal Senses in Latin, Arabic and Hebrew Philosophic Texts," *Harvard Theological Review* 28, no. 2 (1935); Katharine Park, "The Organic Soul," in *The Cambridge History of Renaissance Philosophy*, ed. Charles B. Schmitt, Quentin Skinner, and Eckhard Kessler (Cambridge: Cambridge University Press, 1988); Nicholas H. Steneck, "Albert the Great and the Classification and Localization of the Internal Senses," *Isis* 65, no. 2 (1974); Nicholas H. Steneck, "Albert on the Psychology of Sense Perception," in *Albertus Magnus and the Sciences*, ed. James A. Weisheipl, Studies and Texts - Pontifical Institute of Mediaeval Studies 49 (Toronto: Pontifical Institute of Mediaeval Studies, 1980); Pierre Michaud-Quantin, "La classification des puissances de l'âme au XII^e siècle," *Revue du Moyen Age Latin* no. 5 (1949).

¹⁴² Wolfson, "The Internal Senses," 69; Steneck, "Albert the Great and the Classification," 193.

¹⁴³ Steneck, "Albert the Great and the Classification," 196–97; Park, "The Organic Soul," 467–68.

¹⁴⁴ Steneck, "Albert the Great and the Classification," 193.

Avicenna's division of five internal senses: *common sense*, *imagination*, *fantasy*, *estimation* and *memory*.¹⁴⁵ These internal senses worked in the following way. First, common sense receives (from the external senses) and puts together the forms of an object. Second, the forms are passed on to imagination where they are stored for further use. Third, estimation receives intentions that are not sensed in the senses (a sheep flees a wolf because its estimation senses the intention of the wolf to do harm). Fourth, fantasy composes and divides both forms and intentions in order to derive certain composite information that may not have been sensed and that may not even exist (a two-headed man or a gold mountain, for example). Fifth, memory stores all of this information for further reference to past time; imagination stores without reference to past time. As this model illustrates, the internal senses served the purpose of both processing sensations received from the external senses and of actually producing new internal objects.

While the medieval discussion of external and internal senses has caught the attention of some scholars, the transition into the early modern period has been poorly explored. Katharine Park has noted that in the early modern period the nuanced models of the many interacting internal senses were either conflated into one single sense, often imagination, or, at least those that were not attested by Aristotle were rejected. Another trend was that sixteenth century philosophers abandoned the older abstract theories of the soul and turned instead to classic and contemporary medicine for more precise models.¹⁴⁶ While these observations are certainly correct, the division between external and internal senses and external and internal experience continued to play a role for early modern thinkers such as Descartes, Leibniz and Locke.¹⁴⁷ When Wolff discussed the soul in his *German Metaphysics* he painted the following picture.¹⁴⁸ Things are first sensed through the five external senses. These sensations are then passed on to imagination (*Einbildungskraft*) and memory (*Gedächtnis*). While imagination presents non-present things, which includes both previously sensed things and completely imaginary things such as unicorns, the role of memory is to establish whether representations are recollections of previous sensations and perceptions. More than a decade after the *German Metaphysics* Wolff pre-

¹⁴⁵ Stenecck, "Albert on the Psychology of Sense Perception," 263; Park, "The Organic Soul," 466–67.

¹⁴⁶ Park, "The Organic Soul," 480–81.

¹⁴⁷ This is clear from the following passages: Descartes, "Rules for the Direction of the Mind," 46–47, 12; John Locke, *An Essay Concerning Human Understanding*, ed. P. H. Nidditch, The Clarendon Edition of the Works of John Locke (Oxford: Oxford University Press, 1979), E II.i: 104; Gottfried Wilhelm Leibniz, "Discourse on Metaphysics," in *Philosophical Essays*, trans. Roger Ariew and Daniel Garber (Indianapolis: Hackett Pub. Co, 1989), 59; Gottfried Wilhelm Leibniz, "Letter to Queen Sophie Charlotte of Prussia, On What Is Independent of Sense and Matter (1702)," in *Philosophical Essays*, trans. Roger Ariew and Daniel Garber (Indianapolis: Hackett Pub. Co, 1989), 186.

¹⁴⁸ Wolff, *German Metaphysics*, 125–49.

sented a more elaborate model of cognition in *Psychologia empirica* (1732).¹⁴⁹ The model was largely similar with the exception that the role of imagination (*imaginatio*) had been restricted to sensations, and that completely imaginary objects (*phantasmata*) were produced by a separate faculty of fantasy (*facultate fingendi*). The role of memory, in contrast, remained that of recognising representation as recollections.¹⁵⁰

Placed side by side, Avicenna and Wolff's models of the human cognition shared a common structure. They both answered the question of how information received through the external senses is processed internally.



Figure 5. Comparison of Avicenna and Wolff's divisions between external and internal senses.

My point here is not that Wolff depended or drew on Avicenna, but that he depended on and contributed to a well-established and commonly accepted philosophical theme. In this sense Wolff was just one of many early modern philosophers struggling to understand human cognition in terms of external and internal senses.

Operating with the inner senses

Drawing on a long and well-established tradition, Wolff charted human cognition in terms of external and internal senses. But how did these senses actually

¹⁴⁹ In *Psychologia empirica* Wolff distinguished between the inferior and the superior cognitive faculties. While *imagination*, *fantasy* and *memory* belonged to the inferior, the superior faculties included *attention*, *reflection* and the *intellect*. See part one, section two and three in: Wolff, *Psychologia empirica*.

¹⁵⁰ *Ibid.*, 20–166.

operate? How did one acquire empirical knowledge through the external and the internal senses?

In Wolff's scheme, experience signified that which is known by attending to perception (*perceptio*, *cogitatio*, *Gedancke*) or sensation (*sensatio*, *Empfindung*).¹⁵¹ When defining experience in this broader sense Wolff often used the term *experientia* (experience).¹⁵² "We are said to *experience* everything that we know after it has been brought to our perception. But the very knowledge of these things, which, through sole attentiveness lie open to our perception, is called *experience*."¹⁵³ Perception had been firmly established as the backbone of experience in Aristotle's notion of *empeiria* (experience).¹⁵⁴ According to Aristotle, experience is the result of many singular perceptions accumulated in memory: "So from perception there comes memory, as we call it, and from memory (when it occurs often in connection with the same thing), experience; for memories that are many in number form a single experience."¹⁵⁵ This notion of experience was reproduced by scholastics and adopted by Wolff and many other philosophers.¹⁵⁶

For Wolff, experience meant certain or indubitable knowledge. A good example of how such certain empirical knowledge worked is the demonstration, which, as we saw in the last section, boiled down to one or a few definitions, axioms and indubitable experiences. To exemplify, we return to Wolff's pedagogical example of the moon:

I once made the definition: everything that makes the surrounding things visible is a light. Now, I find from experience: the moon makes everything around me visible. Thus I conclude: the moon is a light.¹⁵⁷

An empirical proposition followed after the definition. The role of this proposition was to confirm that a certain thing in reality had a certain property stated in the definition. To fill this function the empirical proposition had to express

¹⁵¹ In Wolff's philosophy, sensation and perception had a similar but not identical meaning. Whereas perception signified the representation of any object in the mind, sensation referred to the representation of objects brought by the external senses. Despite this difference it is clear that Wolff, at least in this context, used the terms almost interchangeably. This can be concluded from the following passages: Wolff, *German Logic*, 123, 181; Wolff, *German Metaphysics*, 122, 674; Wolff, *Psychologia empirica*, 17, 37–38.

¹⁵² For definitions of experience see: Wolff, *German Logic*, 181; Wolff, *German Metaphysics*, 181; Wolff, *Latin Logic II*, 481.

¹⁵³ Wolff, *Latin Logic II*, 481. "*Experiri* dicimur, quicquid ad perceptiones nostras attentè cognoscimus. Ipsa vero horum cognitio, quae sola attentione ad perceptiones nostras patent, *experientia* vocatur."

¹⁵⁴ F. Kambartel, "Erfahrung," ed. Joachim Ritter et al., *Historisches Wörterbuch der Philosophie* (Basel: Schwabe, 1971).

¹⁵⁵ Aristotle, *Posterior Analytics*, 100a.

¹⁵⁶ Kambartel, "Erfahrung."

¹⁵⁷ Wolff, *German Logic*, 163. "Ich habe einmahl die Erklärung gemacht: alles, was die umstehenden Sachen sichtbar machet, ist ein Licht. Nun finde ich durch die Erfahrung: Der Mond machet alles um mich sichtbar. Derowegen schliesse ich: der Mond ist ein Licht."

an indubitable experience, that is, an experience that simply could not be doubted. Related to this aspect of experience was the Aristotelian-Scholastic distinction between historical and philosophical knowledge.¹⁵⁸ While the former signified the mere empirical or factual knowledge of existing things, the latter referred to the knowledge of causes. The meaning of historical knowledge here collided with that of experience, both indicating a certain and indubitable but yet basic factual knowledge. Drawing on the Scholastic tradition, Wolff already distinguished between factual and causal knowledge in the *German Logic* (1713).¹⁵⁹ Fifteen years later he refined this division in the *Latin Logic* (1728), thus distinguishing between historical, philosophical and mathematical knowledge (*historica, philosophica, mathematica*). While the two latter categories signified knowledge of the causes of things, the former referred to merely empirical knowledge of the world.

Knowledge of those things that are and occur either in the material world or in immaterial substances is called history. For example, historical knowledge is possessed by him who knows from experience that the sun rises in the morning and sets in the evening, that at the beginning of spring the buds of trees blossom forth, that animals are propagated by generation, that we desire nothing except under the aspect of good.¹⁶⁰

Wolff's notion of experience followed the logic of what Dear has described as universal and evidently true experience.¹⁶¹ This type of Aristotelian-Scholastic experience generally took the form of statements of how things are or how they behave. These statements were commonly accepted either by means of everyday experience or by support from canonical texts.¹⁶² Based on such propositions much early modern science, including Wolff's philosophy, took the form of large-scale hierarchical and ideally impenetrable systems of universal and indubitable truths.

So much for the Wolffian notion of experience; but what did it mean to actually consult experience? How did one arrive at universal and evidently true propositions? Looking at the larger picture, it is clear that such propositions

¹⁵⁸ See: Gianna Pomata and Nancy G. Siraisi, "Introduction," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: MIT Press, 2005); Donald R. Kelly, "Between History and System," in *Historia: Empiricism and Erudition in Early Modern Europe* (Cambridge, MA: MIT Press, 2005). See also the seminal study: Arno Seifert, *Cognitio historica: Die Geschichte als Namensgeberin der frühneuzeitlichen Empirie* (Berlin: Duncker und Humblot, 1976).

¹⁵⁹ Wolff, *German Logic*, 115.

¹⁶⁰ Wolff, *Preliminary Discourse*, 3; Wolff, *Latin Logic* I, 2. "Cognitio eorum, quae sunt atque fiunt, sive in mundo materiali, sive in substantiis immaterialibus accidunt, historica a nobis appellatur. E. gr. Historica eius est cognitio, qui expertus novit, solem mane oriri, vespere autem occidere; initio veris gemmas effrondescere arborum; animalia propagari per generationem; nos nil appetere nisi sub ratione boni."

¹⁶¹ Dear, "Totius in Verba"; Dear, "Jesuit Mathematical Science"; Dear, "From Truth to Disinterestedness"; Dear, *Discipline and Experience*; Dear, "The Meanings of Experience."

¹⁶² Dear, *Discipline and Experience*, 22.

ultimately relied on singular perceptions or observations.¹⁶³ When it came to the production of such propositions, however, the philosopher turned to the mass of perceptions reconstructed through imagination and memory rather than to actual perceptions and observations.¹⁶⁴ In the *German Logic* Wolff discussed specific empirical methods for how to form clear and distinct concepts, definitions, and propositions.¹⁶⁵ A common factor for these methods was that the philosopher ought to use the mass of singular perceptions to discern the distinguishing features of a thing, that is, the kind of features that made a thing into a specific *kind* of thing. Likewise, in the *Latin Logic*, written sixteen years later, Wolff discussed *reflexio* as a specific method through which the philosopher discerns and reflects on singular perceptions.¹⁶⁶ Again, the goal was to reach clear and distinct concept, definitions and propositions by discerning distinguishing features.

While the *German* and the *Latin Logic* primarily addressed the issue of how to form concepts, definitions and propositions from a methodological angle, the *German Metaphysics* and the *Psychologia empirica* explored the cognitive side of this operation.¹⁶⁷ In the *German Metaphysics* Wolff painted a picture of how perceptions are passed on from the external senses to imagination and memory. However, refining these perceptions into philosophical knowledge required the involvement of attention (*Aufmerksamkeit*), intellect (*Verstand*) and reason (*Vernunft*). In the *Psychologia empirica* Wolff elaborated further on this chain of information processing. Here Wolff distinguished between the inferior (*inferiori*) and the superior (*superiori*) cognitive faculties.¹⁶⁸ Imagination (*imaginatio*), fantasy (*facultas fingendi*) and memory (*memoria*) belonged to the inferior faculties: attention (*attentio*), reflection (*reflexio*) and intellect (*intellectus*) belonged to the superior faculties. While the inferior faculties processed information more or less automatically, the role of the superior faculties was to focus, select, order and evaluate.

In relation to the prevailing history of experience as observations of natural objects made by the external senses, Wolff's theory points in quite another direction. According to him, to consult experience primarily meant to engage in an internal operation of the mind. More specifically, it meant to apply particular methods that activated the whole spectrum of cognitive faculties from imagination and memory to attention, reflection and intellect. That actual observations

¹⁶³ Drawing on the Aristotelian-Scholastic tradition Wolff held it as a doctrinal fact that experience always boils down to singular perceptions. See: Kambartel, "Erfahrung." For Wolff's expression of this doctrine see: Wolff, *German Logic*, 181; Wolff, *Latin Logic II*, 481.

¹⁶⁴ That scientific demonstrations seldom required actual observations has also been pointed out by Dear: Dear, *Discipline and Experience*, 45.

¹⁶⁵ See: Wolff, *German Logic*, 123–51, 181–89.

¹⁶⁶ Wolff, *Latin Logic II*, 515–16. See also Gómez Tutor's detailed discussion: Gómez Tutor, *Die wissenschaftliche methode bei Christian Wolff*, 160–63.

¹⁶⁷ Human cognition was discussed in the third chapter of the *German metaphysics*. Later on Wolff elaborated this chapter into what became the *Psychologia empirica*.

¹⁶⁸ See part one, section two and three of Wolff's *Psychologia empirica*.

were secondary in this process was fully in accordance with the logic of the universal and evidently true experience. In this sense Wolff followed a commonly accepted and completely uncontroversial early modern epistemic order.

Inner experience

So far I have argued that Wolff and many other early modern intellectuals organised experience as a continuous and progressive scale from the external to the internal. Furthermore, to consult experience was primarily a matter of engaging in an internal operation of the mind rather than making actual observations of things in nature. In this part of the section I elaborate further on this latter aspect, arguing that experience allows equally for external and internal objects of experience, without any difference in epistemological status. To realise that this is the case with Wolff, one simply has to look at some of his basic definitions of the cluster of concepts involved in experience.

We call it experience, the knowledge we have obtained by attending to *our sensations and the alterations of the soul* [my italics].¹⁶⁹

Knowledge of those things that are and occur either in *the material world or in immaterial substances* [my italics] is called history.¹⁷⁰

Everyone recognises it as true that he sensates plenty of things. But I'm saying that we sensate something when we are aware of this thing that is present to us. Thus, we sensate *the pain, the noise, the light and our own thoughts* [my italics].¹⁷¹

It is said that the mind perceives when it represents an object to itself. Hence, perception is an act of the mind, through which it represents whatever object to itself. Thus, *we perceive colours, odours, sounds; the mind perceives itself and the transformations of its states* [my italics].¹⁷²

¹⁶⁹ Wolff, *German Metaphysics*, 181. "Die Erkenntniß, dazu wir gelangen, indem wir auf unsere Empfindungen und die Veränderungen der Seele acht haben, pflegen wir Erfahrung zu nennen."

¹⁷⁰ Wolff, *Preliminary Discourse*, 3; Wolff, *Latin Logic I*, 2. "Cognitio eorum, quae sunt atque fiunt, sive in mundo materiali, sive in substantiis immaterialibus accidant, historica a nobis appellatur."

¹⁷¹ Wolff, *German Logic*, 123. "Ein jeder nimmet bey sich selbst wahr, daß er viele Dinge empfindet. Ich sage aber, daß wir etwas empfinden, wenn wir uns desselben als uns gegenwärtig bewusst sind. So empfinden wir den Schmerz, den Schall, das Licht und unsere eigene Gedancken."

¹⁷² Wolff, *Psychologia empirica*, 17. "Mens percipere dicitur, quando sibi objectum aliquod repraesentat: ut adeo Perceptio sit actus mentis, quo objectum quodcunque sibi repraesentat. Ita percipimus colores, odores, sonos: mens percipit seipsum & mutationes in se contingentes." See also: Wolff, *German Logic*, 124.

What these definitions of experience, historical knowledge, sensation and perception have in common is that they all indicate both external and internal objects of experience. It's also worth noticing the way in which this is done, effortlessly without further motivation or justification. How could this be? Why didn't Wolff justify or even discuss possible epistemic differences between external and internal objects of experience? The answer is both obvious and revealing. Wolff did not discuss it because he did not need to, because at the time it was a commonly accepted fact that no one would think of questioning. In this light, Wolff becomes an example that illustrates the much more profound epistemic level regarding the scope and limitations of early modern experience.

Given the fact that experience referred equally to external and internal objects, what did it mean to consult experience of internal objects and to refine these experiences into empirical propositions? To answer this question I will now analyse Wolff's famous demonstration of the existence of the soul. While scholars have traditionally placed this particular argument in the context of the Cartesian cogito, I will focus on the way in which the demonstration built on the internal and indubitable experience of the existence of one's own soul.¹⁷³

As a first step in the demonstration Wolff set the scene by arguing that the existence of the soul is confirmed from experience.

We experience through every movement that we are conscious of ourselves and other things that exist outside us. There is no need of anything but attention to our perceptions, in order to be sure of this thing.¹⁷⁴

According to Wolff, the consciousness of the self and of external things was an example of an indubitable experience. To realise this one only needed to turn one's gaze inwards and attend to one's own perceptions. Furthermore, it would be contradictive to doubt the existence of the soul, and here Wolff draws on

¹⁷³ For such traditional readings see: Richard J. Blackwell, "Christian Wolff's Doctrine of the Soul," *Journal of the History of Ideas* 22, no. 3 (1961): 339–54; Charles A. Corr, "Cartesian themes in Wolff's German metaphysics," in *Christian Wolff, 1679–1754: Interpretationen zu seiner Philosophie und deren Wirkung mit einer Bibliographie der Wolff-Literatur*, ed. Werner Schneiders, Studien zum achtzehnten Jahrhundert 4 (Hamburg: Felix Meiner, 1983); Werner Euler, "Untersuchungen zur Transformation des Cartesischen 'Cogito,'" in *Die Psychologie Christian Wolffs: systematische und historische Untersuchungen*, ed. Oliver-Pierre Rudolph and Jean-François Goubet, Hallesche Beiträge zur europäischen Aufklärung 22 (Tübingen: Niemeyer, 2004); Luigi Cataldi, "Die Erkenntnis der Existenz in der Philosophie von Christian Wolff," in *Macht und Bescheidenheit der Vernunft: Beiträge zur Philosophie Christian Wolffs: Gedenkeband für Hans Werner Arndt*, ed. Luigi Cataldi and Hans Werner Arndt, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente Bd. 98 (Hildesheim: Olms, 2005); For the natural theological context see: Anton Bissinger, *Die Struktur der Gotteserkenntnis: Studien zur Philosophie Christian Wolffs*. (Bonn: H. Bouvier, 1971); Charles A. Corr, "The Existence of God, Natural Theology, and Christian Wolff," *International Journal for Philosophy of Religion* 4, no. 2 (1973): 105–18.

¹⁷⁴ Wolff, *Psychologia empirica*, 9. "Nos esse nostri rerumque aliarum extra nos constitutarum concios quovis momento experimur. Non opus est nisi attentione ad perceptiones nostras, ut ea de re certi simus."

Descartes, simply stating that doubt presupposes thinking and therefore existence. A few pages later, in paragraph 16 of *Psychologia empirica* Wolff presents the demonstration in the form of a syllogism.

Whatever being is conscious of itself and of other things outside itself through action, it exists. And we are conscious of ourselves and of other things outside ourselves. Thus we exist.¹⁷⁵

Wrapped up as a syllogism Wolff's demonstration of the existence of the soul was based on two premises. The first was an axiom, the correctness of which one realises in so far as one understands the words in which it is composed. The second was an indubitable empirical proposition. The role of this proposition was to further support the axiom by invoking indubitable experience. From this followed the conclusion that we exist.

While Dear and others have recognised that the evidently and universally true experience seldom required actual observations, the point I wish to make here is that the consequences to be drawn from this are far wider than has hitherto been assumed. First, since the evidently true experience is in itself a product of an internal operation of the mind that does not require actual observations, it does not require a big step to consider experiences of internal objects such as the soul and its states. Experiences of such objects rely on the same internal operation of the mind and are therefore not epistemologically inferior to experiences of falling bodies or blossoming flowers. Second, rather than being epistemologically inferior, internal objects of experience provide even more certain and indubitable knowledge. This is because they are not susceptible to the fallibility of the external senses.

Wolff's psychology as *cultura animi*

While many early modern philosophers took it for granted that one can experience things in the world as well as things in one's own soul – thoughts, feelings, volitions etc. – Wolff stands out by elaborating the knowledge of the soul into a distinct science labelled empirical psychology.¹⁷⁶ As a science devoted exclusive-

¹⁷⁵ Ibid., 12. "Quodcunque ens sui ipsius aliarumque rerum extra se sibi actu conscius est, illud existit. Atqui Nos nostri aliarumque rerum extra nos actu nobis conscii sumus. Ergo Nos existimus." See also: Wolff, *German Metaphysics*, 4.

¹⁷⁶ Although Wolff did not coin the term psychology, which had been in use since the early sixteenth century, he is commonly credited for having launched the distinction between empirical and rational psychology. As Jean École points out, Wolff probably taught the distinction to his students some years before he first introduced it in the *Ausführliche Nachricht* in 1726. Two years later he discussed the distinction in the programmatic *Discursus praeliminaris de philosophia in genere* and in the early 1730s it became the backbone of the two voluminous treatises *Psychologia empirica* (1732) and *Psychologia rationalis* (1734).

ly to empirical knowledge of the soul and its states, empirical psychology appears as a singular large manifestation of inner experience. But what kind of project was empirical psychology?

For historians of philosophy the answer is clear: Wolff's empirical psychology was a contribution to epistemology.¹⁷⁷ For historians of psychology the answer is equally clear: empirical psychology was an early attempt to found psychology as a science based on experience.¹⁷⁸ Both groups of scholars fall prey to

For the Wolffian distinction between empirical and rational psychology see: Oliver-Pierre Rudolph and Jean-François Goubet, "Einleitung: Die Psychologie Christian Wolffs: Systematische Und Historische Untersuchungen," in *Die Psychologie Christian Wolffs: Systematische Und Historische Untersuchungen*, ed. Oliver-Pierre Rudolph and Jean-François Goubet, Hallesche Beiträge Zur Europäischen Aufklärung 22 (Tübingen: Niemeyer, 2004); École, *La métaphysique de Christian Wolff*, 55; Wolff, "Christian Wolff's Prolegomena"; Francois H. Lapointe, "The Origin and Evolution of the Term 'Psychology,'" *American Psychologist* 25, no. 7 (1970): 640–46.

For the origin of the term "psychology" see: Fernando Vidal, *The Sciences of the Soul: The Early Modern Origins of Psychology*, trans. Saskia Brown (Chicago: University of Chicago Press, 2011); Josef M. Brozek, "From 'Psichiologia' to 'Psychologia': A Graphically Documented Archival Study Across Three Centuries," *Journal of the History of the Behavioral Sciences* 35, no. 2 (1999): 177–80; Francois H. Lapointe, "Who Originated the Term 'Psychology,'" *Journal of the History of the Behavioral Sciences* 8, no. 3 (1972): 328–35; Lapointe, "The Origin and Evolution of the Term 'Psychology'"; Kruno Krstic, "Marko Marulic: The Author of the Term 'Psychology'" (Psihologijski Institut, Filozofski Fakultet, Zagreb, 1964). Before Lapointe's articles Philipp Melancthon was commonly held to be the person who originated the term psychology. As Lapointe shows, however, there is no evidence that he actually used the term. Regardless who originated the term it was used in a number of sources during the sixteenth century. In sharp contrast to most other scholars Brozek argues that the term is of much earlier origin, and that it originated as a transcription of a Byzantine neologism used in the thirteenth century. Unfortunately, as Brozek also points out, there are hitherto no extensive studies devoted to this part of the history of the term psychology.

¹⁷⁷ This tendency can be illustrated through the disproportionate interest in Wolff's cogito argument. See: Blackwell, "Christian Wolff's Doctrine of the Soul"; Corr, "Cartesian themes in Wolff's German metaphysics"; Euler, "Untersuchungen zur Transformation des Cartesischen 'Cogito'"; Cataldi, "Die Erkenntnis der Existenz in der Philosophie von Christian Wolff"; For the natural theological context see: Bissinger, *Die Struktur der Gotteserkenntnis*; Corr, "The Existence of God, Natural Theology, and Christian Wolff." For other examples of epistemological readings of Wolff's psychology see: Gary Hatfield, "Empirical, Rational and Transcendental Psychology: Psychology as Science and as Philosophy," in *The Cambridge Companion to Kant and Modern Philosophy*, ed. Paul Guyer (Cambridge: Cambridge University Press, 2006); Gary Hatfield, "Remaking the Science of Mind. Psychology as Natural Science," in *Inventing Human Science: Eighteenth-Century Domains*, ed. Christopher Fox, Roy Porter, and Robert Wokler (Berkeley: University of California Press, 1995); Hans-Jürgen Engfer, "Von der leibnizschen Monadologie zur empirischen Psychologie Wolffs," in *Nuovi studi sul pensiero di Christian Wolff*, ed. Sonia Carboncini and Luigi Cataldi Madonna, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 31 (Hildesheim: Olms, 1992).

For an interesting reconstruction of the historical context of eighteenth century psychology (which does not take into account the *cultura animi* tradition despite the contextualist focus) see: Vidal, *The Sciences of the Soul*; Fernando Vidal, "Psychology in the 18th Century: A View From Encyclopaedias," *History of the Human Sciences* 6, no. 1 (1993): 89–119.

¹⁷⁸ For recent examples see: Saulo de Freitas Araujo, *Wundt and the Philosophical Foundations of Psychology: A Reappraisal* (Cham: Springer International Publishing, 2016); Saulo de Freitas Araujo, "The Idea of Rational Psychology in Christian Wolff's German Metaphysics (1720)," *Universitas Psychologica* 13, no. 5 (2014): 1655–66; Alfred H. Fuchs and Katharine S. Milar, "Psychology as a

what Haakonssen has labelled the “epistemological paradigm”, and what Quentin Skinner has referred to as “anticipations of later doctrines.”¹⁷⁹ By hypostasising perennial epistemological problems or scientific disciplines, historians of philosophy and psychology tend to prioritise questions of origins and originality at the expense of specific historical contexts.

This brings us to the next question. If empirical psychology was neither an epistemological project nor an attempt to found a modern science, what kind of project was it? In the last part of the section I argue that empirical psychology constituted the very core of the Wolffian *cultura animi*. In order to show this I shift focus from the details to the overall justification of empirical knowledge of the soul and its faculties and states.

What was the purpose of empirical psychology? In the preface to the *German Metaphysics* Wolff emphasised that the analysis of the nature and character of the soul contributed to the promotion of virtue.¹⁸⁰ Shortly thereafter he wrote in the preface to the *German Ethics*: “He who wants to live a virtuous life must know the virtues and be able to distinguish them from the conspicuous appearance that frequents the passions.”¹⁸¹ Six years later, this time in the *Ausführliche Nachricht* (*Extensive News*, 1726), he again emphasised that virtuous action presupposes knowledge of the soul.¹⁸² In summarising Wolff’s many remarks on the topic, a picture emerges of a war against passions and affects. How was the philosopher to proceed in order to win this war? As a first step he was to learn to know the enemy. This is where empirical psychology came in: its task was to

Science,” in *History of Psychology*, ed. Donald K. Freedheim and Irving B. Weiner, *Handbook of Psychology* 1 (Hoboken: Wiley, 2003).

These disciplinary histories (which still tend to see Wolff as a prelude to modern scientific psychology) are part of the new type of more critically and contextually aware histories that replaced the kind of anachronistic and celebratory accounts that dominated before the 1960s. For the debate on the problematic historiography of psychology see: Robert M. Young, “Scholarship and the History of the Behavioral Sciences,” *History of Science* 5 (1966): 1–51; Walter B. Weimer, “The Problematic Nature of History,” *Science Studies* 4 (1974): 235–58; John R. Wettersten, “The Historiography of Scientific Psychology: A Critical Study,” *Journal of the History of the Behavioral Sciences* 11 (1975): 157–71; John M. O’Donnel, “The Crisis of Experimentalism in the 1920s: E. G. Boring and His Uses of History,” *American Psychologist* 34, no. 4 (1975): 289–95; Kurt Danziger, “Does the History of Psychology Have a Future?,” *Theory Psychology* 4, no. 4 (1994): 467–84; Hans J. F. Rappard van, “History of Psychology Turned Inside(r) Out: A Comment on Danziger,” *Theory Psychology* 7, no. 1 (1997): 101–5.

For older, celebratory and anachronistic accounts see: Hermann Ebbinghaus, *Abriss der Psychologie*, 2nd ed. (Leipzig, 1909); Georg S. Brett, *Brett’s History of Psychology*, 3 vols., 1912; Gardner Murphy, *Historical Introduction to Modern Psychology* (London, 1928); Edwin G. Boring, *A History of Experimental Psychology*, 3 vols. (New York, 1929); Walter B. Pillsbury, *History of Psychology* (New York, 1929).

¹⁷⁹ Haakonssen Knud, “The Idea of Early Modern Philosophy”; Quentin Skinner, *Visions of Politics* (Cambridge: Cambridge University Press, 2002), 63.

¹⁸⁰ Wolff, *German Metaphysics*, Vorrede.

¹⁸¹ Wolff, *German Ethics*, Vorrede. “Wer tugendhaft leben will, muß die Tugend kennen, und sie von dem grossen Scheine, den unterweilen die Laster haben, zu unterscheiden wissen.”

¹⁸² Wolff, *Ausführliche Nachricht*, 399.

uncover the nature and character of the soul and its faculties.¹⁸³ Here it was equally important to focus on both desires and affects – their general origins, causes and effects – as well as on the powers of will and reasons. If cultivated in the right way these latter faculties provided an effective safeguard against the forces of desire. As a second step the philosopher was to actively cultivate these faculties. This was a theme that Wolff discussed in some detail in the *German Ethics*. Following the natural law tradition of his time Wolff discussed ethics in terms of different duties (*Pflichten*).¹⁸⁴ He divided the duties towards oneself (*Pflichten gegen sich selbst*) into duties towards reason and will. In terms of the duties towards reason, Wolff stressed the importance of practice. The philosopher would preferably practice reason through scientific demonstration.¹⁸⁵ Since perfection of reason does not come easily, the philosopher was to conduct such exercises for a long time and with great concentration and patience. The duties towards the will were of equal importance. The will was, through natural law, inclined to act in accordance with reason and knowledge.¹⁸⁶ However, it was nonetheless important to enable this by engaging in exercises. The result of such practice was the establishment of good habits that reinforced the natural inclination towards good actions.¹⁸⁷

Empirical psychology served a pivotal role in Wolff's philosophy. Rather than an epistemological project or an attempt to found a new scientific discipline, however, its role was that of a vital cog in the larger wheel of philosophy as *cultura animi*. More specifically, it provided knowledge necessary both for its further cultivation in general and for virtues action in particular. When this side of Wolff's psychology is taken into account, we reach an understanding that takes us away from epistemology and disciplinary history towards the kind of project that Corneanu has referred to as the *cultura animi* tradition. The shift in perspective that this approach requires is not arbitrary but one that provides a more accurate understanding of the kind of project and activity that early modern philosophy and psychology constituted. Moreover, it also provides a new

¹⁸³ See the preface to the *German Metaphysics* and the preface and prolegomena to the *Psychologia empirica*: Wolff, *German Metaphysics*, Vorrede; Wolff, *Psychologia empirica*, 11–18, 1–8; Wolff, “Christian Wolff's Prolegomena.”

¹⁸⁴ See: Tim J. Hochstrasser and Peter Schröder, “Introduction,” in *Early Modern Natural Law Theories: Contexts and Strategies in the Early Enlightenment*, ed. T. J. Hochstrasser and Peter Schröder, International Archives of the History of Ideas 186 (Dordrecht: Kluwer, 2003); Merio Scattola, “Before and after Natural Law: Models of Natural Law in Ancient and Modern Times,” in *Early Modern Natural Law Theories: Contexts and Strategies in the Early Enlightenment*, ed. T. J. Hochstrasser and Peter Schröder (Dordrecht: Kluwer, 2003). For particular readings of Wolff see: Hunter, *Rival Enlightenment*, 265–73; T. J. Hochstrasser, *Natural Law Theories in the Early Enlightenment*, Ideas in Context 58 (Cambridge: Cambridge University Press, 2000), 150–86; J. B. Schneewind, *The Invention of Autonomy: A History of Modern Moral Philosophy* (Cambridge, NY: Cambridge University Press, 1998), 435–42.

¹⁸⁵ Wolff, *German Ethics*, 186–88.

¹⁸⁶ *Ibid.*, 245–46.

¹⁸⁷ *Ibid.*, 258.

understanding of experience as a crucial part of philosophical thinking as an internal operation of the mind.

Experimental experience

In the previous section I argued that experience was organised as a continuity from the external to the internal in Wolff's philosophy. To consult experience primarily meant to mobilise the internal spectrum of this continuity by means of an internal operation of the mind. Does this mean that actual singular observations did not have any place at all in Wolff's philosophy? Were they simply without value by being restricted to the singular? On the contrary, singular observations in fact served a pivotal and very specific role in Wolff's philosophy.

In this section I add complexity to the picture of experience by showing first, that singular observations constituted the very core of experimental philosophy, an occupation that Wolff was sincerely engaged in from his youth and throughout his life. Second, I argue that Wolff made experimental philosophy an integral but subordinated part of the demonstrative system. Third, I examine two of Wolff's rather unusual claims connected to experimental philosophy: the assertion that the soul can be measured, and the declaration that empirical psychology could use experiments in largely the same way as experimental physics. What did Wolff mean by these claims? Was this, as some scholars have claimed, the first embryonic attempt to found a modern experimental psychology? Or should these claims instead be dismissed as rhetorical flirtations with mathematics and experimental philosophy?

Wolff's breakthrough first came when he took the opportunity to take over the professorship in experimental philosophy after Hoffmann.¹⁸⁸ In addition to attracting a great number of students, the new commission would become the

¹⁸⁸ Wolff, "Christian Wolffs eigene Lebensbeschreibung," 146. There are hitherto relatively few studies of Wolff's natural and experimental philosophy. See: Alberto Vanzo, "Christian Wolff and Experimental Philosophy," in *Oxford Studies in Early Modern Philosophy, Volume VII*, ed. Daniel Garber and Donald Rutherford (Oxford University Press, 2015), 225–55; Daniela Gay, "Philosophie und empirisch-experimentelle Naturwissenschaften bei Johann Georg Sulzer und Christian Wolff," in *Christian Wolff und die europäische Aufklärung: Akten des 1. Internationalen Christian-Wolff-Kongresses, Halle (Saale), 4.-8. April 2004, Teil 5: Wolff und seine Schule, Wirkungen Wolffs, Wolff in Halle-Verreibung und Rückkehr*, ed. Jürgen Stolzenberg and Oliver-Pierre Rudolph, Christian Wolff Gesamelte Werke, Abt. 3, Materialien und Dokumente, Bd. 105 (Hildesheim: Olms, 2010); Wolfgang Walter Menzel, *Vernakuläre Wissenschaft: Christian Wolffs Bedeutung für die Herausbildung und Durchsetzung des Deutschen als Wissenschaftssprache*, Reihe Germanistische Linguistik 166 (Tübingen: Niemeyer, 1996); Günter Mühlpfordt, "Die organischen Naturwissenschaften in Wolffs empiriorationalistischer Enzyklopädistik," in *Nuovi studi sul pensiero di Christian Wolff*, ed. Sonia Carboncini and Luigi Cataldi Madonna, Christian Wolff Gesamelte Werke, Abt. 3, Materialien und Dokumente, Bd. 31 (Hildesheim: Olms, 1992); Jean Ecole, "De la notion de philosophie expérimentale chez Wolff," *Les Études philosophiques* 4 (1979): 397–406.

starting point of a life-long practical involvement with experimental philosophy.¹⁸⁹ The list of the different experimental studies that Wolff carried out is long and includes: the biology of a large number of different plants and animals; the physiology of the human body; the human sense organs; the effects of air, light and water on plants, animals and humans; the production of corn; the use and effects of air-pumps, etc.¹⁹⁰ Wolff's engagement in experimental philosophy resulted in a number of publications. In the early 1720s he published the practically oriented *Allerhand Nützliche Versuche, Dadurch zu genauer Erkenntnis der Natur und Kunst der Weg gebahnet wird* (*Various Useful Experiments, through which the Way is Cleared to a More Precise Knowledge of Nature and Art*, 1721–1723) in three volumes.¹⁹¹ The focus of these volumes was on detailed descriptions of a wide range of experimental studies. Following the practical treatise, his more theoretical *Naturphilosophie* was published in 1723–1725, also in three volumes.¹⁹² In terms of sources of inspiration, it is clear that Wolff leaned heavily on the British tradition; the natural philosophical parts of his oeuvre is heavy with appreciative references to British philosophers such as Isaac Newton, John Locke, Robert Boyle, Robert Hook and others. In particular, Boyle's experiment with the air-pump and Hook's *Micrographia* (*Micrography*, 1665) were frequently discussed and referred to.¹⁹³ During his lifetime Wolff also became an elected member of the Royal Society, the Berlin Academy, St. Petersburg Academy and the Paris Academy of science.¹⁹⁴ Wolff's references to and contact with British experimental philosophers as well as his membership in the main European academies clearly show that he was deeply involved in experimental philosophy.

The role of the experimental experience

As we have seen throughout this chapter, Wolff organised his philosophical system around the demonstrative method, which was based on definitions,

¹⁸⁹ Mühlpfordt, "Die organischen Naturwissenschaften in Wolffs empiriorationalistischer Enzyklopädistik."

¹⁹⁰ Ibid.

¹⁹¹ Christian Wolff, *Allerhand nützliche Versuche, dadurch zu genauer Erkenntnis der Natur und Kunst der Weg gebahnet wird, Teil I*, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 20:1 (Hildesheim: Olms, 1982); Christian Wolff, *Allerhand nützliche Versuche, dadurch zu genauer Erkenntnis der Natur und Kunst der Weg gebahnet wird, Teil II*, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 20:2 (Hildesheim: Olms, 1982); Christian Wolff, *Allerhand nützliche Versuche, dadurch zu genauer Erkenntnis der Natur und Kunst der Weg gebahnet wird, Teil III*, Christian Wolff Gesammelte Werke, Abt. 1, Deutsche Schriften, Bd. 20:3 (Hildesheim: Olms, 1982).

¹⁹² Wolff, *German Physics*; Wolff, *German Teleology*; Wolff, *German Physiology*. For a discussion of Wolff's *Naturphilosophie* see: Mühlpfordt, "Die organischen Naturwissenschaften in Wolffs empiriorationalistischer Enzyklopädistik."

¹⁹³ See for instance: Wolff, *German Logic*, 134–35, 181–82; Wolff, *Allerhand nützliche Versuche I*, 107–29.

¹⁹⁴ Wolff, "Christian Wolffs eigene Lebensbeschreibung," 148–58.

axioms and empirical propositions. The empirical propositions generally built on indubitable experience in the form of historical facts. In addition to this form of experience there was also the experiment.

In the Middle Ages the Greek *empeiria* was transferred to and echoed in the Latin *experientia* and *experimentum*, two originally interchangeable terms.¹⁹⁵ Whereas *experientia* remained the overall term for experience, *experimentum* gradually acquired a more specific meaning, and in the seventeenth century it was often contrasted to *observatio*, a term originally used within medicine and astronomy.¹⁹⁶ Francis Bacon distinguished between *observatio* and *experimentum* on the basis of whether one intervened in the course of nature or, studied things as they occurred without any intervention.¹⁹⁷ Leibniz later remarked that certain experiences that are obtained without any intervention are better referred to as observations. By the late seventeenth century the distinction had become common in intellectual Europe, and in the mid-eighteenth century usage in English and German had crystalized around some form of the distinction.¹⁹⁸ When Wolff provided his own definitions in the *Psychologia empirica*, he therefore did little more than to reproduce a commonly established epistemic order. “Observation is experience, that is centred around the facts of nature, obtained without our intervention. Experiment is experience, that is centred around the facts of nature, which cannot be obtained without our intervention.”¹⁹⁹ For Wolff *observatio* and *experimentum* conveyed a somewhat more specific meaning than *experientia*, capturing the observation of and interference in the course of nature, rather than the mere factual knowledge. In this context Wolff also made a further subdivision of historical facts into common historical facts (*cognitio historica communis*) and hidden historical facts (*cognitio historica arcana*).

While some facts of nature are hidden, others are so apparent that they require only attention and, of course, some acumen. The hidden facts must be brought to light by skilled investigators, and even then they are not known unless reason gives its assistance to the senses. As a result we distinguish between common and hidden historical knowledge.²⁰⁰

While the common historical facts were directly observable without any intervention, the hidden facts were revealed through either experiments or craft

¹⁹⁵ Park, “Observation in the Margins.”

¹⁹⁶ Ibid.

¹⁹⁷ Daston, “The Empire of Observation,” 86.

¹⁹⁸ Ibid.

¹⁹⁹ Wolff, *Psychologia empirica*, 357. “Observatio est experientia, quae versatur circa facta naturae sine nostra opera contingentia. Experimentum est experientia, quae versatur circa facta naturae, quae nonnisi interveniente opera nostra contingunt.”

²⁰⁰ Wolff, *Preliminary Discourse*, 12; Wolff, *Latin Logic I*, 10. “Facta igitur naturae alia cum lateant, alia vero pateant, ita ut haec sola attentione agnoscantur, etsi subinde acumine quodam opus sit; illa vero singularibus artificiis in apicum producenda & in apicum producta non agnoscantur, nisi sensui ratio suppetias ferat; cognitionem historicam distinguimus in communem & arcanam.”

(*art*).²⁰¹ In the latter case, artificial situations were created in which the hidden phenomena were disclosed. While this terminology was developed in the *Latin Logic*, the distinction itself was discussed at some length already in the *German Logic*.

When someone says, he knows from experience that the air is heavy, than it is not obvious for everyone what perception he has had when he recognised the heaviness of air. It is therefore necessary that he refers to a specific case in which he recognised the heaviness of air, as for instance, that he carefully emptied the air out of a very big glass-container or a copper-globe, with help of the air-pump, whereupon he hung it on the very long arm of a scale, after which it indicated a big difference in weight. Although this signifies the actual experience, the proposition “the air is heavy” can be concluded from it. On the contrary, when someone concludes from experience that poured out water makes the table wet, it would be pointless if he referred to a specific case. Because it is a thing that occurs daily, there should be no one who has never seen that happen. And if there would be someone who has never yet seen such an event he could easily pour water on the table and see that it becomes wet.²⁰²

According to Wolff, the proposition “poured out water makes the table wet” is an example of an evidently true proposition. Since it is confirmed by everyday experience it would be pointless to refer to specific cases. Instead, one only needs to consult one’s own experience (as stored in memory) of how things generally behave in the world. In contrast, the proposition “air is heavy” lies beyond the reach of everyday experience. By creating artificial situations of experimental intervention, however, it is possible to reveal such hidden phenomena of nature.

²⁰¹ At the time it was common to distinguish between science (*episteme/scientia*) and art (*technē/ars*), a distinction first introduced by Aristotle. While science designated logically and empirically demonstrable knowledge of truth, art referred to the skilled practice of manipulating material things. In ancient Greece and in the Middle Ages, art was often practiced by the lesser ranked craftsmen whereas science, of which experimental philosophy became a part, was excersised by the social and intellectual elite. See: Dear, *The Intelligibility of Nature*, 8–9; Mühlpfordt, “Die organischen Naturwissenschaften in Wolffs empiriorationalistischer Enzyklopädistik,” 85; Wolff, *Latin Logic I*, 11.

²⁰² Wolff, *German Logic*, 181–82. “Wenn einer saget, er habe es aus der Erfahrung, daß die Luft schwer sey; so sind nicht gleich einem jeden die Empfindungen klar, die er gehabt, als er die Schwere der Luft erkannte. Derowegen ist nöthig, daß er einen besondern Fall anführe, da er die Schwere der Luft erkannt hat, als, daß er eine sehr grosse gläserne oder auch küpferne Kugel durch Hülfe der Luft-Pumpe von der Luft auf das sorgfältigste ausgeleeret, nachdem dieselbe an den langen Arm einer Schnell-Wage gehänget, und alsdann das Gewichte, welches zuvor mit ihm gleich inne gestanden, einen grossen Ausschlag gegeben. Denn dieses ist eigentlich zu reden die Erfahrung, der Satz aber: die Luft ist schwer, ist daraus geschlossen worden. Hingegen wenn einer as der Erfahrung annimmt: das ausgeschüttete Wasser mache den Tisch naß; so wäre unnötig, wenn er einen besonderen Fall hiervon anführen wolte. Denn weil es eine Sache ist, die sich täglich zuträget; so ist wohl niemand, der diese Erfahrung nicht vielmahl solte gehabt haben. Und wenn ja jemand seyn solte, der solches noch nicht gesehen; so kan er leicht Wasser auf den Tisch schütten, und sehen, wie der Tisch davon naß wird.”

As Dear has pointed out, experimental experience generally described specific events.²⁰³ At the same time as this enabled knowledge of unique hidden facts of nature, reliance on singular observations made the experimental experience especially vulnerable to the fluctuations and arbitrariness of the external senses. In order to compensate for these shortcomings, natural philosophers developed a number of specific techniques.²⁰⁴ First of all, experiments were often conducted and replicated officially in settings where they could be observed by a number of credible witnesses, preferably from the upper classes. The use of witnesses served as an important compensation for the fallibility of the senses. Another way of securing evidence was to scrupulously note down everything that happened in the experiments and to compile detailed texts that could later be circulated to others, who, in turn, could virtually witness them being conducted.²⁰⁵ All these ways of accumulating evidence were in glaring contrast to the old natural philosophy where experience referred to what everyone already knew by virtue of daily experience or authoritative texts.

When expounding on experiments, Wolff essentially reverted to the kind of epistemic techniques that have been described above.

It is, however, very necessary that every one who wishes to be wise from experience should carefully write down all his experiences, which do not occur daily, and diligently investigate them in all their circumstances. Especially when we have brought together things in nature, which would not otherwise come to one another, that is, when we experiment, can we assure ourselves of so much more; that we can observe in detail all the conditions under which something happens, when we repeat our experiment at another time, or let it be repeated by another person.²⁰⁶

According to Wolff, the experimental philosopher was to write down and diligently examine all experiences that did not occur daily. This was particularly relevant for experimental situations. Since the phenomena revealed in these situations were unique it was crucial to be highly focused and attentive to whatever occurred. For the same reason, experiments were to be replicated several times, preferably by different persons. What these techniques describe is, to

²⁰³ Dear, *Discipline and Experience*, 25.

²⁰⁴ Shapin and Schaffer, *Leviathan and the Air-Pump*, 55–60; Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996), 106–9.

²⁰⁵ Shapin and Schaffer, *Leviathan and the Air-Pump*, 55–60; Shapin, *The Scientific Revolution*, 106–9.

²⁰⁶ Wolff, *German Logic*, 187–88. “Es ist aber sehr nötig, daß ein jeder, welcher aus der Erfahrung klug werden will, alle seine Erfahrungen, die nicht täglich vorkommen, mit Bedacht aufschreibe, auch sie nach allen ihren Umständen fleißig untersuche. Absonderlich wenn wir nach unserem Gefallen Dinge in der Natur zusammen gebracht, die sonst nicht würden zu einander kommen seyn, das ist, wenn wir experimentiren, können wir uns um so viel mehr versichern, daß wir alle Bedingungen, unter welchen etwas geschieht, auf das genaueste in acht genommen, wenn wir unser Experiment zu einer andern Zeit wiederhohlen, oder auch von andern wiederhohlen lassen.”

phrase it in Dear's words, the way in which singular experiences of unique phenomena were not evident but provided evidence.²⁰⁷

Given Wolff's engagement in experimental philosophy and his acquaintance with the British tradition, his application of "British" epistemic techniques does not come as a surprise. In fact, the really interesting question does not lie in the connection to the British tradition but in the way experimental philosophy was implemented in Wolff's own philosophical system. To understand how this was done it is necessary to return to the example of the air-pump. Just like any other form of experience, the experiment was subsumed under the demonstrative system.

Definition: An expanding force is a constant effort to expand. Axiom 1: That which starts to expand, when the resistance is removed, is constantly striving to expand. Axiom 2: What causes a bladder to expand, when the resistance is removed, must also expand itself. Empirical proposition: When you leave some air in the bladder and tie it tight so that no air escapes and then hang it under an air-pump, and then pump out the farthest air, then the air will cause the bladder to expand. Conclusion: Air has an expanding force.²⁰⁸

The example provides the key to understanding the connection between the Wolffian demonstrative system and experimental philosophy. The relation between the two was not one of competition or exclusion but one of subordination of experimental philosophy to the demonstrative system. The role of the experiment was to accumulate evidence that could then be formed into empirical propositions used in demonstrations. Schematically, this can be illustrated as follows:

²⁰⁷ Dear, *Discipline and Experience*, 25.

²⁰⁸ In order to make the demonstration more pedagogical parts of it have been omitted. Wolff, *German Logic*, 177–78. "Erklärung. 1. Eine ausdehnende Kraft ist eine stete Bemühung, sich auszudehnen.... Der 1. Grund-Satz.... Was sich anfängt auszudehnen, wenn der Widerstand gehoben wird, ist in steter Bemühung, sich auszudehnen.... Der 2. Grund-Satz.... Was Eine Blase ausdehnet, wenn der Widerstand gehoben wird, muß sich auch selbst innerhalb derselben ausdehnen. Erfahrung.... Wenn man ein wenig Luft in die Blase lasset, sie vest verbindet, daß nichts davon heraus kan, alsdenn unter einer gläsernen Glocke aufhänget, und die äusserste Luft wegpumpet; so dehnet die Luft die Blase aus... Lehr-Satz.... Die Luft hat eine ausdehnende Kraft."

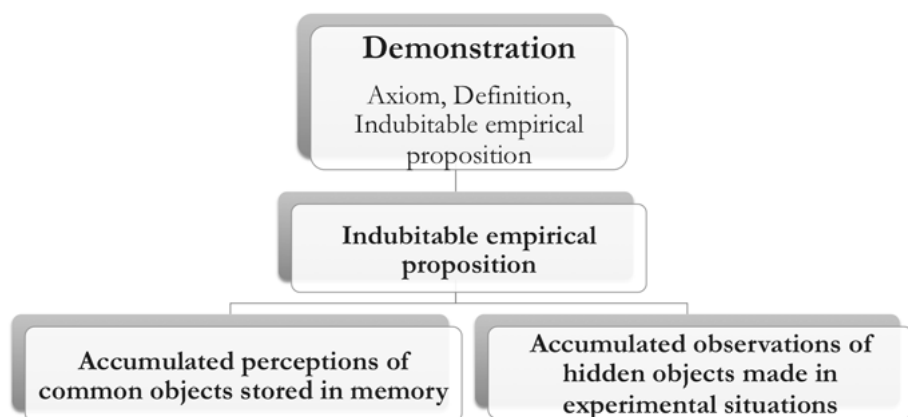


Figure 6. The role of experience in the Wolffian demonstration.

As the figure illustrates the evidently true and the experimental experience both served to provide indubitable empirical propositions.²⁰⁹ In this sense there was no epistemological conflict between these two experiences although they followed different logics and corresponded to completely different scientific practices. The incorporation of the experimental practice in the overall demonstrative system reflects Wolff's encyclopaedic vision of philosophy as a complete system of knowledge united by one universal method, a vision that he shared with Leibniz and many other early modern philosophers.

Measuring intensive magnitudes

In the previous section I argued that experience was organised along a continuous scale from the external to the internal. To consult experience primarily meant to mobilise the internal spectrum of this scale, a practice with the goal of producing empirical propositions. In this section, however, I show that Wolff also ascribed an important role to singular observations made in experimental situations. The role of these observations was to provide evidence of hidden phenomena of nature. As a part of his interest in experimental philosophy Wolff discussed the possibility of measuring and experimenting on the soul. In the remaining parts of this section I analyse this discussion, arguing that Wolff's claims should be placed in the context of his philosophy of perfection and ultimately in the context of the early modern *cultura animi*.

²⁰⁹ Similar points have been made by Dear regarding the relations between these two forms of experience. See: Dear, *Discipline and Experience*, 115.

When discussing quantification and measurability in the early modern age, philosophers had at their disposal a technical vocabulary that dated back to Aristotle.²¹⁰ Aristotle divided quantities into numerable multitudes (stones, coins etc.) and measurable magnitudes (angles, volumes etc.).²¹¹ While all quantities permit quantification and measurement, qualities are neither numerable nor measurable due to their lack of ratio. Despite the view that qualities could not be counted or measured on a scale, Aristotle nevertheless acknowledged that some qualities permitted a more or less.²¹² Thus, it seemed obvious that heat or anger, for instance, varied in intensity. The Aristotelian notions of quantification and measurement, which were further discussed and elaborated by Euclid, became an increasingly debated topic in the Middle Ages.²¹³ As a way to overcome the strict divisions between qualities and quantities, philosophers subdivided magnitudes into extensive and intensive magnitudes.²¹⁴ While the classical Aristotelian magnitudes now fell into the category of extensive magnitudes (for instance straight lines, angles or volumes), qualities such as velocity and heat were added as intensive magnitudes. These intensive magnitudes were experienced only as “more or less”, but were nevertheless thought of as quantitative.

The discussion regarding magnitudes was not just theoretical. On the contrary, it corresponded to the attempts to transform magnitudes into real measures. While this had already happened in the Middle Ages through what one scholar has described as a “near frenzy” to consider the measure of everything imaginable, the process reached new heights as magnitudes such as density, velocity and temperature were turned into real measures in the early modern

²¹⁰ Aristotle, *Categories*, The Complete Works of Aristotle: The Revised Oxford Translation, vol. 1 (Princeton, NJ: Princeton University Press, 1984); Aristotle, *Metaphysics*, The Complete Works of Aristotle: The Revised Oxford Translation, vol. 2 (Princeton, NJ: Princeton University Press, 1984). For overviews of the history of quantification and measurement see: Joel Michell, “Psychophysics, Intensive Magnitudes, and the Psychometricians’ Fallacy,” *Studies in the History and Philosophy of Biological and Biomedical Sciences* 17 (2006): 414–32; Joel Michell, *Measurement in Psychology: Critical History of a Methodological Concept*, Ideas in Context (Cambridge: Cambridge University Press, 2005); A. C. Crombie, *Styles of Scientific Thinking in the European Tradition: The History of Argument and Explanation Especially in the Mathematical and Biomedical Sciences and Arts* (London: Duckworth, 1994). For the role of quantification and measurement in ancient science see: Lucio Russo, *The Forgotten Revolution: How Science Was Born in 300 BC and Why It Had to Be Reborn* (Berlin: Springer, 2004), chap. 2–4.

²¹¹ Aristotle, *Metaphysics*, 1020^a.

²¹² Aristotle, *Categories*, 10^b.

²¹³ For the role of quantification and measurement in medieval science see: Edward Grant, *The Foundations of Modern Science in the Middle Ages: Their Religious, Institutional, and Intellectual Contexts*, Cambridge History of Science (Cambridge: Cambridge University Press, 1996), chap. 6–7. For more specific analyses see: Edith Sylla, “Medieval Quantifications of Qualities: The ‘Merton School,’” *Archive for the History of Exact Sciences* 8, no. 1 (1971): 9–39; Marshall Clagett, ed., *Nicole Oresme and the Medieval Geometry of Qualities and Motions: A Treatise on the Uniformity and Difformity of Intensities Known as Tractatus de Configurationibus Qualitatum et Motuum* (Madison: University of Wisconsin Press, 1968).

²¹⁴ Michell, “Psychophysics, Intensive Magnitudes, and the Psychometricians’ Fallacy,” 416–17; Sylla, “Medieval Quantifications of Qualities: The ‘Merton School.’”

period.²¹⁵ This, in turn, raised questions concerning the measurability of mental magnitudes. For instance, would it be possible to measure pain and pleasure? While the early moderns puzzled over such questions, new energy fuelled the debate through Descartes' metaphysical notion of the clear and distinct.²¹⁶ At the core of this notion was the assumption that ideas could be more or less clear and distinct, something that qualified them as intensive magnitudes. With the clear and distinct at the core of early modern philosophy a new more metaphysical discussion of magnitudes and measurability ensued.²¹⁷ As I will show, it was in this discussion that Wolff participated when launching the notion of *psychometrics*, the idea that the soul can be measured.

While Wolff's psychometrics has attracted some scholarly attention, it has often been inscribed in a history that starts with the early modern discussion of the measurability of the soul and that ends with its realisation through nineteenth century experimental psychology.²¹⁸ In contrast to such histories, which tend to prioritise the understanding of the present at the expense of the past, I focus on the way in which Wolff's psychometrics should be seen as an integral part of his metaphysics as a philosophy of perfection. In particular, I stress that in this project everything, including the human soul, was organised according to God's great plan for a perfect and mathematically ordered universe. To make this point I again return to the discussion of the clear and distinct.

²¹⁵ John Emery Murdoch, "From Social to Intellectual Factors: An Aspect of the Unitary Character of Late Medieval Learning," in *The Cultural Context of Medieval Learning: Proceedings of the First International Colloquium on Philosophy, Science, and Theology in the Middle Ages, September 1973*, ed. John Emery Murdoch, Boston Studies in the Philosophy of Science 26 (Dordrecht: Reidel, 1975), 287.

²¹⁶ For quantification and measurement in the early modern period see: Thomas Sturm, "Is There a Problem with Mathematical Psychology in the Eighteenth Century? A Fresh Look at Kant's Old Argument," *Journal of the History of the Behavioral Sciences* 32, no. 4 (2006): 353–77; Michell, "Psychophysics, Intensive Magnitudes, and the Psychometricians' Fallacy"; Michell, *Measurement in Psychology*, chap. 2.

²¹⁷ Sturm, "Is There a Problem with Mathematical Psychology in the Eighteenth Century? A Fresh Look at Kant's Old Argument."

²¹⁸ This is especially the case in the following studies: Michell, "Psychophysics, Intensive Magnitudes, and the Psychometricians' Fallacy"; Sturm, "Is There a Problem with Mathematical Psychology in the Eighteenth Century? A Fresh Look at Kant's Old Argument"; Alexandre Métraux, "An Essay on the Early Beginnings of Psychometrics," in *Advances in the Historiography of Psychology*, ed. G. Eckardt and L. Sprung (Berlin: VEB Deutscher Verlag der Wissenschaften, 1983); Konstantin Ramul, "The Problem of Measurement in the Psychology of the Eighteenth Century," *American Psychologist* 15 (1960): 256–65.

For more context-focused critical analyses of Wolff's psychometrics see: Wolf Feuerhahn, "Die Wolffsche 'Denkschulung' in der psychometrie," in *Christian Wolff und die europäische Aufklärung: Akten des 1. Internationalen Christian-Wolff-Kongresses, Halle (Saale), 4.-8. April 2004, Teil 5: Wolff und seine Schule, Wirkungen Wolffs, Wolff in Halle-Vertreibung und Rückkehr*, ed. Jürgen Stolzenberg and Oliver-Pierre Rudolph, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 105 (Hildesheim: Olms, 2007); Wolf Feuerhahn, "Die Wolffsche Psychometrie," in *Die Psychologie Christian Wolffs: systematische und historische Untersuchungen*, ed. Oliver-Pierre Rudolph and Jean-François Goubet, Hallesche Beiträge zur europäischen Aufklärung 22 (Tübingen: Niemeyer, 2004); Wolf Feuerhahn, "Entre métaphysique, mathématique, optique et physiologie: La psychométrie au XVIII^e siècle," *Revue philosophique* 3 (2003): 279–92.

Psychometrics

The notion of clear (*klar, clarus*) and distinct (*deutlich, distinctus*) runs all the way through Wolff's philosophy, from logic to metaphysics and ethics. While thus far I have analysed its methodological role, I will now highlight the way in which Wolff also used the notion to scale mental phenomena, that is, to display them as more or less clear and distinct. As a general doctrine this view permeates both the German and the Latin philosophy.²¹⁹ On a more specific metaphysical level Wolff argued, here following Leibniz, that the soul is a simple, immaterial and finite thing endowed with a single force (*Kraft*) of which its different variations – thoughts, desires etc. – are manifestations that vary in terms of their clearness and distinctness.²²⁰ That the human being is able to detect the different clarity and distinctness of thoughts meant that they somehow must be compared for a certain time. According to Wolff, this in turn suggested that they occur for a certain time and with a certain velocity.

§.736. Since different things must in this way occur in succession in the soul if one is to be conscious of a thing so will consciousness require time. Since our thoughts are transformations of the soul, which we are conscious of; it follows that every thought occurs in time, or, every thought has its apportioned time.²²¹

§.737. Just as one unit of time can be bigger than another; so also can one thought last longer than another. One therefore attributes a velocity to the thought. A thought can thus have a higher velocity than another. Just as one estimates the velocity of the movement from the length of a distance over which it moves, one can estimate the velocity of a thought from the length of the time it takes. And this has led some people to take thoughts for the movement of a subtle liquid matter. But they have not taken into account the remaining things that are at play in every movement but that are not at play in thoughts.²²²

²¹⁹ Wolff, *German Logic*, 127, 131; Wolff, *German Metaphysics*, 90, 118, 154, 227, 250, 264; Wolff, *Latin Logic II*, 157; Wolff, *Psychologia empirica*, 27, 172–78, 198, 375–76, 393–97, 401–4, 454.

²²⁰ Wolff, *German Metaphysics*, 464.

²²¹ *Ibid.*, 459. “§.736. Weil solchergestalt verschiedenes in der Seele nach einander vorgehen muß, wenn sie sich eines Dinges bewußt sein soll; so wird zum Bewußtsein Zeit erfordert. Da nun unsere Gedancken Veränderungen der Seele sind, deren wir uns bewusst sind; so geschieht ein jeder Gedancke in der Zeit, oder ein jeder Gedancke hat seine abgemessene Zeit.”

²²² *Ibid.*, 459–60. “§. 737. Da nun aber eine Zeit grösser sein kan, als die andere; so kan auch ein Gedancke länger dauern, als der andere. Und daher eignet man den Gedancken eine Geschwindigkeit zu, und kan also ein Gedancke geschwinder seyn, als der andere. Nehmlich wie man die Geschwindigkeit in der Bewegung aus der Länge der Linie beurtheilet, durch welche sie sich in einer gegebenen Zeit beweget; also beurtheilet man die Geschwindigkeit der Gedancken aus der Länge der Zeit, welche sie dauern. Und dieses hat einige verleitet, daß sie die Gedancken für eine Bewegung einer subtilen flüßigen Materie gehalten; sie haben aber nicht erwogen, daß das übrige, was überhaupt bey jeder Bewegung anzutreffen ist, bey den Gedancken nicht angetroffen wird.”

Although Wolff took the discussion as far as to argue for the duration and velocity of thoughts already in the *German Metaphysics*, he first introduced psychometrics in his Latin psychologies, published roughly a decade later.²²³ When doing so however, it was in close connection to the earlier discussion. From the assumption that pleasure (*voluptas*) and disgust (*taedium*) are graded and proportionately related to perfection (*perfectio*), Wolff argued that a psychometrics is possible.

Pleasure and disgust relate to the perfection or the imperfection of which we are conscious. These theorems lead us to a psychometrics, which provide us with a mathematical knowledge of the human soul that has hitherto been lacking.... I have made these investigations only to make it comprehensible that a mathematical knowledge of the human soul and thus a psychometrics is possible, and that the soul also in these mathematical truths, that is, in arithmetic and geometry, which are occupied with quantities, follows the mathematical law: these mathematical truths are not less bound to the contingent things in the human soul than with the material world.²²⁴

Although Wolff explicitly announced the possibility of psychometrics, he did not provide any examples or suggestions of how the soul could actually be measured. In fact he even admitted that the actual techniques for measuring yet remained to be discovered. The lack of practical example and the admission of the lack of measuring techniques have meant that scholars have tended to view his psychometrics as an early chapter in the long history of quantification and experimental psychology.²²⁵ In contrast to such interpretation I argue that placed in the context of Wolff's overall philosophy of perfection, the actual measure of the soul was peripheral in relation to its theoretical measurability. As Hunter has pointed out, Leibniz and Wolff saw the world as a perfect math-

²²³ Wolff, *Psychologia empirica*, 403–4; Wolff, *Psychologia rationalis*, 197–98. Apart from the psychologies Wolff also referred to psychometrics in the first part of the *Philosophia practica universalis* (1738): Christian Wolff, *Philosophia practica universalis, methodo scientifica pertractata. Pars Prior*, ed. Jean École, Christian Wolff Gesammelte Werke, Abt. 2, Lateinische Schriften, Bd. 10 (Hildesheim: Olms, 1971), 448–49.

²²⁴ Wolff, *Psychologia empirica*, 403–4. “Voluptatem, vel taedium esse perfectioni, vel imperfectioni, cujus nobis conscii sumus, proportionale. Theoremata haec ad Psychometriam pertinent, quae mentis humanae cognitionem mathematicam tradit & adhuc in desideratis est.... Haec non alio fine a me adducuntur, quam ut intelligetur, dari etiam mentis humanae cognitionem mathematicam, atque hinc Psychometriam esse possibilem, atque appareat animam quoque in iis, quae ad quantitatem spectant, leges mathematicas sequi, veritatibus mathematicis, hoc est, arithmetiis & geometricis cum contingentibus non minus in mente humana, quam in mundo materiali permixtis.”

²²⁵ This is especially the case with the following studies: Michell, “Psychophysics, Intensive Magnitudes, and the Psychometricians’ Fallacy”; Sturm, “Is There a Problem with Mathematical Psychology in the Eighteenth Century? A Fresh Look at Kant’s Old Argument”; Métraux, “An Essay on the Early Beginnings of Psychometrics”; Ramul, “The Problem of Measurement.” For more context-focused critical analyses of Wolff’s psychometrics see: Feuerhahn, “Die Wolffsche ‘Denkschulung’ in der psychometrie”; Feuerhahn, “Die Wolffsche Psychometrie”; Feuerhahn, “Entre métaphysique, mathématique, optique et physiologie: La psychométrie au XVIII^e siècle.”

ematically ordered whole.²²⁶ By revealing and contemplating the mathematical structure of this whole, the metaphysician perfected his own being (by increasing his knowledge), thereby contributing to the overall perfection of creation.

I argue that it is against this background that the quantification of the soul should be viewed. If Wolff was to maintain his metaphysical view of the world as a perfect mathematical whole, it was necessary to, at least theoretically, show that the soul also obeyed mathematical rules. In this context, Wolff's psychometrics depicted a psychological micro-cosmos reflecting the mathematically ordered macro-cosmos. While this view of the soul was of vital importance for his overall metaphysical project the actual measurement of the soul was a secondary enterprise. In fact it even appears as a somewhat peripheral project. Therefore, it was wholly in accordance with Wolff's motives and ambitions to dismiss the actual measure of the soul as a practice belonging to the future.

Experimenting on the soul

In addition to his notorious remarks on psychometrics, Wolff is also known for his references to the use of experiments in empirical psychology.²²⁷ Although these references provide very few clues as to the practical nature of such experiments, it has not stopped scholars depicting Wolff's empirical psychology as a prelude to modern experimental psychology.²²⁸ In contrast to such interpretation I argue – much like in the case with psychometrics – that the references to experiments should be understood in the context of experimental philosophy as an integral but subordinated part of Wolff's overall demonstrative system.

In the *Latin Logic* Wolff claimed that empirical psychology was equivalent to experimental physics. "It is clear that empirical psychology corresponds to experimental physics, and thus pertains to experimental philosophy."²²⁹ This theme was further elaborated in *Psychologia Empirica*. "We have mentioned else-

²²⁶ Hunter, *Rival Enlightenment*, 102–4.

²²⁷ See: Wolff, *Latin Logic I*, 51; Wolff, *Preliminary Discourse*, 56; Wolff, *Psychologia empirica*, 3–4; Wolff, "Christian Wolff's Prolegomena," 231–32.

²²⁸ For such interpretations of Wolff's remarks on the use of experiments in psychology see: Bonnie Spring et al., "Schizophrenia from Hippocrates to Kraepelin: Intellectual Foundations of Contemporary Research," in *Clinical Psychology: Historical and Research Foundations*, ed. C. Eugene Walker (New York: Plenum Press, 1991), 272. For a more critical reading of these remarks see: Vidal, *The Sciences of the Soul*, 128–29. For attempts to situate Wolff in the long history of scientific psychology see: Jan Goldstein, "Bringing the Psyche into Scientific Focus," in *The Cambridge History of Science*, ed. David C. Lindberg, Ronald L. Numbers, and Roy Porter (Cambridge: Cambridge University Press, 2003); Hatfield, "Remaking the Science of Mind. Psychology as Natural Science"; Richard Littman, "Social and Intellectual Origins of Experimental Psychology," in *The First Century of Experimental Psychology*, ed. Eliot Hearst (Hillsdale: Lawrence Erlbaum Associates, 1979).

²²⁹ Wolff, *Preliminary Discourse*, 56; Wolff, *Latin Logic I*, 51. "Patet...Psychologiam empiricam Physicae experimentali respondere atque adeo ad philosophiam experimentalem pertinere."

where...that empirical psychology is similar to experimental physics. For it is also the case that experimental physics supplies principles for dogmatic physics.”²³⁰ At first, the point might seem to be to establish empirical psychology as an experimental science alongside experimental physics. At a closer look, however, the claim seems rather to be that the similarity pertains to them both providing principles. What this actually indicates is that both disciplines worked by accumulating experiences, porting them into demonstrations and turning them into principles and doctrines, such as that of the existence of the soul. Wolf nonetheless made stronger statements that explicitly advocated the use of experiments in empirical psychology. “Empirical psychology is similar to experimental physics; for we use experiments – either directly or by deducing something from them – to examine the tenets of dogmatic physics.”²³¹ This passage clearly affirms the usage of experiments within psychology. As it turns out, however, psychology was just one of many disciplines that used experiments, according to Wolff. In fact, experiments could be used within all philosophical disciplines, even natural theology.

The art of experimenting consists of truths derived from experiments. Thus far almost only the physicists have used this art. Nonetheless there is room for it in all forms of philosophy, even in natural theology. Because of this I remember that I have often urged that there is also an experimental natural Theology, experimental philosophy can indeed in every aspect be extended to all parts of philosophy.²³²

Wolff’s claim that experiments could be used in all philosophy can be understood on two levels. First, on an overall level it referred to the implementation and employment of experimental truths in demonstrations within all branches of philosophy, including empirical psychology and natural theology. This was important given Wolff’s vision of philosophy as a complete whole united by one universal method. Second, despite Wolff’s obscure discussion he nevertheless invited further reflections over the existence and nature of different *kinds* of experiments. For instance, are there specifically psychological or theological experiments? Wolff was completely silent regarding this question. The lack of discussions of, or even references to, different kinds of experiments suggests

²³⁰ Wolff, “Christian Wolff’s Prolegomena,” 231–32; Wolff, *Psychologia empirica*, 3. “Hinc jam alias...monuimus, Psychologiam empiricam Physicae experimentali respondere. Constat enim Physicam quoque experimentalem dogmaticae principia suppeditare.”

²³¹ Wolff, “Christian Wolff’s Prolegomena,” 232; Wolff, *Psychologia empirica*, 3. “Atque in eo Psychologia empirica denuo convenit cum Physica experimentali: etenim experimentis quoque utimur tanquam examinibus dogmatum physicorum, sive ex aliis experimentis, sive ex his, quae ex aliis experimentis deducta fuere, porro erutis.”

²³² Wolff, *Psychologia empirica*, 358. “Ars experimentandi est, qua experimentis veritates eruuntur. Hac arte utuntur hactenus Physici fere soli: eidem tamen locus est in omni philosophia, ipsa Theologia naturali. Quamobrem aliquoties me jam monuisse memini, quod detur etiam Theologia naturalis experimentalis, immo philosophia experimentalis ad omnes omnino philosophiae partes extendatur.”

that Wolff did not regard it as a high-priority matter. It is possible that he simply left it for others to discuss.

Regardless of the existence of particular psychological experiments, the idea that the soul could be subjected to measurement and experimentation definitely struck a chord in early eighteenth-century Halle. As Hallean intellectuals elaborated further on these themes, the result was a number of diverse and often confusing theories.²³³ The lack of consensus and order was due to two factors. First, whereas some Hallean intellectuals were simply ignorant of the difference between *experientia* and *experimentum* or deliberately used them as synonyms, others, to which Wolff belonged, were experienced both theoretically and practically.²³⁴ Second, if the new experimental philosophy was epistemically unstable in the first place, this tendency was further reinforced through the selection of the soul as the object of measurement and experimentation. After all, how could the soul ever be measured and experimented on? Or to be more specific, how could the soul ever be “put under the air-pump”, lending itself to observations by numerous witnesses?

²³³ The Wolffian philosopher Gottlieb Friedrich Hagen discussed measurement and psychological experiments in several works already in the first half of the 1730s: Gottlieb Friedrich Hagen, *Dissertatio mathematica de mensurandis viribus propriis atque alienis quam adiuuvante vi divina amplissimo philosophorum ordine* (Halle, 1733); Gottlieb Friedrich Hagen, *Meditationes philosophicae de methodo mathematica*, Christian Wolff Gesammelte Werke, Abt. 3, Materialien und Dokumente, Bd. 82 (Hildesheim: Olms, 2002); Gottlieb Friedrich Hagen, *Programma de mensurandis viribus intellectus* (Halle, 1734).

In the 1740s Johann August Unzer and Johann Gottlob Krüger discussed the measurability of nerves and nerve-liquids: Johann Gottlob Krüger, *Naturlehre zweiter theil, welcher die physiologie, oder lehre von dem Leben und der Gesundheit der menschen in sich fasset*, 2nd ed. (Halle: Carl Herrmann Hemmerde, 1748); Johann August Unzer, *Neue Lehre von den Gemüthsbewegungen, mit einer Vorrede vom Gelde begleitet von Herrn Johann Gottlob Krüger*, ed. Carsten Zelle (Halle: Hallescher Verlag, 1995). In the 1750s Krüger published a textbook on experimental psychology: Johann Gottlob Krüger, *Versuch einer Experimental-Seelenlehre* (Halle: Carl Herrmann Hemmerde, 1756).

Another contributor is the somewhat mysterious person Christian Albrecht Körber, who published a three-volume work on the measurability of simple finite things in the 1740s: Christian Albrecht Körber, *Allgemeine Gründe und Gesetze, aus welchem die Ausmessung der einfachen endlichen Dinge überhaupt fließet zum Behuf des Versuches von der Ausmessung menschlicher Seelen abgefasst* (Halle, 1745); Christian Albrecht Körber, *Versuch einer Ausmessung menschlicher Seelen und aller einfachen endlichen Dinge überhaupt, wie solche der innern Beschaffenheit derselben gemäß ins Werk zu richten ist, wenn man ihre Kräfte, Vermögen un Würckungen recht will kennen lehren: In dreien Theilen* (Halle, 1746); Christian Albrecht Körber, *Von verschiedenen Handlungs-Arten der einfachen endlichen Dinge, und ihrer Ausmessung überhaupt Nebst einer Anwendung auf die Ausmessung der Menschlichen Seelen und ins besondere derselben Handlungen bey ihr, nach welchen alle übrige sich richten* (Halle, 1746). In addition to these extensive treatises, shorter remarks on the topic include: Johann Heinrich Zedler, “Psychometria,” *Grosses vollständiges Universal-Lexicon aller Wissenschaften und Künste* (Halle and Leipzig, 1741), 1090; Alexander Gottlieb Baumgarten, *Metaphysica* (Hildesheim: Olms, 2012); Alexander Gottlieb Baumgarten, *Metaphysics: A Critical Translation with Kant's Elucidations, Selected Notes and Related Materials*, trans. Courtney D. Fugate and John Hymers (London: Bloomsbury, 2013), 263; Johann Georg Sulzer, *Kurzer Begriff aller Wissenschaften*, 2nd ed. (Leipzig, 1759), 157.

²³⁴ Körber appears as a metaphysician with little practical experience. Krüger had much practical experience but advocated a wide notion of experiments that included the use of literary examples. As we will soon see Hagen, in contrast, shaped his psychological experiments as specific experimental situations.

One early attempt to tackle the problem of how the soul might be subjected to experimentation was made by the Wolffian philosopher Gottlieb Friedrich Hagen. Having studied at Jena and then at Halle in 1730 Hagen embarked on an educational journey in 1731 during which he eventually had the opportunity to visit Wolff in Marburg, thus beginning a friendship. When he returned to Halle, Hagen started a series of translations of Wolff's works.²³⁵ In 1737, Hagen was appointed professor of philosophy at the Bayreuth Gymnasium. With his move to Bayreuth he disappeared from the academic map of Halle.

Wolff's project and especially his mathematical method inspired Hagen who wrote a number of treatises on the subject. In 1733–34 he produced two short texts, *Dissertatio mathematica de mensurandis viribus propriis atque alienis* (*Mathematical Dissertation on the Measure of the Specific and Common Powers*, 1733) and *Programma de mensurandis viribus intellectus* (*Program for the Measure of the Intellectual Powers*, 1734), dealing specifically with the measurement of the soul.²³⁶ These texts were in turn connected to a much larger treatise, *Meditationes philosophicae de methodo mathematica* (*Philosophical Meditations on the Mathematical Method*, 1734).²³⁷ At the core of Hagen's project was an attempt to map out the possibilities and limits of the mathematical method. This, in turn, led him to further elaborate on Wolff's claims regarding the role of experiments in empirical psychology. In contrast to Wolff, however, Hagen's discussion revolved around the particular nature of psychological experiments.

Hagen was well acquainted with the distinction between observations and experiments. He defined experience as propositions formed through attentiveness to transformations (*mutationes*) in the world.²³⁸ According to Hagen, if these experiences were acquired automatically and without our labour (*opera*) they were called observations (*observationes*). If they required our labour, on the other hand, they fell into the category of experiments (*experimenta*). But in contrast to most of his predecessors, Hagen did not stop at the division between *observatio* and *experimentum*, instead he elaborated further on both these categories. In terms of observations he distinguished between physical (*physicae*), psychological (*psychologicae*), historical (*historicae*), moral (*morales*), political (*politicae*) and literal (*litterariae*) observations.²³⁹ Depending on the object of study – material bodies, simple immaterial things, human actions in history, the moral value of human actions, the transformation of empires, the fate of disciplines within art and science – observations were sorted into one of these categories.

²³⁵ Gottlieb Friedrich Hagen, *Gesammelte kleine philosophische Schriften*, vol. 1–6, Christian Wolff *Gesammelte Werke*, Abt. 1, Deutsche Schriften, Bd. 21 (Hildesheim: Olms, 1981).

²³⁶ Hagen, *De mensurandis viribus*; Hagen, *Programma de mensurandis viribus intellectus*. For biographical details see: Heiner Klemme and Manfred Kuehn, eds., "Hagen, Gottlieb Friedrich," *Dictionary of Eighteenth-Century German Philosophers* (London: Continuum, 2010).

²³⁷ Hagen, *Meditationes philosophicae de methodo mathematica*.

²³⁸ Ibid., 111. "Qualibet propositio, formata per attentionem ad mutationes in mundo obvias, *experientia* vocatur."

²³⁹ Ibid., 117–19.

When it comes to the different forms of experiments the list is somewhat shorter than is the case with observations. Although Hagen mentions political and moral experiments, the main focus lies on physical and on psychological experiments. An experiment was said to be physical if it had a physical body as its object of study. If the object was a simple thing, on the other hand, the experiment was called psychological. Hagen defined and exemplified psychological experiments in paragraph 37:

Another class of experiments is the one that in simple things expounds transformations produced through a voluntary act and is called psychological. Such an experiment is the case if someone wants to frighten a person and depicts various evils that will soon threaten him and observes the effects of conversations and whether he is inclined to fear or not.²⁴⁰

In contrast to Wolff, Hagen did not hesitate to proclaim the existence and specific character of psychological experiments. Adhering strictly to the distinction between observations and experiments he did not see any difficulty with psychological experiments alongside the physical. The thing that distinguished psychological experiments was that they had simple things or souls as their objects of observation. In addition to this, the process of conducting the experiments was basically the same; it required some kind of intervention, as in the example with the inflicted fear and observations of the effects caused by this intervention. Hagen provided several examples of how psychological experiments could be conducted practically. For instance, the magnitude of attention could be measured by assessing the number of ideas one was capable of thinking about and the time it took to contemplate and decompose them into their parts.²⁴¹ Or, the faculty of judgement could be measured by contemplating the speed with which one discovers hidden similarities and by the “degree of concealment” of these similarities.²⁴² But the most comprehensive example of a psychological experiment deals with the learning capacities of two boys:

The swiftness in the operation and the number of the performed acts characterise the measurement of the natural powers of the intellect, which will be illustrated with immediate clarity through an example. It could easily be determined in terms of the magnitude of the natural powers two boys have to learn history. Thus carry out this examination: any unknown fact should be narrated to both boys, with all the circumstances that are to be attended to in history, such as proper names, dates, natural sequence, etc. And when asked, has anything of the previously told information been learned? If not, retell the story for them both until everything has been committed to memory. Repeat this until the whole fact has been thoroughly known, and it will be possible to determine who possess

²⁴⁰ Ibid., 132. “Alteram experimentorum classem constituent illa, quae mutationes in simplicibus per actionem voluntariam productas exponent, et psychologica nominantur. Experimentum tale est, si quis cuiquam metum incutere nititur, eidemque varia mala ipsi proxime instantia repraesentat, atque attendit, quid sermones efficient, et num ad timorem inclinet nec ne.”

²⁴¹ Hagen, *De mensurandis viribus*, 11–12.

²⁴² Ibid., 12.

the largest intellectual powers and who has the highest ratio of attention. The measure of the intellectual powers is given here by means of the speed of activity and the number of individual acts accomplished: the smaller the number of repetitions, the greater the speed. This experiment has to be repeated several times before the measure of the two boys can be determined.²⁴³

Although there are no indications as to whether these experiments were actually carried out, there is no doubt that Hagen constructed them as being practically feasible. His descriptions of psychological experiments share some of the features that Shapin and Schaffer have proposed as characteristic for the experimental practice. One such feature is the detailed descriptions of experiments that served the purpose of persuading people to the level where they could almost witness the experiment being conducted.²⁴⁴ Hagen employed this technique to provide detailed descriptions of exactly how the experiments were to be conducted. Another experimental technique that Hagen adopted was that of replication. Since experiments revealed hidden facts of nature that were not evident from the start, replication served the purpose of establishing facts by accumulating evidence.

In contrast to Hagen's discussion of psychological experiments, the Wolffian philosopher Johann Gottlieb Krüger's 1756 textbook in experimental psychology paints a rather different picture (Krüger will be discussed more in detail later on in this dissertation).

One would maybe take it for a mere joke if I would say that I have taken on the task of showing how one can understand the soul through experiments. Experiment, one would say, can only be conducted on bodies. Could one really bring the soul under the air-pump, observing its gestalt through the magnifying glass, measuring its powers? This thought is so obvious that I think it would strike most people who would face these pages.²⁴⁵

²⁴³ Hagen, *Programma de mensurandis viribus intellectus*, 4–5. “Mensuram naturalium virium intellectus constituit celeritas in operando, actuumque editorum numerus, quae exemplis illustrata clariora statim fient. Sit scilicet determinandum, quot naturales vires duo habeant pueri, ad historiam addiscendam. Fiat igitur tentamen: Narretur utrique factum quodpiam sed incognitum, cum omnibus circumstantiis, quae in historia sunt attendenda, quo nomina propria, numeri, ordo naturalis & c. pertinent, atque ex utroque quaeratur, an ulla earundem ipsi antea fuerit cognita? Si non fuit, recitet uterque factum, aut tot saltem momenta illius, quot memoria tenuit. Repetatur hoc, donec factum ipsi penitus notum fuerit, & determinari poterit, quis majores vires intellectus & praefertim attentionis possideat. Numerus vicium repetitionis quo minor est, eo majorem celeritatis mensuram dabit, numerus vero momentorum post primam, secundam, tertiam &c. narrationem comprehensorum manifestabit, quae cuique magis placeant, adeoque ad quae magis inclinet. Experimentum v. hoc aliquoties est instituendum, antequam mensura utriusque in genio affignetur.”

²⁴⁴ Shapin and Schaffer, *Leviathan and the Air-Pump*, 60–65.

²⁴⁵ Krüger, *Versuch einer Experimental-Seelenlehre*, 1. “Man wird es vielleicht für einen bloßen Schertz halten, wenn ich sage, daß ich mir vorgesetzt habe, zu zeigen, wie man die Seele durch Experimente solle kennen lernen. Experimente, wird man sprechen, laßen sich nur mit Körpern anstellen. Wird man aber wohl die Geister unter die Luftpumpe bringen, ihre Gestalten durch Vergrößerungsgläser erblicken, und ihre Kräfte abwägen können? Dieser Gedancke hat so viel

The comment is interesting for two reasons. First, it shows that the author was familiar with and identified experimental philosophy of Boyle and the British tradition. Second, it shows that he expected others to be so too, and that he expected these others to level thorough criticism on the basis of this familiarity. In fact, he expected almost everyone to be struck by the absurdity of experimental psychology. By way of defending experimental psychology, however, Krüger fell back on the internal senses and internal experience, thus arguing that the experience of the soul and its operation was an undeniable fact. Moreover, when discussing the nature of psychological experiments he ended up not in the kind of experiments that Hagen suggested but in the exploration of unique literal cases. Since this will be discussed more thoroughly in the last chapter, using the 1756 textbook as a contrast to Hagen is sufficient at this point. So what conclusions can be drawn from these examples? First, they show that the soul became a particularly intricate and problematic object of experimentation. Second, they illustrate the lack of consensus regarding the practical nature of psychological experiments. As we will see later on in this dissertation, the lack of consensus remained as the new generation of psychologically oriented physiologists (to which Krüger belonged) took on the challenge of exploring the soul in the 1740s and 1750s

So far I have argued that the overall role of experience in Wolff's philosophy was to provide indubitable empirical propositions. These propositions could be produced in two somewhat different ways. First, they could be produced through an internal operation of the mind where the philosopher refined numerous perceptions and experiences into empirical propositions. Second, they could be produced by accumulating singular observations of hidden phenomena of nature made in experimental situations. While the experimental practice thus served a crucial purpose, it was nevertheless subordinated to the demonstrative system in the sense that it provided empirical propositions. While this was the case with the experimental practice as a whole, I have made a similar argument when it comes to the discussion of psychological experiments and psychometrics. Rather than launching a new experimental and quantitative psychology in the modern sense of the word, the aim was to show that the soul obeyed the same principles and laws as the rest of nature. This, in turn, was important for the overall metaphysical vision of the universe as God's perfect and mathematically structured creation.

scheinbares, daß ich glaube, er werde den meisten einfallen, welchen diese Blätter zu Gesichte kommen."

Conclusions

In this chapter I chart early modern philosophy as *cultura animi*. In sharp contrast to the epistemological readings, the *cultura animi* reading analyses early modern philosophy as a practical project pursued for the purpose of perfecting the soul both cognitively and morally. Adopting this perspective, I start by analysing the way in which the philosophy of the rationalist quartet of Descartes-Leibniz-Tschirnhaus-Wolff revolved around spiritual exercises. In particular, I highlight clear and distinct ideas, concepts and definitions, arguing that these were the products of methodologically guided exercises rather than some epistemological criteria. The shift toward reason thereby can be viewed not as an epistemological turn but as culture of the soul or *cultura animi*.

In the second section I analyse experience. While recent historians of science have analysed early modern scientific experience in terms of experiments and observations of things in nature through the external senses, I argue that the *culture of the soul* or *cultura animi* provides important information regarding what it meant to consult experience. Against the background of the *cultura animi* project of perfecting the soul both cognitively and morally, I show that Wolff, together with many other early modern philosophers, thought of scientific experience as a product of an internal operation of the mind where perceptions were systematically and methodically refined and perfected. Given that scientific experience required such internal operation, it did not require a big step to consider completely internal objects of experience such as the soul and its faculties. Against this background, empirical psychology appears as a part of the *cultura animi* project of perfection rather than some abstract theory of knowledge or a modern scientific discipline.

In the third section I turn to the scholarly discussion of Aristotelian-scholastic and experimental experience. In Aristotelian-scholastic science, experience took the form of universal statements about how things generally are, or how they behave. As Aristotelian-scholastic philosophy was gradually replaced by mechanical and experimental philosophy during the course of the seventeenth century, experience underwent an almost paradigmatic transformation. From having been couched in terms of universally true statements about the world, experience – now in the shape of *observatio* and *experimentum* – increasingly took the form of statements describing specific observations made in experimental situations. In relation to this story of a transition from Aristotelian-scholastic to experimental experience, I argue that Wolff, true to his ambition of bridging the gap between scholastic and modern philosophy, incorporated experimental philosophy as an integral but subordinated part of his overall philosophy. To consult experience was thus both a matter of observing things in experimental situations and of refining these observations into empirical propositions to be used in demonstrations. Similarly, I provide a reinterpretation of Wolff's references to psychometrics and the use of experiments in psychology. Rather than seeing these as attempts to expand the mathematical dis-

cipline or to found experimental psychology as a modern scientific discipline, I place them in the context of the *cultura animi* and the philosophy of perfection. From this perspective, psychometrics appears as a part of the overall project of establishing the human being as apart of Gods perfection. Similarly, the references to the use of experiments can be perceived as a part of empirical psychology, which, in turn, was a part of the overall *cultura animi* project of curing the soul from the diseases of the passions.

3. Francke and the living experience of God

In his *Lebenslauf* (*Biography*, 1728) the theologian August Hermann Francke reminisced of his youth as a time marked by ambitious studies in theology.²⁴⁶ However much he studied though, it appears that the Bible remained as dead as the paper it was written on. The fault, he soon realised, was not to be found in the text itself but in his own lack of living experience, knowledge and faith.²⁴⁷ In the *Lebenslauf* he describes how due to this shortage of experience, he entered a period of increasing religious crisis until one day in 1687 he experienced, what was for the time and context, a typical conversion. From one moment to the next, he went from being a doubter and a hypocrite to an energetic preacher infused with living experience, knowledge and faith in God.²⁴⁸

²⁴⁶ August Hermann Francke, *Lebensläufe August Hermann Franckes*, ed. Markus Matthias, Kleine Texte des Pietismus 2 (Leipzig: Evangelische Verlagsanstalt, 1999), 5–18. For biographical details see also Kramer's classical two-volume study from 1880: Gustav Kramer, *August Hermann Francke. Ein Lebensbild*. (Halle: Verlag der Buchhandlung des Waisenhauses, 1880). For a modern but considerably shorter biography see: Helmut Obst, *August Hermann Francke und sein Werk* (Halle: Verlag der Franckeschen Stiftungen, 2013).

²⁴⁷ Francke, *Lebensläufe August Hermann Franckes*, 12.

²⁴⁸ *Ibid.*, 29–31. Francke's conversion story was composed according to an existing conversion genre. Rather than seeing the genre as opposed to the "real", I side with those recent scholars who claim that the conversion genre plays an important role for the construction of the conversion experience. That is, the conversion genre provides a blueprint for how to think, feel and act in order to experience a conversion. For the scholarly discussion of conversion in the early modern age see: David Martin Luebke et al., eds., *Conversion and the Politics of Religion in Early Modern Germany*, Spektrum 3 (New York: Berghahn Books, 2012); Ute Lotz-Heumann, Jan-Friedrich Missfelder, and Matthias Pohl, "Konversion und Konfession in der Frühen Neuzeit: Systematische Fragestellungen," in *Konversion und Konfession in der frühen Neuzeit*, ed. Ute Lotz-Heumann, Jan-Friedrich Missfelder, and Matthias Pohl, Schriften des Vereins für Reformationsgeschichte 205 (Göttingen: Gütersloher Verlagshaus, 2007); Friedrich Niewöhner and Fidel Rädle, eds., *Konversionen im Mittelalter und in der Frühen Neuzeit*, Hildesheimer Forschungen 1 (Hildesheim: Olms, 1999).

For constructivist approaches to conversion see: Detlef Pollack, "Überlegungen zum Begriff und Phänomen der Konversion aus religionssoziologischer Perspektive," in *Konversion und Konfession in der frühen Neuzeit*, ed. Ute Lotz-Heumann, Jan-Friedrich Missfelder, and Matthias Pohl, Schriften des Vereins für Reformationsgeschichte 205 (Göttingen: Gütersloher Verlagshaus, 2007); Volkhard Krech, "Religiöse Erfahrung – was oder wie? Zur soziologischen Rekonzeptualisierung eines religionswissenschaftlichen Begriffs anhand der Analyse von Konversionsberichten," in *Religion als Kommunikation*, ed. Hartmann Tyrell, Volkhard Krech, and Hubert Knoblauch, Religion in der Gesellschaft 4 (Würzburg: Ergon-Verl., 1998); Lewis R. Rambo, *Understanding Religious Conversion* (New Haven: Yale University Press, 1993); Bernd Ulmer, "Konversionserzählungen als rekonstruktive Gattung: Erzählerische Mittel und Strategien bei der Rekonstruktion eines Bekehrungserlebnisses," *Zeitschrift für Soziologie* 17, no. 1 (1988): 19–33; Thomas Luckmann, "Kanon und Konversion," in *Kanon und Zensur*, ed. Aleida Assmann and Jan

Francke's *Lebenslauf* was probably written in the early 1690s.²⁴⁹ From then on, living experience, knowledge and faith would reoccur and be at the core of his sermons, theological treatises, and pedagogical writings for the next twenty years.²⁵⁰ Often they were described as decisive or even *the* decisive factors in Christian life. What kind of categories were they? Why were they considered so important? What kind of project were they part of? What was the relation between these and the kind of knowledge and experience promoted by philosophers such as Leibniz and Wolff? These are the principal questions that I seek to answer in this chapter.

The chapter is divided in two major sections. In the first section I chart religious experience. Firstly, I account for the scholarly analysis of religious experience as inner, affectual and pursued through spiritual exercises such as prayer and meditation. Secondly, I make the case that Francke's discourse on living experience, knowledge and faith took form as a specific manifestation of such inner and affectual experience. Thirdly, I show that this discourse played a crucial role in the kind of pedagogy that Francke himself referred to as *cultura animi*, a pedagogy that formed the spine of the large-scale Halleian institution known as the Orphanage.

In the second section I shift focus from religious to scientific experience. Firstly, I identify and analyse two parallel discourses: the rhetorical discourse on how to form vivid images, and the philosophical or epistemological discourse on clear, distinct and vivid ideas, concepts etc. Secondly, I analyse the way in

Assmann, *Beiträge zur Archäologie der literarischen Kommunikation* 2 (München: Wilhelm Fink, 1987).

For analyses of Francke's conversion see: Jonathan Strom, "Pietist Experiences and Narratives of Conversion," in *A Companion to German Pietism, 1660-1800*, ed. Douglas H. Shantz, Brill's Companions to the Christian Tradition 55 (Leiden: Brill, 2015); Jonathan Strom, "Pietist Conversion Narratives and Confessional Identity," in *Conversion and the Politics of Religion in Early Modern Germany*, ed. David Martin Luebke et al., Spektrum 3 (New York: Berghahn Books, 2012); Jonathan Strom, "Constructing Religious Experience: Conversion Narratives in Halleian Pietism," in *"Aus Gottes Wort und eigener Erfahrung gezeigt" Erfahrung – Glauben, Erkennen und Handeln im Pietismus. Beiträge zum III. Internationalen Kongress für Pietismusforschung 2009*, ed. Christian Soboth and Udo Sträter, Hallesche Forschungen, 33.1 (Halle: Verlag der Franckeschen Stiftungen, 2004).

²⁴⁹ Markus Matthias, "Editorische Notiz zum Lebenslauff," in *Lebensläufe August Hermann Franckes*, Kleine Texte des Pietismus 2 (Leipzig: Evangelische Verlagsanstalt, 1999), 73.

²⁵⁰ See for instance: August Hermann Francke, "Vom rechtschaffenen Wachstum des Glaubens," in *Predigten I*, ed. Erhard Peschke, vol. 9, *Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten* (Berlin: De Gruyter, 1987); August Hermann Francke, "Der lebendige Glaube," in *Predigten über die Sonn- und Fest-Tags-Episteln nebst einer Vorrede vom erbaulichen predigen und von dem rechten Gebrauch dieser Predigten, auch mit nöthigen Registern versehen* (Halle: Waysenhaus, 1726); Hermann Francke, *Kurzer Und Einfältiger Unterricht Wie Die Kinder Zur Wahren Gottseligkeit Und Christlichen Klugheit Anzuführen Sind* (Halle, n.d.); August Hermann Francke, "Die Erfahrung der Herrlichkeit Gottes," in *Predigten II*, ed. Erhard Peschke, vol. 10, *Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten* (Berlin: De Gruyter, 1989); August Hermann Francke, "Die Erkenntniß CHRISTI/ als der Grund alles wahren Christlichen Sieges und Triumphs," in *Predigten II*, ed. Erhard Peschke, vol. 10, *Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten* (Berlin: De Gruyter, 1989).

which these discourses funnelled into the Halleian pedagogical discussion and influenced Francke who in his *cultura animi* came to acknowledge not only the importance of acquiring living knowledge and experience through religious exercises but also through scientific exercises such as observations and experiments. Thus seen, Francke's discourse appears as a result of theological, philosophical and rhetorical discourses. By highlighting this conflation, I raise larger questions concerning the importance of a broader analysis in which scientific and religious experiences are seen as mutually overlapping and cross-fertilizing. Such broader analysis would shed new light both on the borders and limits, and on the very epistemic structure, of early modern scientific experience.

Religious experience

As a part of the interest in epistemic categories, historians have examined the roles of experience in early modern science.²⁵¹ Experience, they argue, revolved around observations of things in nature.²⁵² For these observations to work it required the observers to discipline their senses. This entailed controlling the senses through reason, or to be more concrete, controlling and disciplining the senses by subordinating them to rigorous methodological rules regarding exactly how to observe.²⁵³ In this context historians of philosophy and science have further remarked that the scientific culture of the senses and of reason involved the purgation of the mind from the passions.²⁵⁴ Gaukroger has for instance shown that the passions were seen as a potential threat to scientific accuracy.²⁵⁵ Another, more radical, reading is Corneanu, who argues that early modern science was essentially a way of purging the mind from the passions.²⁵⁶

²⁵¹ Shapin and Schaffer, *Leviathan and the Air-Pump*; Dear, *Discipline and Experience*; Dear, "The Meanings of Experience"; Daston, Lorraine, *Histories of Scientific Observation*; Park, "Observation in the Margins"; Gianna Pomata, "Observation Rising: Birth of an Epistemic Genre, 1500–1650," in *Histories of Scientific Observation*, ed. Lorraine Daston and Elizabeth Lunbeck (Chicago: The University of Chicago Press, 2011).

²⁵² Shapin and Schaffer, *Leviathan and the Air-Pump*; Dear, *Discipline and Experience*; Dear, "The Meanings of Experience."

²⁵³ Shapin and Schaffer, *Leviathan and the Air-Pump*, 22–79.

²⁵⁴ That the cultivation of the senses and of reason involved the purgation of the mind from the passions is a point that has been made by several scholars. Today it underpins, in a more or less pronounced form, most readings of early modern philosophy as a way of life, as well as many readings of early modern science as a systematic culture of reason and the senses. For a selection of studies see: Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*; Corneanu, *Regimens of the Mind*; Peter Harrison, *The Fall of Man and the Foundations of Science* (Cambridge: Cambridge University Press, 2007); Jones, *The Good Life in the Scientific Revolution*; Shapin and Schaffer, *Leviathan and the Air-Pump*.

²⁵⁵ Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*, 118–31.

²⁵⁶ Corneanu, *Regimens of the Mind*. Although Gaukroger, Corneanu and many others have argued that the early modern cultivation of philosophy and science typically involved control and restraint of the passions, recent historians of science have called for a reevaluation of the role of the passions. My own analysis can be seen as a contribution to this perspective, according to which

If historians of philosophy and science have analysed early modern scientific experience as intimately connected to the external senses and as antithetical to passion and emotion, theologians and church historians have painted an almost reverse picture of religious experience.²⁵⁷ Religious experience, they argue, revolved around the internal senses and the controlled culture of emotion or passion.²⁵⁸ More specifically, medieval and early modern religious experience was primarily a matter of channelling the passions in a way that ignited the will to act in accordance with the will of God. In this section I chart religious experience. In the first part of the section I engage with and summarise the scholarly discussion of religious experience, focusing especially on the early modern discussion. In the second part of the section I analyse, as a specific manifestation of religious experience, Francke's discourse on living experience, knowledge and faith. In the third part of the section I discuss and analyse Francke's *cultura animi* as a large-scale attempt to shape Christians according to the logic of religious experience.

Early modern religious experience

For a long time religious experience has caught the interest of theologians, historians, philosophers and social scientists.²⁵⁹ Within the monastic tradition,

emotion and passion played a much more important and positive role in philosophy and science than has hitherto been acknowledged. See: Paul White, "Introduction," *Isis* 100, no. 4 (2009): 792–97; Fay Alberti, "Bodies, Hearts, and Minds: Why Emotions Matter to Historians of Science and Medicine," *Isis* 100, no. 4 (2009): 798–810.

²⁵⁷ For studies of religious experience see especially the works of Martin Jay and Ulrich Köpf: Martin Jay, *Songs of Experience: Modern American and European Variations on a Universal Theme* (Berkeley: University of California Press, 2005); Ulrich Köpf, "Erfahrung III/1," *Theologische Realenzyklopädie* (Berlin: De Gruyter, 1982); Ulrich Köpf, *Religiöse Erfahrung in der Theologie Bernhards von Clairvaux* (Tübingen: Mohr Siebeck, 1980). See also Günter Butzer's study of self-conversation in European literature and Karl Rahner's articles on spiritual senses in medieval theology: Günter Butzer, *Soliloquium: Theorie und Geschichte des Selbstgesprächs in der europäischen Literatur* (München: Wilhelm Fink, 2008); Karl Rahner, "Die geistlichen Sinne nach Origenes," in *Schriften zur Theologie. Band 12: Theologie aus Erfahrung des Geistes* (Einsiedeln: Benziger, 1975); Karl Rahner, "Die Lehre von den geistlichen Sinnen im Mittelalter," in *Schriften zur Theologie. Band 12: Theologie aus Erfahrung des Geistes* (Einsiedeln: Benziger, 1975). For the role of experience in Luther see: Oswald Bayer, *Martin Luther's Theology: A Contemporary Interpretation*, trans. Thomas H. Trapp (Grand Rapids, MI: W.B. Eerdmans Pub. Co, 2008); Martin Nicol, *Meditation bei Luther*, *Forschungen zur Kirchen- und Dogmengeschichte* 34 (Göttingen: Vandenhoeck & Ruprecht, 1984).

²⁵⁸ Köpf, "Erfahrung III/1"; Köpf, *Religiöse Erfahrung in der Theologie Bernhards von Clairvaux*; Bayer, *Martin Luther's Theology*, 21–22; Nicol, *Meditation bei Luther*, 81–96.

²⁵⁹ In addition to theological and historical studies, the most important of which have been mentioned, experience has caught the interest of numerous philosophers and social scientists ever since the works of William James. For a selection of such studies see: Craig Martin, Russell T. McCutcheon, and Leslie Dorrough Smith, eds., *Religious Experience: A Reader*, *Critical Categories in the Study of Religion* (Sheffield: Equinox, 2012); Jensine Andresen, ed., *Religion in Mind: Cognitive Perspectives on Religious Belief, Ritual, and Experience* (Cambridge: Cambridge University Press, 2001); Wayne Proudfoot, *Religious Experience* (Berkeley: University of California Press, 1985); André

religious experience referred to an operation where the monk retreated to observe and experience his own thoughts and feelings.²⁶⁰ Often, these inner observations incorporated the reflection on specific passages in the Bible. In the Middle Ages theologians such as Bernard of Clairvaux connected experience to the inner senses and to the emotions or the affects (*pathos, affectus*).²⁶¹ Here religious experience referred to the deep, inner and essentially affectual reception of God. Although scholastic philosophy and theology also drew on the Aristotelian more technical understanding of experience as the sum of sensations stored in memory, the notion of religious experience as essentially inner and affectual flourished especially within the mystical tradition.²⁶²

The Medieval notion of religious experience as inner and affectual provides the immediate background to the Lutheran understanding of experience. Ulrich Köpf even takes it so far as to claim that it was Luther who turned the relatively narrow medieval notion into a principal and much more widespread theological category.²⁶³ Regardless of whether this claim withstands historical scrutiny, it is clear that Luther saw experience as an absolutely central concept, and that he primarily thought of it as inner and affectual.²⁶⁴ In this context the theologian Oswald Bayer has remarked that the Lutheran notion of experience is better understood as *passio*.

When Luther refers to ‘experience’, he does not refer primarily to an *actio* but to a *passio*, not primarily to the experiences that I am in charge of, but in connection with that which I suffer. It is – to take it to the highest level – the experience that is mine in the agonizing struggle with the Word of God.²⁶⁵

Godin, *The Psychological Dynamics of Religious Experience: (It Doesn't Fall down from Heaven)* (Birmingham, Ala: Religious Education Press, 1985); Hans Weißmann, “Erfahrung I,” *Theologische Realenzyklopädie* (Berlin: De Gruyter, 1982). See also William James’ classical study: William James, *Varieties of Religious Experience: A Study In Human Nature*, n.d.

²⁶⁰ Köpf, “Erfahrung III/1.”

²⁶¹ Köpf, *Religiöse Erfahrung in der Theologie Bernhards von Clairvaux*, 131–72. For religious experience in the Middle Ages see also: Duncan Robertson, *Lectio Divina: The Medieval Experience of Reading* (Trappist, KY: Cistercian Publications, 2011); Sarah McNamer, *Affective Meditation and the Invention of Medieval Compassion*, The Middle Ages Series (Philadelphia: University of Pennsylvania Press, 2010); Mary Carruthers, *The Book of Memory: A Study of Memory in Medieval Culture* (Cambridge: Cambridge University Press, 2008); Mary Carruthers, *The Craft of Thought: Meditation, Rhetoric, and the Making of Images, 400–1200* (Cambridge: Cambridge University Press, 2003); Lawrence Cunningham and Keith J. Egan, *Christian Spirituality: Themes from the Tradition* (New York: Paulist Press, 1996), 38–40; Michael Casey, *Sacred Reading: The Ancient Art of Lectio Divina* (Liguori, MO: Liguori/Triumph, 1996); Jean Leclercq, *The Love of Learning and the Desire for God: A Study of Monastic Culture*, 3rd ed. (New York: Fordham University Press, 1982), 15–17.

²⁶² Köpf, “Erfahrung III/1.”

²⁶³ Ibid.

²⁶⁴ Bayer, *Martin Luther's Theology*, 21–22; Nicol, *Meditation bei Luther*, 81–96; Köpf, “Erfahrung III/1.”

²⁶⁵ Bayer, *Martin Luther's Theology*, 21.

This is, Bayer continues, how we should understand Luther's famous statement that "Experience alone makes a theologian."²⁶⁶ Here it is not experience in some diffuse, general sense that makes the theologian but experience with the Holy Scripture. Or, more specifically, it is experience as *tentatio* or *Anfechtung* in the sense of a continuous agonising struggle to interpret and follow the Word of God.²⁶⁷ In contrast to the modern message of harmonious love, the *tentatio* took the form of a painful struggle marked by intense feelings of self-contempt, fear and despair but in the end also of hope and love. In a sense, the more intense the struggle, the more powerful the spiritual transformation. Far from being an arbitrary struggle devoid of structure and method, the *tentatio* was typically realised through spiritual exercises such as specific forms of prayer and meditation. In this context Martin Nicol has emphasised the role of the penance meditation (*Bußmeditation*).²⁶⁸ In the penance meditation the meditator went through a process that started with the own misery (*miseria nostra*) and ended with God's mercy (*misericaordia Dei*).²⁶⁹ The *miseria nostra* took the form of a step-wise confrontation with one's own sinful nature and inability to appreciate God and God's gifts. This led to desperate prayer out of fear and sorrow, which in turn led to a mental breakdown marked by weeping and sobbing. Once in this position of hopelessness and despair the meditator was ready to receive the *misericaordia Dei*. In this phase of the meditation the practitioner imagined and visualised a person who dies in the middle of sin and becomes condemned for eternity. Struck by the potential of such a horrible fate he became grateful that

²⁶⁶ Martin Luther, "Tischreden no. 46," in *Martin Luthers Werke: Kritische Gesamtausgabe. Tischreden*, vol. 1 (Weimar: Hermann Böhlhaus Nachfolger, 1914), 1:16:13. "Sola autem experientia facit theologum."

²⁶⁷ Drawing on Medieval models, Luther structured the spiritual exercise as *oratio-meditatio-tentatio*, that is, *prayer-meditation-agonizing struggle*. See the preface to the first volume of the Wittenberger edition from 1539: Martin Luther, "Vorrede zum 1. Bande der Wittenberger Ausgabe. 1539," in *Martin Luthers Werke: Kritische Gesamtausgabe*, vol. 50 (Weimar: Hermann Böhlhaus Nachfolger, 1914).

Whereas some scholars have approached the Lutheran division from a distinctly historical perspective, others provide historically thorough yet theologically driven readings. For the first approach see: Nicol, *Meditation bei Luther*; Tanja Täubner, "Zum andern soltu meditirn": *Die Meditationspraktiken in der Pädagogik August Hermann Franckes*, Hallesche Forschungen 38 (Halle: Verlag der Franckeschen Stiftungen, 2014), 38–49.

For the second approach see especially the works of the German theologian Oswald Bayer: Bayer, *Martin Luther's Theology*; Oswald Bayer, "Oratio, Meditatio, Tentatio: Eine Besinnung auf Luthers Theologieverständnis," *Lutherjahrbuch*, no. 55 (1988): 7–59.

For theological readings see also: Manuel Goldmann, "Oratio – Meditatio – Tentatio: Impulse Martin Luthers für eine evangelische Spiritualität," *LUTHER* 85 (2014): 115–24; John Kleinig, "Oratio, Meditatio, Tentatio: What Makes a Theologian?," *Concordia Theological Quarterly* 66, no. 3 (2002): 255–67; Ralf Stolina, "Gebet – Meditation – Anfechtung: Wegmarken Einer Theologia Experimentalis," *Zeitschrift Für Theologie Und Kirche* 98, no. 1 (2001): 81–100; Steven A. Hein, "Tentatio," *Lutheran Theological Review* 10 (1997): 29–47.

²⁶⁸ Nicol, *Meditation bei Luther*, 30–32.

²⁶⁹ Although penance meditation was organised around the *miseria nostra* and the *misericaordia Dei* the specific number of steps differed. The following account is based on Nicol's analysis of a particular Lutheran meditation. See: *Ibid.*, 106–7.

it was not yet too late, that there was still time to be saved. In the last step of the meditation he imagined and visualised his own rescue from damnation.²⁷⁰

In the first half of the seventeenth century spiritual exercises such as the penance meditation were reproduced and further elaborated through the wave of Lutheran and Anglican devotional writings that swept across Europe.²⁷¹ In Johann Arndt's *Wahre Christentum* (*True Christianity*, 1605–1609), which underwent so many editions that it eventually began to overshadow even Luther's own writings, the author encouraged his readers to engage in spiritual exercises, preferably by focusing on the agonizing struggle.²⁷² By being tested in this way, the practitioner learned patience and hope, thus strengthening his faith in God. In the second half of the seventeenth century the notion of experience as *passio* or agonising struggle fuelled the embryonic Pietism movement.²⁷³ Wallmann

²⁷⁰ Ibid., 107.

²⁷¹ In Johann Arndt's influential *Wahre Christentum* (1605/10) spiritual exercises drove the transition from the old Adam to Christ, from flesh to spirit, from darkness to light and from death to life, just to mention a few of the dichotomies that he used. Influenced by Arndt, Johann Gerhard painted the picture of a struggle fought by means of spiritual exercises in the *Schola Pietatis* (1622). In this struggle the penance meditation provided probably the most powerful weapon. Similarly, Ludwig Dunte emphasised penance meditation in *Übung des rechtmäßigen Christenthums* (1630). If the thematic of a fierce struggle fought through spiritual exercises dominated German writings, it was not less important in the English devotional texts. In the tremendously popular *The Practice of Piety* (1631) Lewis Bayly painted in broad and dramatic strokes the picture of the struggle between God and Satan, good and evil. Only by excelling in spiritual exercise and by using it to withstand the temptations of evil can the human being be saved. A similar practice-oriented approach framed by a seemingly dark and fatal narrative can be found in Emanuel Sonthom's *Güldenem Kleinod der Kinder GOTTES* (1632) and Joseph Hall's *Art of Divine Meditation* (1607). When it comes to self-denial and contempt the most radical writings by far were Daniel Dyke's *The Mystery of Self-Deceiving* (1615) and Richard Baxter's *A Treatise of Self-Denial* (1675). Baxter in particular organised his treatise as one comprehensive guide on how to practice self-hatred and self-denial, focusing on the deceptive human nature and especially on everything that had to do with the body and the flesh. See: Johann Arndt, *Vier Bücher vom wahren Christenthumb* (Magdeburg, 1610); Johann Arndt, *True Christianity*, trans. Peter Erb (New York: Paulist Press, 1979); Johann Gerhard, *Schola Pietatis* (Nürnberg, 1736); Ludwig Dunte, *Wahre und rechtmessige Übung des Christenthums* (Wittenberg, 1678); Lewis Bayly, *The Practice of Pietie Directing a Christian How to Walke That He May Please God* (London, 1613); Emanuel Sonthom, *Güldenem Kleinod der Kinder Gottes* (Frankfurt, 1612); Joseph Hall, *The Arte of Divine Meditation* (Basel, 1631); Daniel Dyke, *The Mystery of Self-Deceiving. Or a Discourse and Discovery of the Deceitfulness of Mans Heart* (London, 1615); Richard Baxter, *A Treatise of Self-Denial* (London, 1659). When it comes to the influence of these texts see especially Udo Sträter's works: Udo Sträter, *Sonthom, Bayly, Dyke und Hall: Studien zur Rezeption der englischen Erbauungsliteratur in Deutschland im 17. Jahrhundert*, Beiträge zur historischen Theologie 71 (Tübingen: Mohr Siebeck, 1987); Udo Sträter, *Meditation und Kirchenreform in der lutherischen Kirche des 17. Jahrhunderts*, Beiträge zur historischen Theologie 91 (Tübingen: Mohr Siebeck, 1995).

²⁷² Arndt, *Vier Bücher vom wahren Christenthumb*, 598, 602, 641. In contrast to Luther, who saw God as the ultimate source of spiritual trial, Arndt also recognised Satan as a possible source, especially in cases where destructive passions such as anger and hatred dominated. See: Simon D. Podmore, *Struggling with God: Kierkegaard and the Temptation of Spiritual Trial* (Cambridge: Clarke, 2013), 129–31. Ibid., 129.

²⁷³ For the influence of Lutheran and Anglican devotional texts on Spener and Francke see generally: Johannes Wallmann, *Pietismus und Orthodoxie* (Tübingen: Mohr Siebeck, 2010); Johannes Wallmann, *Philipp Jakob Spener und die Anfänge des Pietismus* (Tübingen: Mohr Siebeck, 1986);

has remarked that Spener adopted the notion of agonising struggle from Luther and Arndt.²⁷⁴ At the same time as he ascribed it an important role in religious practice, he distanced himself from religious enthusiasts or *schwärmer*.²⁷⁵ In contrast to the kind of wild, ecstatic experience that distinguished the *schwärmer*, and that could derive from the Devil just as well as from God, the agonising struggle revolved round methodologically cultivated and controlled experiences.²⁷⁶ Later on this view would receive a specific expression in Halle through the discussion of an experimental theology (*theologia experimentalis*), a discipline that at least partly built on the principles of the new science.²⁷⁷

So far I have made the case that religious experience was typically inner, affectual and realised through religious exercises such as prayer and meditation. The following schema illustrates the principal differences between early modern religious and scientific experience.

Sträter, *Meditation und Kirchenreform in der lutherischen Kirche des 17. Jahrhunderts*; Sträter, *Sonthom*, Bayly, Dyke und Hall.

²⁷⁴ Johannes Wallmann, "Spener als Seelsorger," in *Pietismus-Studien*, Gesammelte Aufsätze 2 (Tübingen: Mohr Siebeck, 2008), 322. Similar points have been made by Bayer. See: Oswald Bayer, "Lutheran Pietism, or Oratio, Meditatio, Tentatio in August Hermann Francke," *Lutheran Quarterly* 25, no. 4 (2011): 383–97; Oswald Bayer, *Theology the Lutheran Way*, trans. Jeffrey G. Silcock and Mark C. Mattes, English ed. (Grand Rapids, MI: W.B. Eerdmans Pub. Co, 2007), 33–39. For a central passage in Spener see: Philipp Jacob Spener, *Die allgemeine Gottesgelehrtheit aller gläubigen Christen und rechtschaffenen Theologen Aufß Gottes wort erwiesen* (Franckfurt, 1680), 187.

²⁷⁵ See: Judd Stitzel, "God, the Devil, Medicine, and the Word: A Controversy over Ecstatic Women in Protestant Middle Germany 1691–1693," *Central European History* 29, no. 3 (1996): 309–37; Wallmann, *Pietismus und Orthodoxie*, 135.

Scholars have debated whether Spener's Pietism should be seen as a part of what has been referred to as "radical Pietism". For an overview of this debate see: Hans Schneider, *German Radical Pietism* (Lanham, MD: Scarecrow Press, 2007), 177–90.

For the criticism of enthusiasm in the seventeenth and eighteenth centuries see also: Michael Heyd, *"Be Sober and Reasonable": The Critique of Enthusiasm in the Seventeenth and Early Eighteenth Centuries*, Brill's Studies in Intellectual History 63 (Leiden: Brill, 1995).

²⁷⁶ Stitzel, "God, the Devil, Medicine."

²⁷⁷ Ernst Koch, "De Theologia experimentalis: Akademische Diskurse um 1700 in Leipzig, Halle und Wittenberg," in *"Aus Gottes Wort und eigener Erfahrung gezeigt" Erfahrung – Glauben, Erkennen und Handeln im Pietismus. Beiträge zum III. Internationalen Kongress für Pietismusforschung 2009*, ed. Christian Soboth and Udo Sträter, Hallesche Forschungen, 33.1 (Halle: Verlag der Franckeschen Stiftungen, 2004).

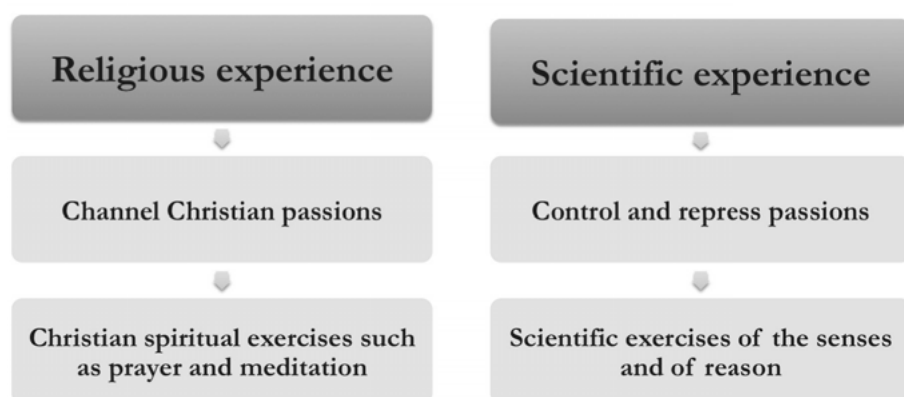


Figure 7. Comparison of early modern religious and scientific experience.

Firstly, while religious experience typically started in the internal senses, scientific experience started in the external senses. Secondly, whereas religious experience was essentially about fuelling specific virtuous Christian emotions and passions such as fear and love of God, scientific experience was typically antithetical to emotion and passion. Thirdly, while religious experience revolved around Christian spiritual exercises such as prayer and meditation, scientific experience dwelled on the kind of exercises of the senses and of reason that we saw in the analysis of Wolff. Given these three principal differences, religious experience might seem to be of little importance for the understanding of scientific experience. After all, it appears as an essentially different form of experience. Yet, and as I will show throughout this chapter, a number of cases suggest that the two actually overlapped and cross-fertilised at different points in time. One such overlap was Descartes, who shaped his metaphysics in close proximity to the kind of Christian spiritual exercises that he practiced during his time at La Flèche. Francke was another example of this overlap. Highlighting the specific case of Francke, I argue for a more inclusive analysis that does not restrict scientific experience to observations of objects within natural philosophy and medicine.

Living experience

Throughout his life Francke consistently stressed the importance of living experience (*lebendige/wirkliche Erfahrung*).²⁷⁸ While most of his remarks were short and

²⁷⁸ Throughout this analysis I will approach living experience, living knowledge and living faith as three intimately connected phrases that were part of the same discourse. When analysing this

sententious, some texts provide more detailed accounts.²⁷⁹ In an early sermon, *Von rechtschaffenen Wachstum des Glaubens* (*On the Rightful Growth of Faith*, 1691), Francke described living experience and knowledge as preconditions for living faith.²⁸⁰ Hence, it was experience and knowledge of God that built and strengthened faith. But what did these categories actually mean? What distinguished living experience from other forms of experience? Or, in other words, what was it that made the *living* living? In the following part of the section I reconstruct the category of the living, which has hitherto received little scholarly attention, from a number of key sources.

As Francke launched his notion of living experience it was as a direct development of the religious and in particular Lutheran notion of experience. Theologically, the metaphores of life and the living occupied a central role in conversion stories from those of the Gospels to those produced within early modern theology.²⁸¹ It is in this context we should understand Francke's conversion story as presented in the *Lebenslauf*. Accordingly, the sudden conversion in 1687

discourse I will sometimes refer to "living experience, knowledge and faith", and sometimes for the sake of simplicity, just to "the living". Since references to living faith, knowledge and experience occur throughout Francke's whole production, it neither makes sense nor is possible to identify and analyse every particular reference to and use of the terms. I will instead focus on a limited number of texts where Francke discussed these in more detail.

²⁷⁹ See especially: Francke, "Vom rechtschaffenen Wachstum des Glaubens"; Francke, "Der lebendige Glaube"; Francke, "Die Erfahrung der Herrlichkeit Gottes"; Francke, "Die Erkenntniß CHRISTI/ als der Grund alles wahren Christlichen Sieges und Triumphs."

²⁸⁰ Hermann Francke, "Vom Rechtschaffenen Wachstum Des Glaubens, 1691," in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969), 17.

²⁸¹ See: Udo Schnelle, "Die Konstruktion des Neuen Menschen. Grundzüge neutestamentlicher Anthropologie," in *Alter Adam und neue Kreatur Pietismus und Anthropologie: Beiträge zum II. Internationalen Kongress für Pietismusforschung 2005*, ed. Udo Sträter (Tübingen: Niemeyer, 2005).

Since the late 1990s the scholarly interest in medieval and early modern conversion has underwent a revival. David Martin Luebke, Duane Corpis and Eric-Oliver Mader have pointed out the Latin *Conversio* and the German *Bekehrung* articulated a range of meanings in post-Reformation Christianity. Most significantly they denoted both the internal spiritual renewal experienced by a true convert and the act of formally changing from one religion to another. The former, which has been referred to as "intrareligious", was at the core of Lutheranism. Luther, who himself became the subject of a sudden and dramatic turn to God, saw the conversion as an inner transformation led by faith but initiated by God rather than the convert. In this context, he brought forth Paul as the paradigmatic example of a conversion. For Luther, Paul's complete inner transformation symbolized the ultimate victory of Christ over his enemies. The Lutheran understanding of conversion provides the broad framework within which Francke launched his own particular understanding of conversion as inner transformation. See: David Martin Luebke, "Introduction," in *Conversion and the Politics of Religion in Early Modern Germany*, ed. David Martin Luebke et al., Spektrum 3 (New York: Berghahn Books, 2012); Duane J. Corpis, "Paths of Salvation and Boundaries of Belief: Spatial Discourse and the Meanings of Conversion in Early Modern Germany," in *Conversion and the Politics of Religion in Early Modern Germany*, ed. David Martin Luebke et al., Spektrum 3 (New York: Berghahn Books, 2012); Eric-Oliver Mader, "Conversion Concepts in Early Modern Germany: Protestant and Catholic," in *Conversion and the Politics of Religion in Early Modern Germany*, ed. David Martin Luebke et al., Spektrum 3 (New York: Berghahn Books, 2012); Lotz-Heumann, Missfelder, and Pohl, "Konversion und Konfession in der Frühen Neuzeit: Systematische Fragestellungen"; Niewöhner and Rädle, *Konversionen im Mittelalter und in der Frühen Neuzeit*.

was preceded by a miserably period of merely intellectual and dead knowledge of theology. "I knew my theology in my head rather than in my heart, and it was a dead science rather than a living knowledge."²⁸² Later on, he returned to this topic, now providing a more detailed analysis of the living:

But when one speaks of the living faith one must not think that nothing more is required than this: that one hears, learns, understands with the intellect, and stores in memory the teachings of the gospels, that Christ died for our sins, that he was buried and rose again on the third day; and that one when asked can account for, recite and support these teachings with passages from the Holy Scripture.²⁸³

Living faith, Francke continued, required a living knowledge that touched the heart.

If the human being is to have a true, divine and living knowledge then it must not rest on mere knowledge in the sense that he is able to retell it as he has heard it, but God must open his eyes...the cover must be removed from his heart, and he be thus enlightened by the Holy Spirit so that he with uncovered face acknowledges the clarity of Jesus Christ.²⁸⁴

In the early modern age the discontentment with merely intellectual knowledge was at the core of many mystical and devotional writings.²⁸⁵ The problem with this knowledge was not only that it led away from God to the worldly and profane. It was problematic also for the reason that it engaged only a part of the soul, wherefore it hindered the conversion as the complete (as opposed to merely intellectual) spiritual transformation into a new kind of being or crea-

²⁸² Francke, *Lebensläufe August Hermann Franckes*, 12. "Meine theologiam faste ich in den kopff, und nicht ins hertz, und war vielmehr eine todte wissenschaft als eine lebendige Erkenntniß."

²⁸³ Francke, "Der lebendige Glaube," 1052. "Wann aber von dem lebendigen Glauben geredet wird, so darf man nicht dencken, daß nicht mehr dazu gehöre, denn dieses, daß man die Lehre des Evangelii, daß Christus für unsere Sünde gestorben sey, daß er begraben und am dritten Tage auferstanden sey, höre, lerne, in seinen Verstand fasse, und in sein Gedächtniß lege, daß man, wenn man hernach gefragt wird, Rechenschaft davon geben, diese Lehre einem wieder hersagen, und sie mit Sprüchen der heil. Schrift beweisen könne."

²⁸⁴ Ibid., 1053. "Soll demnach der Mensch eine wahrhaftige, göttliche und lebendige Erkäntniß haben, so muß es nicht im blossen Wissen beruhen, daß er es wieder hersagen könne, wie er es gehöret; sondern GOTT muß ihm seine Augen öffnen... die Decke muß von seinem Hertzen weggenommen und er dergestalt mit dem heiligen Geist erleuchtet werden, daß er mit aufgedeckten Angesicht die Klarheit JESU Christi erkenne."

²⁸⁵ For Francke's critique of "intellectualism" within theology see: August Hermann Francke, "Von dem Dienst untreuer Lehrer," in *Predigten I*, ed. Erhard Peschke, vol. 9, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1987); August Hermann Francke, "Von den falschen Propheten," in *Predigten I*, ed. Erhard Peschke, vol. 9, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1987). Although Francke's criticism of the purely intellectual targeted all theologians, the discussion of false teachers and prophets was, as Peschke has pointed out in the short introduction to the texts, levelled as a direct criticism of the fraction of Orthodox Lutherans at Halle.

ture.²⁸⁶ As Francke criticised merely intellectual knowledge he thus reproduced an at the time widespread theological criticism. As I will show further on in this chapter, however, there are reasons to believe that many early modern philosophers in fact shared the view that knowledge should engage the whole soul and not only its intellectual parts.

If intellectual knowledge was insufficient, the key to Christian fulfilment lay in the *living*. But what, more precisely, was the *living*? Or, to restate the initial question, *what* was it that made the *living* living? For Francke the answer was clear. The *living* was living only insofar as it engaged the whole soul and particularly the affects and the passions. The notion that the living was essentially affectual is reflected in several passages. For instance, when discussing the way in which living experience strengthens faith, Francke encouraged his readers to turn their gaze inwards and explore the “passions, senses and thoughts.”²⁸⁷ In so doing, they would themselves witness how living experience had transformed the soul and made “Christ living.”²⁸⁸ In another revealing passage he emphasised that the true turn to God required that “one experience the glory of God” and that one “sees and acknowledges with the eyes of the passions [Gemüthes] and that one is able to observe with the holy fear of God.”²⁸⁹ And in yet another passage he emphasised that it is “through such agonizing struggle” that one reaches “the most wonderful experience and through this the strongest strength in faith.”²⁹⁰ These passages point to the intimate connection between

²⁸⁶ For analyses of the “new creature” in eighteenth-century theology see: Albrecht Beutel, “Eine Angelegenheit des Menschen”. Beobachtungen zum Religionsdiskurs im 18. Jahrhundert,” in *Alter Adam und neue Kreatur Pietismus und Anthropologie: Beiträge zum II. Internationalen Kongress für Pietismusforschung 2005*, ed. Udo Sträter (Tübingen: Niemeyer, 2005); Martin Brecht, “Zwischen Schwachheit und Perfektionismus. Strukturelemente theologischer Anthropologie des Pietismus,” in *Alter Adam und neue Kreatur Pietismus und Anthropologie: Beiträge zum II. Internationalen Kongress für Pietismusforschung 2005*, ed. Udo Sträter (Tübingen: Niemeyer, 2005).

For Francke’s account of conversion and spiritual transformation see for instance: August Hermann Francke, “Die Lehre unsers HERRN JESU CHRISTI von der Wiedergeburt,” in *Predigten I*, ed. Erhard Peschke, vol. 9, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1987), 167–68; August Hermann Francke, “Das neue Leben,” in *Predigten über die Sonn- und Fest-Tags-Episteln nebst einer Vorrede vom erbanlichen predigen und von dem rechten Gebrauch dieser Predigten, auch mit nöthigen Registern versehen*, 2nd ed. (Halle: Waysenhaus, 1729).

For scholarly studies of Francke’s conversion see: Strom, “Pietist Experiences and Narratives of Conversion”; Strom, “Pietist Conversion Narratives and Confessional Identity”; Strom, “Constructing Religious Experience: Conversion Narratives in Halleian Pietism.”

²⁸⁷ Francke, “Vom rechtschaffenen Wachstum des Glaubens,” 21. “Begierden, Sinnen und Gedanken”.

²⁸⁸ Ibid. “Christo lebendig gemachet”.

²⁸⁹ Francke, “Die Erfahrung der Herrlichkeit GOTTes,” 181. “man die Herrlichkeit GOTTes erfahre”, “mit den Augen seines Gemüthes sehen/ erkennen/ und mit heiliger Ehrfurcht vor Gott betrachten könne.”

²⁹⁰ Francke, “Vom rechtschaffenen Wachstum des Glaubens,” 32. “durch solche Anfechtungen”, “die herrlichste Erfahrung, und durch dieselbige die gröste Stärkung des Glaubens”.

the living and the affects and passions. Often these were interwoven to the extent that *living* became synonymous with *passionate*.²⁹¹

So far I have argued that the living was made living through the affects and the passions. But *how* was it made living? Rather than being some arbitrary state of arousal, the living was made living primarily through Christian spiritual exercises such as prayer and meditation. Drawing on Luther, Francke emphasised the *oratio-meditatio-tentatio* as constitutive for the true theologian. “Prayer, meditation and trial constitute the three parts that make a true theologian.”²⁹² In another text, written as an ethical guide for theology students, he again returned to the tri-partition. “Oratio, Meditatio, Tentatio; *prayer, meditation* or diligence of the soul in honestly exploring and evaluating the divine truth, and *agonising struggle* makes him, step by step and with the years, into a true servant of the Lord in his House.”²⁹³

For Francke, the Lutheran division boiled down to concrete daily practice. Each day the Christian should reserve extensive periods of time for prayer in the morning, at midday, and in the evening.²⁹⁴ In time this practice would become an increasingly powerful tool. “Always believe that the more diligently and seriously you practice prayer, the more God will come to your help with his grace and gifts.”²⁹⁵ At each instance of prayer the practitioner should pray “not

²⁹¹ Even though Francke stressed affects and passions, it does not mean that he wished to replace the regime of reason with some uncontrolled regime of the passions. On the contrary, he saw the passions as an essential and powerful but dangerous force. If unrestrained, it threatened to lead the human being down the ruinous path to sin, but controlled and cultivated correctly it infused life and meaning into the Christian life. See: Francke, “Von dem Dienst untreuer Lehrer”; Francke, “Von den falschen Propheten.”

²⁹² August Hermann Francke, “Einfältiger Unterricht, wie man die H. Schrift zu einer wahren Erbauung lesen solle,” in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969), 219. “Das Gebeth / die Betrachtung / und die Anfechtung sind die drey Stück / welche einen rechten Gottesgelehrten Mann machen.”

²⁹³ August Hermann Francke, “Idea studiosi Theologiae,” in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969), 183. “Oratio, Meditatio, Tentatio, Gebet / Betrachtung oder Fleiß des Gemüths in ernstlichem forschen und erwegen der göttlichen Wahrheit / und Anfechtung bringen ihn nach und nach und mit den Jahren dahin / daß er dem HErren als ein treuer Knecht in seinem Hause zu dienen tüchtig erfunden werde.”

²⁹⁴ August Hermann Francke, “Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführet ist,” in *Oeffentliches Zeugniß Vom Werck / Wort und Dienst Gottes*, vol. 1 (Halle, 1702), 246–47. See also: August Hermann Francke, *Der rechte Gebrauch der Zeit, so fern dieselbe gut, und so fern sie böse ist* (Halle, 1715), 8–9.

To structure the day through religious exercises was important for Francke. In this context Veronika Albrecht-Birkner has suggested that even Francke’s diaries, which contained little more than brief lists of events, meetings and correspondence, worked by structuring the day according to a Biblical ideal of how to spend time. If Albrecht-Birkner is correct it indicates that the keeping of a diary was much more of a spiritual exercise than has hitherto been assumed. See: Veronika Albrecht-Birkner, “Einleitung,” in *Tagebuch 1714*, ed. Veronika Albrecht-Birkner and Udo Sträter, *Hallesche Quellenpublikationen und Repertorien* 13 (Halle: Verlag der Franckeschen Stiftungen, 2014), XV.

²⁹⁵ August Hermann Francke, “Anweisung zu beten,” in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969), 377. “Glaube allezeit gewiß / daß je

only with the mouth but with a devotional heart.”²⁹⁶ It was important to stay focused and to “be observant on the manifold of experience in prayer.”²⁹⁷ It was particularly important to make sure that the “passions” were “awakened and strengthened” in the right way, and to do this “gradually with the words of the Holy Scripture.”²⁹⁸

For Francke prayer was intimately connected to meditation. Following the then contemporary view, meditation took the form of a deeper reflection on Biblical themes such as sin, the passion of Christ and God’s mercy. Rather than working as two separate practices prayer and meditation were intimately connected and mutually dependent. “Prayer inspires meditation, and meditation inspires prayer.”²⁹⁹ And in another passage: “Prayer without meditation is a cold and ugly thing. Meditation without prayer is sterile and completely useless.”³⁰⁰ As two intimately connected practices, prayer and meditation took the practitioner from states of increasing self-contempt and despair to states of gratefulness and love of God. These highly affectual states, which revolved around fear and love of God, were referred to as *tentatio* or *Anfechtung*, translated as agonizing struggle. By thus centring on the fear and love of God, the *tentatio* was intimately connected to the living. In this context Francke stressed that one should view everything bad that happens as God’s trial and that one shall cling to a passage in the Bible and contemplate it with devotion in one’s heart. “O, what a source of living water will it not be for you!”³⁰¹ In another text Francke returned to the metaphor of living water, stressing here that one should read the Holy Scripture with “prayer and plea for mercy.... Then more living water will always flow into your well so that you become like a water-rich garden that never lacks living water.”³⁰² The metaphor of living water illustrates how the living was connected to the *tentatio* and to the culture of emotion more generally. Only by systematically cultivating specific religious passions such as fear and love of God, thereby putting oneself in states of agonising struggle, would experience, knowledge and faith in God become like living water flowing through

fleißiger und ernstlicher du das Gebet üben (453) wirst / je mehr wird dir GOTT mit seiner Gnade und Gabe darinnen zu hülfte kommen”.

²⁹⁶ Francke, “Einfältiger Unterricht, wie man die H. Schrift zu einer wahren Erbauung lesen solle,” 217. “nicht mit dem Munde allein / sondern mit recht andächtigen Hertzen”.

²⁹⁷ Francke, “Anweisung zu beten,” 378. “Habe acht auff die mannichfältige Erfahrung im Gebet”.

²⁹⁸ Ibid., 372. “Gemüths”, “erwecke und stärke”, “nach und nach mit Worten der H. Schrift unterrichte”.

²⁹⁹ Francke, “Einfältiger Unterricht, wie man die H. Schrift zu einer wahren Erbauung lesen solle,” 218. “Durch Gebet wird die Betrachtung erleuchtet / und in der Betrachtung wird das Gebet inbrünstig.”

³⁰⁰ Ibid. “Das Gebet ohne Betrachtung ist kalt und faul Ding. Die Betrachtung ohne das Gebet ist unfruchtbar / und durchaus nichts nütze.”

³⁰¹ Ibid., 219. “O wie wird dir das eine Qvelle lebendiges Wassers seyn!”

³⁰² Francke, “Anweisung zu beten,” 377. “Gebet und Flehen für Gott.... Denn also wird immer mehr lebendiges Wasser zu deinem Brünlein zu qvillen / daß du werden wirst wie ein Wasserreicher Garten / dem es nimmer an lebendigen Wassern fehlet.”

and permeating the soul. Whereas philosophical and scientific exercises revolved around the control and repression of passion, the religious exercise controlled and repressed certain harmful passions while actively cultivating virtuous passions such as fear and love of God.

In this part of the section I have analysed living experience as inner, affectual and connected to spiritual exercises such as specific forms of prayer and meditation. Against the background of previous scholarly studies, living experience appears as a specific form of early modern religious experience. In the following part of the section I shift focus from the theological to the pedagogical, arguing that living experience played a vital role as Francke took on the challenge of shaping Pious Christians through a systematic and large-scale religious *cultura animi*. In ascribing living experience this role, I contribute a hitherto overlooked aspect to the larger scholarly endeavour to understand Francke's attempt to foster pious Christians.

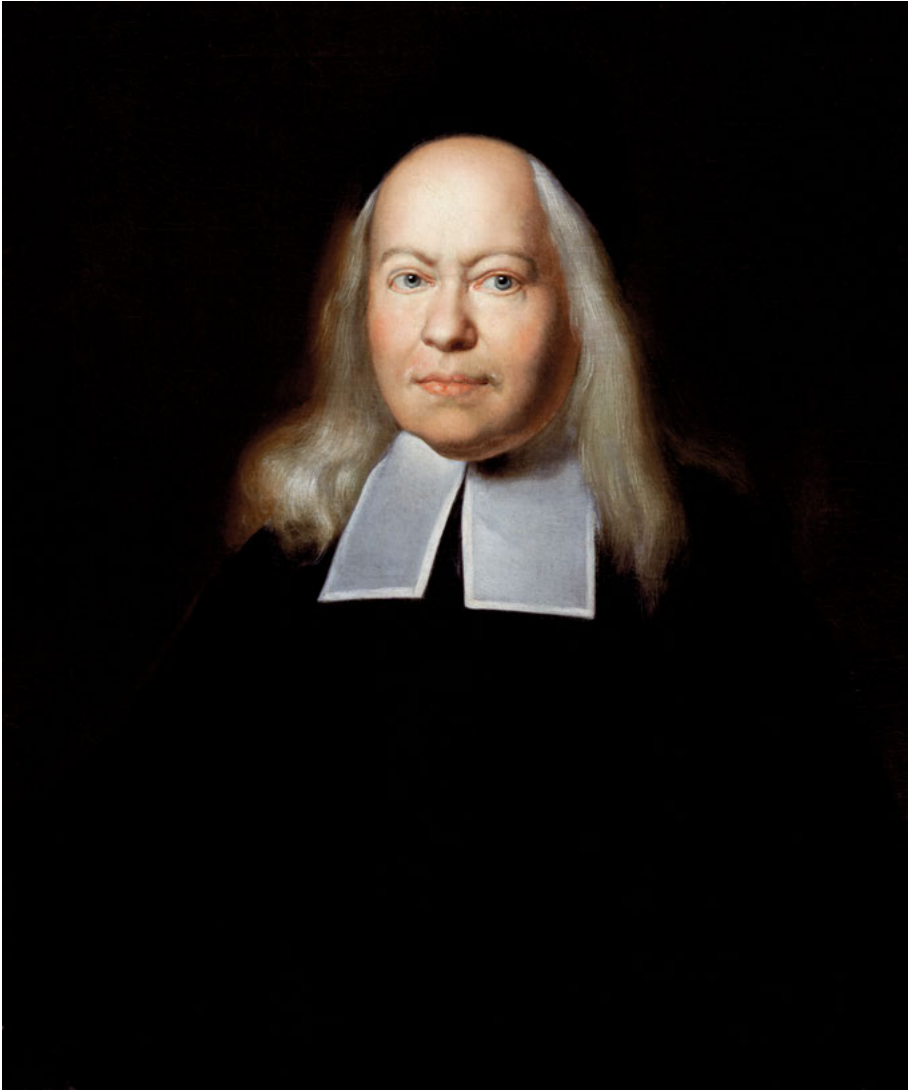


Figure 8. Antoine Pesne, *August Hermann Francke*, oil on canvas, 1725, Archiv und Bibliothek der Franckeschen Stiftungen.

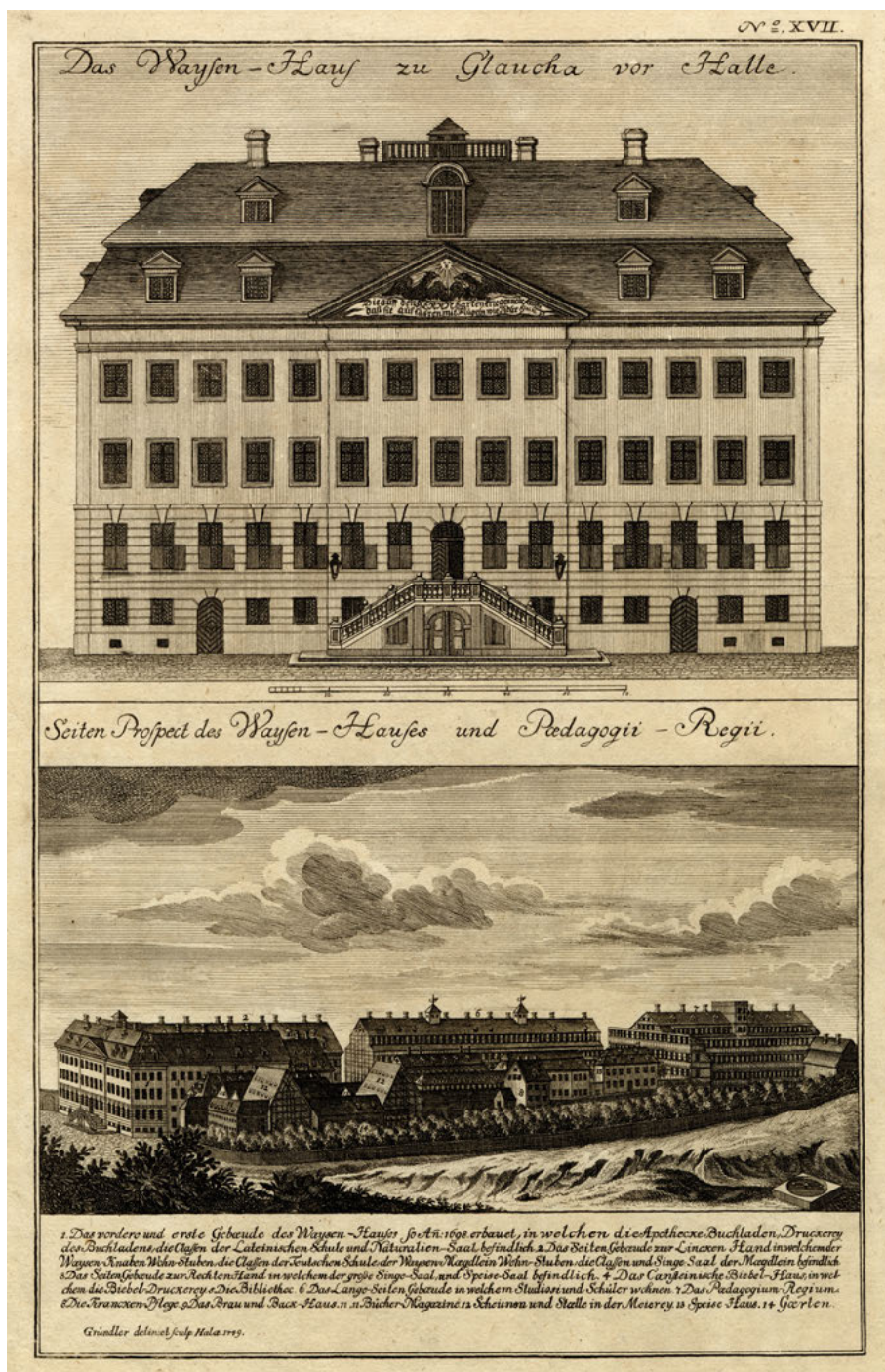


Figure 9. Das historische Waisenhaus in Halle und Gesamtansicht der Franckeschen Stiftungen, 1749, engraving, Archiv und Bibliothek der Franckeschen Stiftungen.



Figure 10. Der Lindenhof der Franckeschen Stiftungen mit Blick auf das Pädagogium, 1790, engraving, Archiv und Bibliothek der Franckeschen Stiftungen.

The Orphanage *cultura animi*

Francke's theological vision entered into a new phase as he took on the role of pastor at Glaucha, an adjacent city to Halle, in 1692. In this apparently god-forsaken city the plague had struck particularly hard, killing about two thirds of the population and leaving behind broken families, orphans and collapsed social institutions.³⁰³ In addition to this, the city had an unusually high number of pubs and inns that did not exactly contribute to godliness.³⁰⁴ While deterring most state officials the city probably provided just the kind of challenge that appealed to the newly converted Francke. Touched especially by the hardships of the many young orphans, he gradually channelled his energy into the foundation of an orphanage. When the Orphanage was inaugurated in April 1701, it encircled a courtyard that, in addition to purely educational units, also included a bookstore, a bookbindery, a printing office, a pharmacy, a laboratory and an infirmary.³⁰⁵ In 1727, the year of Francke's death, over 3000 students, orphans, teachers, administrators and artisans studied, worked and lived at the Orphan-

³⁰³ Veronika Albrecht-Birkner, *Francke in Glaucha: Kehrseiten eines Klischees (1692–1704)*, Hallesche Forschungen 15 (Tübingen: Niemeyer, 2004), 12.

³⁰⁴ According to Francke in Glaucha there were 37 pubs and inns in a total of 200 houses. As Albrecht-Birkner has pointed out, however, Francke probably exaggerated as a part of the overall story of how he had turned the sinful Halle into a city of God. See: Gustav Kramer, *Vier Briefe August Hermann Francke's zur zweiten Säcularfeier seines Geburtstags herausgegeben von G. Kramer* (Halle, 1863), 74; Albrecht-Birkner, *Francke in Glaucha*, 3–9. See also Francke's account in: August Hermann Francke, *Historische Nachricht / Wie sich die Zuverpflegung der Armen und Erziehung der Jugend in Glaucha an Halle gemachte Anstalten veranlasst* (Halle, 1697).

³⁰⁵ Obst, *August Hermann Francke und sein Werk*, 40.

age.³⁰⁶ The fact that Glaucha had about 600 and Halle roughly 10 000 inhabitants in the beginning of the eighteenth century gives an idea of the kind of impact the Orphanage had.³⁰⁷ However, even though the Orphanage was massive in its appearance its real power lay in the vision that it embodied. Led by the device “Weltveränderung durch Menschenveränderung” Francke’s vision was that of a global reform movement based at the Orphanage.³⁰⁸ At this site orphans and students were systematically shaped into pious Christians, disposed to the honour of God. This was to be done through what Francke referred to as *cultura animi* or *Gemüthspflege*.³⁰⁹ In this third and last part of the section I analyse Francke’s *cultura animi* or *Gemüthspflege* as a systematic culture of religious experience launched for the purpose of producing a certain kind of soul distinguished by pious feelings of fear and love of God.

Most studies of Francke’s pedagogy fall within the larger field of what is sometimes referred to as Pietism studies.³¹⁰ Within this field recent scholars have emphasised that German Pietism must be approached as a heterogeneous phenomenon rather than one singular and unified movement.³¹¹ As such it was

³⁰⁶ Ibid., 97.

³⁰⁷ Albrecht-Birkner, *Francke in Glaucha*, 12; Werner Freitag and Michael Hecht, “Verlassene residenz und konsumentenstadt an der preußischen peripherie (1680–1806),” in *Geschichte der Stadt Halle*, ed. Werner Freitag, Andreas Ranft, and Katrin Minner (Halle: Mitteldeutscher Verlag, 2006).

³⁰⁸ Obst, *August Hermann Francke und sein Werk*, 7–72.

³⁰⁹ Francke, *Kurzer Und Einfältiger Unterricht Wie Die Kinder Zur Wahren Gottseligkeit Und Christlichen Klugheit Anzuführen Sind*, 125.

³¹⁰ For overviews of recent developments within this field see: Douglas Shantz, “Introduction,” in *A Companion to German Pietism, 1660-1800*, ed. Douglas Shantz, Brill’s Companions to the Christian Tradition, volume 55 (Leiden: Brill, 2015); Douglas Shantz, *An Introduction to German Pietism: Protestant Renewal at the Dawn of Modern Europe* (Baltimore: Johns Hopkins University Press, 2013), 1–11; Hartmut Lehmann, “Aufgaben der Pietismusforschung im 21. Jahrhundert,” in *Interdisziplinäre Pietismusforschungen: Beiträge zum Ersten Internationalen Kongress für Pietismusforschung 2001*, ed. Udo Sträter, Hallesche Forschungen, Bd. 17 (Tübingen: Niemeyer, 2005); Udo Sträter, “Einleitung,” in *Alter Adam und neue Kreatur Pietismus und Anthropologie; Beiträge zum II. Internationalen Kongress für Pietismusforschung 2005*, ed. Udo Sträter (Tübingen: Niemeyer, 2005); Martin Brecht, “Einleitung,” in *Der Pietismus vom siebzehnten bis zum frühen achtzehnten Jahrhundert*, ed. Johannes van den Berg and Martin Brecht, Geschichte des Pietismus 1 (Göttingen: Vandenhoeck & Ruprecht, 1993); Schneider, *German Radical Pietism*.

³¹¹ The question of how to define Pietism has given rise to a heated scholarly debate in Germany. Johannes Wallmann has argued for a narrow definition restricted to the early modern German context. In contrast to this view, Martin Brecht and Hartmut Lehmann have pushed for a culturally and temporally more inclusive definition. See: Johannes Wallmann, “Was ist Pietismus?,” *Pietismus und Neuzeit* 21 (1994): 220–31; Johannes Wallmann, “Eine alternative Geschichte des Pietismus: zur gegenwärtigen Diskussion um den Pietismusbegriff,” *Pietismus und Neuzeit* 28 (2002): 30–71; Johannes Wallmann, “Pietismus – ein Epochenbegriff oder ein typologischer Begriff? Antwort auf Hartmut Lehmann,” *Pietismus und Neuzeit* 30 (2004): 191–224; Martin Brecht, “Probleme der Pietismusforschung,” *Dutch Review of Church History* 76 (1997): 227–37; Hartmut Lehmann, “Enger, weiterer und erweiterter Pietismusbegriff. Anmerkungen zu den kritischen Anfragen von Johannes Wallmann an die Konzeption der Geschichte des Pietismus,” *Pietismus und Neuzeit* 29 (2003): 18–36; Lehmann, “Aufgaben der Pietismusforschung im 21. Jahrhundert.” For overviews of this debate see: Shantz, *An Introduction to German Pietism*, 1–11; Sträter, “Einleitung.”

intimately intertwined not only with religious but also with social, political and cultural developments.³¹² For instance, several studies have drawn attention to the intimate connection between German Pietism as a social reform movement and the Prussian state as an administrative and educational apparatus.³¹³ In this context it has been made clear that Francke depended heavily on support from the Prussian state, for which the Orphanage provided a useful tool for the education of state officials.³¹⁴

Several scholars have examined the Orphanage as a place of discipline and control. In two early dissertations Wolf Oschlies and Juliane Dittrich-Jacobi analyse the Orphanage's pedagogy as a way of disciplining and educating classes and professions.³¹⁵ In contrast to their class-oriented analyses, in the revised edition of his 1969 dissertation, Peter Menck analyses the Orphanage's pedagogy and particularly the *cultura animi* as a systematic attempt to shape pious

³¹² See particularly: Sträter, "Einleitung"; Udo Sträter, "Vorwort," in *Interdisziplinäre Pietismusforschungen: Beiträge zum Ersten Internationalen Kongress für Pietismusforschung 2001*, ed. Udo Sträter, Hallesche Forschungen 17 (Tübingen: Niemeyer, 2005); Lehmann, "Aufgaben der Pietismusforschung im 21. Jahrhundert."

³¹³ For two pioneering studies see: Klaus Depperman, *Der hallesche Pietismus und der preussische Staat unter Friedrich III* (Göttingen: Vandenhoeck & Ruprecht, 1961); Carl Hinrichs, *Preußentum und Pietismus: Die Pietismus in Brandenburg-Preußen als religiös-soziale Reformbewegung* (Göttingen: Vandenhoeck & Ruprecht, 1971). For more recent works see: James van Horn Melton, "Pietism, Politics, and the Public Sphere in Germany," in *Religion and Politics in Enlightenment Europe*, ed. James E. Bradley and Dale K. Van Kley (Notre Dame, IN: University of Notre Dame Press, 2001); James Van Horn Melton, *Absolutism and the Eighteenth-Century Origins of Compulsory Schooling in Prussia and Austria* (Cambridge: Cambridge University Press, 1988); Anthony J. La Vopa, *Grace, Talent, and Merit: Poor Students, Clerical Careers, and Professional Ideology in Eighteenth-Century Germany* (Cambridge: Cambridge University Press, 1988); Richard L. Gawthrop, *Pietism and the Making of Eighteenth-Century Prussia* (Cambridge: Cambridge University Press, 1993); Mary Fulbrook, *Piety and Politics: Religion and the Rise of Absolutism in England, Württemberg and Prussia* (Cambridge: Cambridge University Press, 1983). See also William Clark's pioneering study of the development of the research university: William Clark, *Academic Charisma and the Origins of the Research University* (Chicago: The University of Chicago Press, 2006).

The complex relation between German Pietism and the Prussian state must also be understood against the backdrop of the larger process known as "confessionalism". From the time of the Reformation, confessionalism took the form of a complex religious, political and social process of consolidation that contained strong elements of centralisation, discipline and control. As such confessionalism provides the immediate background to the emergence of a strong Prussian state. See: Heinz Schilling, *Religion, Political Culture, and the Emergence of Early Modern Society: Essays in German and Dutch History* (Leiden: Brill, 1992); Po-Chia R. Hsia, *Social Discipline in the Reformation: Central Europe, 1550-1750* (London: Routledge, 1989); Anthony J. La Vopa, "Vocations, Careers, and Talent: Lutheran Pietism and Sponsored Mobility in Eighteenth-Century Germany," *Comparative Studies in Society and History* 28, no. 2 (1986): 255–86; Ernst Zeeden, *Die Entstehung der Konfessionen: Grundlagen und Formen der Konfessionsbildung im Zeitalter der Glaubenskämpfe* (München-Wien: R. Oldenbourg, 1965).

³¹⁴ Depperman, *Der hallesche Pietismus*; Hinrichs, *Preußentum und Pietismus*; Obst, *August Hermann Francke und sein Werk*, 33–54.

³¹⁵ Wolf Oschlies, *Die Arbeits- und Berufspädagogik August Hermann Franckes (1663–1727), Schule und Leben im Menschenbild des Hauptvertreters des Halleschen Pietismus* (Witten, 1969); Juliane Dittrich-Jacobi, *Pietismus in Pädagogik im Konstitutionsprozeß der bürgerlichen Gesellschaft. Historisch-systematische Untersuchung der Pädagogik August Hermann Franckes* (Bielefeld, 1976).

Christians.³¹⁶ Although Menck does not mention Foucault, the kind of mechanisms he refers to fit within the theory of a modern disciplinary power that works through mechanisms of positive reinforcement and internalisation rather than punishment.³¹⁷ Similarly, Margarete Welp analyses the education of the will in Francke's pedagogy in her dissertation.³¹⁸ In contrast to Menck, Welp's analysis takes us away from the disciplinary power of the earlier Foucault to the kind of self-technologies and spiritual exercises explored by the later Foucault.³¹⁹ In terms of this latter perspective, Tanja Täubner's previously discussed study of meditation practices in Francke's pedagogy explicitly builds on the later Foucault's self-technologies.³²⁰ Täubner argues that Francke's pedagogy took form as a vast class-transgressing programme for the systematic education of pious Christians. Drawing on devotional ideals Francke established the Orphanage as a quasi-monastery facility where the daily life was strictly regulated and structured by Christian spiritual exercises such as reading, praying and meditation. These exercises were used to educate children but also to turn teachers into pious professionals.³²¹ In terms of the actual exercises, Täubner's detailed analysis of particular types, such as the penance meditation, shows that they worked by guiding the practitioner through a process of inner, emotional and intellectual transformation.

In relation to these works I further elaborate Täubner's reading of Francke's pedagogy as spiritual exercise and self-technology. While Täubner focuses on the meditation exercises themselves, I am primarily interested in the kind of inner transformation that these were meant to bring about. What kind of inner transformation was the *cultura animi* supposed to accomplish? Which parts of the soul were to be transformed and by what means? These are the questions that guide this final part of the section.

In the programmatic *Kurtzer und einfältiger Unterricht, wie die Kinder zur wahren Gottseligkeit und Christlichen Klugheit anzuführen sind* (*Short and Concise Teaching on how to Lead Children to True Piety and Christian Wisdom*, 1702), Francke emphasised

³¹⁶ Peter Menck, *Die Erziehung der Jugend zur Ehre Gottes und zum Nutzen des Nächsten*, Hallesche Forschungen 7 (Halle: Verlag der Franckeschen Stiftungen, 2001). See also: Peter Menck, "Unwissenheit und Bosheit. Über die Grundlagen der Erziehung bei August Hermann Francke," in *Aufklärung und Erneuerung: Beiträge zur Geschichte der Universität Halle im ersten Jahrhundert ihres Bestehens (1694–1806)*, ed. Günter Jerouschek and Arno Sames (Hanau: Verlag Werner Dausien, 1994).

³¹⁷ See: Michel Foucault, *Madness and Civilization: A History of Insanity in the Age of Reason* (New York: Random House, 1988); Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Vintage Books, 1994); Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Vintage Books, 1995).

³¹⁸ Margarete Welp, *Die Willenserziehung bei August Hermann Francke unter besonderer Berücksichtigung der Erziehungspraxis in den Franckeschen Anstalten* (Dortmund, 1977).

³¹⁹ Michel Foucault, *The History of Sexuality, Vol. 2: The Use of Pleasure* (New York: Vintage Books, 1988); Michel Foucault, *The History of Sexuality, Vol. 3: The Care of the Self* (New York: Vintage Books, 1990).

³²⁰ Täubner, *Zum andern soltu meditirn*, 14–18.

³²¹ *Ibid.*, 110–13.

that the honour of God must be the goal of all education.³²² The principal means to achieve this goal, he continued, is the *cultura animi* or *Gemüths-pflege*. “The *cultura animi* or the gemüths Pflege is the only means through which this principal goal in the education of children can be reached.”³²³ Michael Carhart has remarked that the ancients used *cultura animi* to signify the “educational process of the individual or the individual’s own work on the self in order to improve mental agility.”³²⁴ This meaning of *cultura animi*, which revolved around the individual’s responsibility towards the self, would remain until the second half of the eighteenth century when it was gradually replaced by the more collective and familiar *cultura*.³²⁵

Scholars have drawn attention to Pufendorf and Thomasius’s references to *cultura animi* within the context of natural law.³²⁶ These references might suggest that Francke adopted the phrase from natural law theory. However, I would instead suggest a common strand of influence in the seventeenth-century pedagogical discussion of how to educate virtuous Christians, and especially in the works of the German mathematician and educational reformer Erhard Weigel.³²⁷ In a number of influential writings Weigel advocated the foundation of special schools in virtue.³²⁸ At these schools the pedagogy should focus on the education of the two main faculties of will and reason through a broad spec-

³²² August Hermann Francke, *Kurtzer und einfältiger Unterricht wie die Kinder zur wahren Gottseligkeit, und Christlichen Klugheit anzuführen sind* (Halle: Waysenhaus, 1702), 2.

³²³ Ibid., 3. “*Cultura animi* oder die gemüths Pflege is das einige Mittel / wodurch dieser Haupt-Zweck in Anweisung der Jugend erhalten wird.”

³²⁴ Michael C. Carhart, *The Science of Culture in Enlightenment Germany* (Cambridge, MA: Harvard University Press, 2007), 2.

³²⁵ Ibid., 2–3; Joseph Niedermann, *Kultur: Werden und Wandlungen des Begriffs und seiner Ersatzbegriffe von Cicero bis Herder* (Firenze: Libreria Antiquaria Editrice, 1941).

³²⁶ Carhart, *The Science of Culture in Enlightenment Germany*, 1–26; Hochstrasser, *Natural Law Theories in the Early Enlightenment*, 95–106; Donald R. Kelly, “The Old Cultural History,” *History of the Human Sciences* 9, no. 3 (1996): 1; Wolfgang Welsch, “Auf dem Weg zu transkulturellen Gesellschaften,” in *Differenzen anders Denken: Bausteine zu einer Kulturtheorie der Transdifferenz*, ed. Lars Allolio-Näcke, Britta Kalscheuer, and Arne Manzeschke (Frankfurt am Main: Campus, 2005), 315; Niedermann, *Kultur: Werden und Wandlungen des Begriffs und seiner Ersatzbegriffe von Cicero bis Herder*, 132–74.

³²⁷ The larger pedagogical discussion in which Weigel participated pushed for a practical pedagogy where the use of “realia” such as instruments and models played a vital role. Such “realia”, it was thought, would significantly facilitate memorisation and learning. See: Klaus Schaller, *Die Pädagogik des Johann Amos Comenius und die Anfänge des pädagogischen Realismus im 17. Jahrhundert*, Pädagogische Forschungen Veröffentlichungen des Comenius-Instituts 21 (Heidelberg: Quelle & Meyer, 1962), 455–72; Hildegart Schlee, “Die Pädagogik Erhard Weigels – ein Charakteristikum der Frühaufklärung,” *Studia Leibnitiana* 3, no. 1 (1971): 41–55.

³²⁸ Erhard Weigel, “Kurzer Entwurff der freudigen Kunst- und Tugend-Lehr, vor Trivial und Kinder Schulen,” in *Erhard Weigel Gesammelte pädagogische Schriften*, ed. Hermann Schüling (Giessen: Universitätsbibliothek, 1970); Erhard Weigel, “Unmaßgeblicher Entwurff der überaus vorthelhaftten Lehr und Unterweisung, so wohl des Verstands, als auch des Willens durch das Rechnen,” in *Erhard Weigel Gesammelte pädagogische Schriften*, ed. Hermann Schüling (Giessen: Universitätsbibliothek, 1970); Erhard Weigel, “Wegweiser zu der Unterweisungs-Kunst,” in *Erhard Weigel Gesammelte pädagogische Schriften*, ed. Hermann Schüling (Giessen: Universitätsbibliothek, 1970).

trum of exercises.³²⁹ While Weigel's ideas impressed key persons such as Leibniz, Thomasius and Francke, there is also a more concrete link from Weigel to Francke's *cultura animi*.³³⁰ This link comes through Weigel's student Johann Conrad Feuerlein. In 1697 Feuerlein became the inspector at the *Gymnasium Aegidianum* in his hometown of Nürnberg.³³¹ In a miscellany in honour of the opening of the new school building written in 1699, and titled *Des aus der Asche von Grund neubauten Nürnbergischen Gymnasii zu St. Egidien bisherige Fata* (*The Fate of the High School of Nürnberg Rebuilt From the Ashes, to St Egidien*, 1699) he presented a detailed pedagogical plan in which he explicitly referred to *cultura animi*.³³² The education of the young, he wrote, must rest "on culturam animi, on improvement and edification of their [the students] souls."³³³ The *cultura animi*, in turn, consisted of the systematic education of reason (*Verstand*), will (*Wille*) and memory (*Gedächtnis*). Shortly after its publication, Feuerlein sent a copy of *Des aus der Asche* to Francke. In July 1699 Francke replied with a letter in which he expressed his appreciation of Feuerlein's pedagogical plan.³³⁴ Three years later Francke published the *Kurtzer und einfältiger Unterricht* in which he described the *cultura animi* as the systematic education of the two main faculties of will and reason. What is important here is not whether or not Francke adopted the phrase *cultura animi* from Feuerlein, but that both men took part in a larger discussion of how to educate the soul cognitively and morally.

In the *Kurzer und einfältiger Unterricht* Francke translated *cultura animi* to *Gemüths-Pflege*. In contrast to the Latin phrase, which says little about the more specific nature of the culture of the soul, the German *Gemüths-Pflege* is based on the *Gemüth*, a word that was frequently used at the time, and that is often translated into soul but that also has connotations of passion. *Deutsches Wörterbuch* traces the word to Luther and further back to the German ninth-century monk

³²⁹ See especially: Weigel, "Unmaßgeblicher Entwurff der überaus vorthelhaften Lehr und Unterweisung, so wohl des Verstands, als auch des Willens durch das Rechnen"; Weigel, "Wegweiser zu der Unterweissungs-Kunst."

³³⁰ For Weigel's influence see: Thomas Behme, "Samuel Pufendorf als Weigel-Schüler," in *Erhard Weigel (1625–1699) und seine Schüler: Beiträge des 7. Erhard-Weigel-Kolloquiums 2014*, ed. Katharina Habermann and Klaus-Dieter Herbst (Göttingen: Universitätsverlag Göttingen, 2016); Konrad Moll, "Von Erhard Weigel zu Christiaan Huygens. Feststellungen zu Leibnizens Bildungsweg zwischen Nürnberg, Mainz und Paris," *Studia Leibnitiana* 14, no. 1 (1982): 56–72; Hannelore Jacob, "Erziehung als Unterweisung des Willens: Entstehung eines pädagogischen Konzepts im 17. Jahrhundert" (PhD diss., Bochum, 1978), 240–57.

³³¹ Kristina Hartfiel, "[...] wie in den Schulen die Unterweisung der Jugend möchte um ein merckliches verbessert werden." – Erhard Weigel und der gymnasiale Geschichtsunterricht in Nürnberg um 1700," in *Erhard Weigel (1625–1699) und seine Schüler: Beiträge des 7. Erhard-Weigel-Kolloquiums 2014*, ed. Katharina Habermann and Klaus-Dieter Herbst (Göttingen: Universitätsverlag Göttingen, 2016).

³³² Johann C. Feuerlein, *Des aus der Asche von Grund neubauten Nürnbergischen Gymnasii zu St. Egidien bisherige Fata*, 1699.

³³³ *Ibid.*, 44. "auf culturam animi, auf Besserung und Erbauung ihres Gemüthes"

³³⁴ AFSt/H D113. Brief von August Hermann Francke an Johann Conrad Feuerlein [July 14, 1699].

and poet Otfried of Weissenburg.³³⁵ If this genealogy is correct it suggests that the word *Gemüth* was typically used within a theological context.

Throughout his life Francke kept coming back to the *Gemüth* and the *Gemüths-Bewegungen* with a frequency and an intensity that recalls a surgeon occupied with some complex operation.³³⁶ The surgical object here was the *Gemüth* and the challenge was to cure and establish a sound *Gemüth* by cultivating and channelling healthy *Gemüths-Bewegungen*. Against this backdrop, the *Gemüths-Pflege* transpires as a large-scale, systematic attempt to shape souls by cultivating and channelling specific Christian passions such as fear and love of God. Discussing the *Gemüths-Pflege* Francke emphasised the importance of breaking the “self-will” of children, that is, the will to follow worldly desires and passions, and replace it with the will to honour God.³³⁷ To do this, teachers were to “paint in living colours” virtuous passions such as the “fear and love of the omnipresent God.”³³⁸ If these passions were awoken and made constantly present, they caused children to be “reborn in the image of God.”³³⁹ To succeed in this undertaking was something of a balancing act. For the balance to be tipped in favour of Christian virtue, it was especially important to approach children when their *Gemüth* was “fresh and jovial” and “not exhausted.”³⁴⁰ When exhausted “all sorts of evil affects” might take root.³⁴¹ Therefore, children were to be granted time to rest and calm their *Gemüth* by engaging in joyful activities. Needless to say, these activities were to be of a kind that reinforced virtues rather than excited evil passions and affects. Francke returned to the risks of evil affects when discussing the use of punishment. For Francke it was necessary to awaken the fear of God by exhorting and reproaching. In some instances physical punishment was also necessary. However, if exhortations, reproaches and punishment were used too frequently and harshly they would easily have the opposite effect, making the children “wily, mendacious and sly”, awakening in them “hate and aversion towards all true piety and also towards the study

³³⁵ Rudolf Hildebrand and Karl Weigand, “Gemüt,” *Deutsches Wörterbuch* (Leipzig, 1897).

³³⁶ References to *Gemüth* and *Gemüth-Bewegung* permeate Francke’s biographical, theological and pedagogical writings. See for instance: Francke, *Lebensläufe August Hermann Franckes*, 8–29; Hermann Francke, “Schriftmäßige Lebensregeln,” in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969), 351–54; Francke, “Idea studiosi Theologiae,” 177–87.

³³⁷ Francke, *Kurtzer und einfältiger Unterricht*, 4. “Eigen Wille”. By emphasising the will to honour God, Francke departed from the typical pedagogical realism of his time, according to which the education of will and reason was a goal in its own right. See: Kum Hee Yang, “Anthropologie und religiöse Erziehung bei A. H. Francke und Fr. D. E. Schleiermacher” (Dissertation, Tübingen, 1995), 98–100.

³³⁸ Francke, *Kurtzer und einfältiger Unterricht*, 3. “mit lebendigen Farben”, “Furcht und Liebe des allgegenwärtigen Gottes”.

³³⁹ Ibid.

³⁴⁰ Ibid., 13. “frischen und aufgeräumten”, “nicht ermüdet”.

³⁴¹ Ibid., 23. “llerhand böse affecten”.

itself.”³⁴² Therefore, the teacher had to operate with the sensitivity of a surgeon, always watchful of the children’s inner emotional reactions.

In addition to the intervention of the teacher, the children were to take command of their own self-transformation by engaging in daily spiritual exercises such as Bible reading and prayer. After having read the Bible from cover to cover the children were to focus on the New Testament and the Catechism. In these they would find plenty of opportunities to exercise and strengthen their faith by contemplating specific images such as that of Jesus and by “carrying them constantly in their memories and hearts.”³⁴³ Similarly, children were to learn Biblical proverbs and sayings, not by imitating them as “larvas” but by understanding them in their hearts.³⁴⁴ “One cannot overestimate how much exercise is required” in order to “believe in them in the right way and use them for the sake of love.”³⁴⁵ In addition to Bible reading Francke also emphasised prayer as the “foremost part of our Christianity” that had been neglected to the extent that “for most [children] it is in a very bad condition.”³⁴⁶ According to Francke it was a problem that most children prayed “out of habit” without really knowing the “correct” way of praying.³⁴⁷ To pray in a way that did not touch the heart was meaningless. Children were therefore to learn how to pray with devotion so that their hearts were “constantly directed towards God.”³⁴⁸ Here Francke stressed the importance of not awakening too much fear in children so that their prayers become dominated by fear rather than by hope and love of God. When it came to prayer the challenge was thus to channel the right kind of passions in the right proportions.

For Francke, the problem was not to control that children actually participated in the prescribed exercises, but to ensure that they did it in the right way. Ensuring that religion was learned and practiced in the right way was a topic that Francke came back to throughout his life. In the *Lebenslauff* he depicted his own life as a spiritual progression going from purely intellectual book learning to a living faith in God.³⁴⁹ In other texts he reminded his readers over and over again to practice Christianity in a way that touched the heart, igniting it with a living faith in God.³⁵⁰ It is in this context that we should understand Francke’s

³⁴² Ibid., 31. “tückisch / lügenhaft und hinterlistig”, “Abscheu und grossen Widerwillen gegen alle wahre Gottseligkeit / wie auch gegen die Studia selbst”.

³⁴³ Ibid., 11. “beständig in ihrem Gedächtnuß und in ihrem Hertzen zutragen.”

³⁴⁴ Ibid. “Larven”.

³⁴⁵ Ibid., 11–12. “Es ist nicht zu sagen / wie eine geringe Übung darzu erfordert werde”, “mit rechtem Nutzen zu Glauben / und Liebe anzuwenden”.

³⁴⁶ Ibid., 26. “fürnehmsten Stücke unsers Christenthumbs”, “bey den Meisten so gar schlecht bestellet ist”.

³⁴⁷ Ibid. “nach der Gewohnheit”, “recht”.

³⁴⁸ Ibid., 28. “beständig zu Gott richten”.

³⁴⁹ Francke, *Lebensläufe August Hermann Franckes*.

³⁵⁰ See for instance: Francke, “Vom Rechtschaffenen Wachstum Des Glaubens, 1691”; August Hermann Francke, “Von dem Werke der Bekehrung,” in *Predigten II*, ed. Erhard Peschke, vol. 10, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und

emphasis in the *Kurzer und einfältiger Unterricht* on a learning that touches the heart, as well as his warnings against worldly wisdom and habitual prayer. Francke's almost constant concern with the realisation of the right inner, emotional constitution, not to mention his criticism of the purely external, intellectual and habitual, is hard to explain in terms of Foucaultian disciplinary power connected to the ambitions of the Prussian state. In spite of the fact that the *Gemüths-Pflege* adhered to the later Foucault's analytics of self-technologies, it is important to keep in mind that the *Gemüths-Pflege* was not only directed at the formation of norms and values. Instead, it primarily took the form of work with the emotional part of the soul. When viewing it as a culture of religious experience it is exactly this aspect, the rigorous techniques for cultivating and channelling specific religious emotions such as fear and love of God, that I wish to capture.

Throughout this section I have analysed Francke's discourse on living experience, knowledge and faith in relation to the scholarly analysis of early modern religious experience. In addition to being at the core of Francke's theological vision of self-transformation or conversion, the living was at the core of the Orphanage *cultura animi* understood as a systematic, large-scale attempt to shape Pious Christians. In the next section I shift focus, showing that Francke's discourse also took form in relation to scientific discourses on vivid images and on vividness.

Scientific experience in Francke's *cultura animi*

So far I have placed Francke's discourse on living experience, knowledge and faith in the context of religious experience. In this section I shift focus, showing that it also took form in relation to scientific discourses, and more specifically, in relation to the rhetorical discourse on vivid images, and to the philosophical or epistemological discourse on clear, distinct and vivid ideas, concepts, perceptions etc. In collaborating with philosophers and scientists, Francke started to view science, and especially scientific observations and experiments, as key features in the educational programme that he referred to as *cultura animi*. Reading Francke in this way, I call for a broader analysis of the ways in which religious and scientific experience overlapped and fused.

Predigten (Berlin: De Gruyter, 1989); August Hermann Francke, "Von der Christen Vollkommenheit," in *August Hermann Francke: Werke in Auswahl*, ed. Erhard Peschke (Berlin: Luther-Verlag, 1969); August Hermann Francke, "Die Lehre von der Erleuchtung," in *Predigten I*, ed. Erhard Peschke, vol. 9, *Texte zur Geschichte des Pietismus*. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1987).

Scientific experience in early modern rhetoric and philosophy

The discourse on vivid images can be traced back to the Roman rhetorical tradition and even further back to Aristotle.³⁵¹ In *De Anima (On the Soul)* Aristotle explained how sensory perception produces images or *phantasmata* in the mind, and how these are then read with the help of imagination or *phantasia*.³⁵² In the *Rhetorics* he elaborated this line of analysis further focusing in particular on the way in which the orator uses *phantasmata* to move himself and his audience.³⁵³ In this context vividness or *enargeia* referred to the production of particularly detailed and clear discourses. While several ancient philosophers used the notion of *enargeia*, its rhetorical meaning became particularly important within the Roman rhetorical tradition. In the monumental *Institutio Oratoria (Institutes of Oratory)*, Quintilian discussed *enargeia* or *evidentia* as a means to arouse the emotions and to transfer these to his audience.³⁵⁴ In a revealing passage for instance, he discussed how the orator could describe the sacking of a town in such vivid images that the audience would almost feel like they were there.³⁵⁵

While a conclusive history of vivid images yet remains to be written, Stephen Gaukroger and Matthew Jones have examined the way in which the notion came to influence the thinking of the early Descartes.³⁵⁶ When only ten years old Descartes was sent to the Jesuit school at La Flèche. Here he studied rhetoric among other things. In his fifth year of study he would have been required to study the *Institutio oratoria* in depth, perhaps even memorizing parts of it. In addition, he would have had to study Greek texts such as Aristotle's *Rhetoric* and Philostratus's *Eikones (Images)*. Rather than just reproducing these teachings, the Jesuits had developed a distinctive rhetorical style that focused on the use of vivid images (*evidentia*). The *Eikones* provided exemplary exercises in how to paint imaginary pictures using language. Gaukroger and Jones have suggested

³⁵¹ For the early history of vivid images see: Stijn Bussels, *The Animated Image: Roman Theory on Naturalism, Vividness and Divine Power* (Berlin: Akademie-Verlag, 2012); Ruth Webb, *Ekpbrasis, Imagination and Persuasion in Ancient Rhetorical Theory and Practice* (Farnham: Ashgate, 2009); Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas"; Kathy Eden, *Poetic and Legal Fiction in the Aristotelian Tradition* (Princeton, NJ: Princeton University Press, 1986).

³⁵² Aristotle, *On the Soul*, ed. Jonathan Barnes, *The Complete Works of Aristotle: The Revised Oxford Translation 1* (Princeton, NJ: Princeton University Press, 1984), 427^b. See also: Bussels, *The Animated Image*, 62–63; Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas."

³⁵³ Aristotle, *Rhetoric*, ed. Jonathan Barnes, *The Complete Works of Aristotle: The Revised Oxford Translation 2* (Princeton, NJ: Princeton University Press, 1984), 1408^a. See also: Bussels, *The Animated Image*, 63–64; Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas."

³⁵⁴ Bussels, *The Animated Image*, 88–106; Webb, *Ekpbrasis, Imagination and Persuasion in Ancient Rhetorical Theory and Practice*, 58–61; Eden, *Poetic and Legal Fiction in the Aristotelian Tradition*, 85–96.

³⁵⁵ Quintilianus, *Institutio Oratoria*, 8.3. 67–69.

³⁵⁶ The closest one gets to such conclusive history is probably Heinrich Plett's study of *Enargeia* in classical antiquity and the early modern age. Plett focuses primarily on literature. Gaukroger and Jones, on the other hand, are more interested in philosophy and science. See: Heinrich F. Plett, *Enargeia in Classical Antiquity and the Early Modern Age: The Aesthetics of Evidence* (Leiden: Brill, 2012); Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas"; Jones, *The Good Life in the Scientific Revolution*, 55–86.

that the rhetoric of vivid images might have played a critical role for Descartes' discussion of truth in terms of clear, distinct and vivid ideas.³⁵⁷ If they are correct, then early modern epistemology took form in close connection to the rhetorical discussion of vivid images.

In the early modern period philosophers discussed perceptions, ideas, knowledge etc. in terms of their clearness and distinctness, and sometimes also in terms of their vividness. Whereas some scholars have argued that Descartes dismissed vividness as a criterion for truth, others have suggested that it was absorbed by the larger category of clearness.³⁵⁸ According to this latter, vividness becomes the underlying criterion of clearness. Rather than delving into this complex, technical discussion, however, it is sufficient to say here that Descartes sometimes referred to vividness (in the form of the Latin *evidentia*). A similar thing can be said about Leibniz who elaborated the criteria of clearness and distinctness further, also adding the category of adequateness.³⁵⁹ Vividness, however, remained a significant but subordinated category. In a short article written in the early and mid 1680s Leibniz discussed how to distinguish real from imagined phenomena.³⁶⁰ By way of exemplifying he juxtaposed the case of an imagined golden mountain with that of a real mountain. The real mountain differs from the imagined golden mountain by being more vivid (*vividus*). More specifically, one experiences the real mountain through vivid impressions of light, colour, warmth, sound, odour etc. that by far exceed the impressions of the imagined mountain.³⁶¹

The discussion of vividness was not only restricted to early modern French and German epistemology. In a recent book Daniel Derrin has argued that Francis Bacon composed the *New Atlantis* as one giant image where the readers were served vivid images of the mythical Bensalem, of its inhabitants and of the utopian institution Salomon's House.³⁶² A perhaps more concrete empirical study is Alexander Wragge-Morley's article on vividness in English natural his-

³⁵⁷ Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas"; Jones, *The Good Life in the Scientific Revolution*, 55–86.

³⁵⁸ Stephen Philip Menn, *Descartes and Augustine* (Cambridge: Cambridge University Press, 2002), 274–75; Deborah A. Boyle, *Descartes on Innate Ideas*, Continuum Studies in Philosophy (London: Continuum, 2009), 61.

³⁵⁹ Nicholas Rescher, *On Leibniz*, Expanded edition (Pittsburgh: University of Pittsburgh Press, 2013), 171–74.

³⁶⁰ Gottfried Wilhelm Leibniz, "On the Method of Distinguishing Real from Imaginary Phenomena," in *Philosophical Papers and Letters*, ed. Leroy E. Loemker (Dordrecht: D. Reidel Pub. Co, 1976); Gottfried Wilhelm Leibniz, "De modo distinguendi phaenomena realia ab imaginariis," in *Sämtliche Schriften und Briefe. Reihe 6 Bd. 4: Philosophische Schriften 1677–1690*, ed. Heinrich Schepers and Werner Schneiders (Berlin: Akademie-Verlag, 1980).

³⁶¹ Leibniz, "On the Method of Distinguishing Real from Imaginary Phenomena," 363; Leibniz, "De modo distinguendi phaenomena realia ab imaginariis," 1500. The example of the golden mountain dated back to Aristotle. Since then it has been discussed by thinkers such as Aquinas, Hume and Russel.

³⁶² Daniel Derrin, *Rhetoric and the Familiar in Francis Bacon and John Donne* (Madison, MD: Fairleigh Dickinson University Press, 2013).

tory and anatomy.³⁶³ He focuses on the early Royal Society to draw attention to the way in which natural historians used rhetorical theory to systematically elaborate as detailed descriptions of natural objects as possible. In so doing, they not only hoped to provide more beautiful descriptions but actually more accurate and truthful ones. To describe something in vivid images was thus also to make something evident in the sense of revealing a truth.³⁶⁴

So far in this part of the section I have drawn attention to scientific experience in the sense of two parallel discourses on vividness. Firstly, there was the rhetorical discourse regarding how to produce vivid images. For these images to be vivid, it was required for them to arouse the affects of both orator and audience. Secondly, in the seventeenth century the rhetorical discourse fuelled and shaped what became a philosophical or epistemological discourse regarding how to conceptualise and reach clear, distinct and vivid perceptions, concepts, ideas etc. As I will show in the following part of the section, there is reason to believe that both of these partly overlapping, partly separate discourses shaped Francke's discourse on the living as well as the Halleian pedagogical discussion of which it was part.

Living experience in Orphanage science and *cultura animi*

While the Orphanage was certainly a place where young people were systematically shaped into pious Christians, recent scholars have acknowledged that – contrary to the traditional picture of it as an environment hostile to science – it was also a place of science and scientific knowledge production. While Peter Menck discusses Francke's many remarks on science on a conceptual level, Martin Gierl, and more recently Kelly Whitmer, see the Orphanage as a place of scientific practice or even as a scientific community.³⁶⁵ In this part of the section I draw from these readings. However, rather than analysing scientific practices as such, I am primarily interested in the more particular practice of vivid images and vividness.

For Francke and many other early modern theologians, living experience, knowledge and faith were intimately connected to the conversion and vision of

³⁶³ Alexander Wragge-Morley, "'Vividness' in English Natural History and Anatomy, 1650–1700," *Notes & Records of the Royal Society* 66 (2012): 341–56.

³⁶⁴ See: Eden, *Poetic and Legal Fiction in the Aristotelian Tradition*, 85–96; Barbara J. Shapiro, *A Culture of Fact: England, 1550–1720* (Ithaca, NY: Cornell University Press, 2000), 8–33.

³⁶⁵ Menck, *Die Erziehung der Jugend*; Martin Gierl, "Francke, die Wissenschaft und das Wissen – die Praxis des Glaubens und die Praxis des Wissens um 1700," in *Die Welt verändern: August Hermann Francke: ein Lebenswerk um 1700*, ed. Holger Zaunstöck, Thomas Müller-Bahlke, and Claus Veltmann, Katalog der Franckeschen Stiftungen 29 (Halle: Verlag der Franckeschen Stiftungen, 2013); Kelly Joan Whitmer, *The Halle Orphanage as Scientific Community: Observation, Eclecticism, and Pietism in the Early Enlightenment* (Chicago: The University of Chicago Press, 2015).

a new kind of life or even a new kind of being.³⁶⁶ Only insofar as faith, knowledge and experience of God was made living did one have any chance of transforming into this new being. As Francke saw it, faith had to float through the soul as “living water.”³⁶⁷ Another metaphor he used was that of living colours. In an early sermon Francke describes how Isaiah “painted with living colours” the condition of the church.³⁶⁸ In another early lecture he emphasised the importance of “painting in living colours” the meaning of the Gospels, and of realising these teachings in everyday life through exercises.³⁶⁹ Further, in the *Kurzer und einfältiger Unterricht* he stressed that for children to fear and love God it was crucial to “paint with living colours for the eyes” the rebirth in the image of God.³⁷⁰ Later in the same text he emphasised that teachers should know how to paint “the virtues and vices with living colours” so that children would choose the path of virtue and keep away from sin.³⁷¹ While the metaphor of “living water” was deeply rooted within Christian theology, the discussion of how to influence and shape souls by painting various theological topics in “living colours” is strikingly similar to the rhetoric of vivid images. Given the fact that Francke had studied ancient rhetoric, it is not unlikely that he drew on the rhetoric of vivid images either directly or indirectly.³⁷² While this connection

³⁶⁶ For Francke’s discussion of this new being see particularly: Francke, “Die Lehre unsers HErren JESU CHristi von der Wiedergeburt,” 167–68; Francke, “Das neue Leben.”

For analyses of the new being in eighteenth-century theology see: Beutel, “‘Eine Angelegenheit des Menschen’. Beobachtungen zum Religionsdiskurs im 18. Jahrhundert”; Brecht, “Zwischen Schwachheit und Perfektionismus. Strukturelemente theologischer Anthropologie des Pietismus.”

³⁶⁷ This was a frequently used metaphor that went straight back to the Gospel of John. See: John 4:14, 7:37–39. For some of Francke’s references to “living water” see: Francke, “Vom Rechtschaffenen Wachstum Des Glaubens, 1691,” 8; Francke, “Einfältiger Unterricht, wie man die H. Schrift zu einer wahren Erbauung lesen solle,” 219; August Hermann Francke, “Offenbarung der Herrlichkeit CHristi,” in *Predigten I*, ed. Erhard Peschke, vol. 9, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1987), 103; August Hermann Francke, “Das siebente Predigt/ über das siebente Gebot. Vom Glauben und Unglauben in Absicht auf das siebente Gebot,” in *Predigten II*, ed. Erhard Peschke, vol. 10, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten (Berlin: De Gruyter, 1989), 414; Francke, “Anweisung zu beten,” 377.

³⁶⁸ August Hermann Francke, “Der Fall und Wiederaufrichtung der wahren Gerechtigkeit,” in *Predigten I*, ed. Erhard Peschke, Texte zur Geschichte des Pietismus. Abt. II, August Hermann Francke, Schriften und Predigten, Bd. 9 (Berlin: De Gruyter, 1987), 44. “mit lebendigen Farben abmahlet”.

³⁶⁹ August Hermann Francke, *Lectiones Paraeneticæ oder öffentliche Ansprachen an die Studiosos theologiae auf der Universität zu Halle: Theil VI* (Halle, 1735), 79. “mit lebendigen Farben abmahlet”. The *Lectiones Paraeneticæ* consisted of a number of edifying lectures that Francke held at the Collegium Paraeneticum in the 1690s. These lectures were then published in seven volumes in 1726–1736. See: Friedrich de Boor, “A. H. Franckes paränetische Vorlesungen und seine Schriften zur Methode des theologischen Studiums,” *Zeitschrift für Religions- und Geistesgeschichte* 20, no. 4 (1968): 300–320.

³⁷⁰ Francke, *Kurzer und einfältiger Unterricht*, 3. “mit lebendigen Farben für Augen gemahlet wird”.

³⁷¹ *Ibid.*, 14. “die Tugenden und Laster mit lebendigen Farben”.

³⁷² In the *Lebenslauff* Francke confirms that he studied Aristotelian rhetorics through the compendiums of the rhetoric professor Christoph Schrader: Francke, *Lebensläufe August Hermann Franckes*,

remains a hypothesis in need of further study, the influence of the philosophical and epistemological discussion of clear, distinct and vivid knowledge is easier to trace. In the following part of the section I analyse how this discourse shaped the discussion of how to implement science at the Orphanage.

In 1697 Francke sent his friend Heinrich Neubauer to the Netherlands to gather information about institutional models that could be used in the construction of the Orphanage.³⁷³ On his way there Neubauer stopped in Hannover where he met Leibniz and handed him a copy of Francke's recently published plan for the Orphanage.³⁷⁴ The meeting became the starting point for a correspondence that would last until 1699, and that would then be resumed in 1714.³⁷⁵ In a letter written on August 7, 1697, Leibniz stressed that he had read several of Francke's writings and that he was "very pleased with" Francke's "institution for the education of the young."³⁷⁶ As the two took up the correspondence again in January 10, 1714, Francke remarked that his students were trained in both "solid science" and "Christian modesty and moderation."³⁷⁷ When Leibniz answered on January 17, he stressed the intimate connection between religion and science, describing science as something that "promotes

11. The fact that rhetoric played an important role at the Orphanage is also reflected in the plan for the Pedagogium: Francke, "Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführet ist," 274, 278, 286–87. Reinhard Breyer has remarked that the "Affektrhetorik" went well with the Pietist emphasis on intense emotions and affects: Reinhard Breyer, "Pietismus," ed. Gert Ueding, *Historisches Wörterbuch der Rhetorik* (Tübingen: Niemeyer, 2003), 1204. For other scholarly accounts of the role of rhetorics in Halleian Pietism see: Wolfgang Martens, "Hallescher Pietismus und Rhetorik. Zu Hieronymus Freyers Oratoria," *Internationales Archiv für Sozialgeschichte der deutschen Literatur* 9, no. 1 (1984): 22–43; Friedrich Paulsen, *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten vom Ausgang des Mittelalters bis zur Gegenwart. Mit besonderer Rücksicht auf den klassischen Unterricht*, 2nd ed., vol. 1 (Leipzig: Veit & Comp., 1896), 567–71.

³⁷³ Whitmer, *The Halle Orphanage as Scientific Community*, 31.

³⁷⁴ From the 1670s Leibniz became increasingly obsessed with the idea of reforming all science. Such a project, he soberly realised, could only be realised collaboratively through the establishment of a larger institution. He worked tirelessly to establish contacts with influential people and possible financiers, and the project eventually bore fruit through the foundation of the Berlin Academy of Science, with Leibniz as its first president, in 1700. See: Maria Rosa Antognazza, *Leibniz: An Intellectual Biography* (Cambridge: Cambridge University Press, 2009).

³⁷⁵ Gerda Utermöhlen, "Die Rußlandthematik im Briefwechsel zwischen August Hermann Francke und Gottfried Wilhelm Leibniz," in *Halle und Osteuropa: zur europäischen Ausstrahlung des halleschen Pietismus*, ed. Johannes Wallmann and Udo Sträter, Hallesche Forschungen 1 (Halle: Verlag der Franckeschen Stiftungen, 1998).

³⁷⁶ Gottfried Wilhelm Leibniz, "Leibniz an August Hermann Francke Hannover, 7. (17) 1697," in *Sämtliche Schriften und Briefe. Reihe 1 Bd. 14: Allgemeiner politischer und historischer Briefwechsel*, ed. Gerda Utermöhlen, Sabine Sellschopp, and Wolfgang Bungies (Berlin: Akademie-Verlag, 1993). "instituto docendae juventutis valde sum delectatus."

³⁷⁷ Hermann Francke, "August Hermann Francke an Leibniz 10. Januar 1714," AFSt/H C 147: g. "solider Wißenschaft", "Christlichen Bescheidenheit und moderation". The letter has been published in: Utermöhlen, "Die Rußlandthematik."

and reinforces revealed religion.”³⁷⁸ He wrote that this was because “external observation of God’s work evokes the inner mercy of God’s love more and more.”³⁷⁹ Francke could only agree to this. In an answer written on February 17, he underscored “that the Work of the Fear of God should be, yes, must be, united with the promotion of science.”³⁸⁰ The correspondence indicates that fear and love of God was to be promoted through science and more specifically through external observations. While Leibniz did not say exactly how these external observations should be made, or what role vividness might play in them, the earlier and already referred *De modo distinguendi phaenomena realia ab imaginariis* (*On the Method of Distinguishing Real from Imaginary Phenomena*, 1683–1685/86) provides some indications:

Let us now see by what criteria we may know which phenomena are real.... We conclude it from the phenomenon itself if it is vivid, complex and internally coherent. It will be vivid [vividum erit] if its qualities, such as light, colour and warmth, appear intense enough. It will be complex if these qualities are varied and support us in undertaking many experiments and new observations; for example, if we experience in a phenomenon not merely colours but also sounds, odours, and qualities of taste and touch, and this both in the phenomenon as a whole and in its various parts which we can further treat according to causes.³⁸¹

Real phenomena differ from imaginary phenomena in terms of their vividness. The implication seems to be that real objects give rise to additional and more vivid impressions in the soul wherefore they are also to be preferred as objects of scientific observations. As we will soon see, this was exactly the view that was upheld in Orphanage science.

In 1698 the plans for the inclusion of science in the Orphanage syllabus reached a more concrete level through the involvement of the then famous mathematician Tschirnhaus. In early January, Tschirnhaus, who was a close friend of Leibniz and who would serve as Wolff’s supervisor in the early eighteenth century, spent two weeks in Halle together with Francke. In a letter writ-

³⁷⁸ Gottfried Wilhelm Leibniz, “Leibniz an August Hermann Francke 17 Januar 1714,” AFSt/H C 147: Of. “dadurch die offenbare Religion befördert und bestärcket”. The letter has been published in: Utermöhlen, “Die Rußlandthematik”.

³⁷⁹ Ibid. “der äusserlichen betrachtungen der göttlichen wercke die innerliche gnade der göttlichen liebe mehr und mehr erwecket wird”.

³⁸⁰ Hermann Francke, “August Hermann Francke an Leibniz 17. Februar 1714,” LBr. 282, Bl. 39–40. “daß das Werck der Gottesfurcht u. beförderung der Wissenschaft wohl vereinigt werden mögen, ja müßen”. The letter has been published in: Utermöhlen, “Die Rußlandthematik”.

³⁸¹ Leibniz, “On the Method of Distinguishing Real from Imaginary Phenomena,” 363; Leibniz, “De modo distinguendi phaenomena realia ab imaginariis,” 1500–1501. “Videamus jam quibus indicii cognoscamus quae phaenomena sint realia.... Ex ipso phaenomeno si sit vividum, si multiplex, si congruum. Vividum erit, si qualitates ut lux, color, calor appareant satis intensae; multiplex erit si sint variae, multisque tentaminibus ac novis observationibus instituendis aptae. Exempli causa si experiamur in phaenomeno non tantum [colores] sed et sonos, odores, sapes, tactiles qualitatesque eaque tum in toto, tum in variis ejus partibus, quas rursus variis modis tractare possumus.”

ten shortly after the visit he expressed his appreciation of Francke's plan to make mathematics and science a part of the educational program much like Leibniz had done.³⁸² He also indicated that he had composed a summary of his method entitled *Gründliche Anleitung zu nützlichen Wissenschaften absonderlich zu der Mathesi und Physica* (*Basic Guide to the Useful Sciences, Especially Mathematics and Physics*, 1697) as "a sign of special friendship and trust."³⁸³ The *Gründliche Anleitung* was a simplified version of the *Medicina mentis*, which, in turn, and as we have seen, constituted a rather extreme attempt to launch science and mathematics as a *cultura animi* practice with the ultimate goal of calming the mind and healing it from the force of the passions.³⁸⁴ To temper the mind, Tschirnhaus recommended the cultivation of the intellect and the senses through science and particularly through mathematics. Here he stressed the importance of reaching a "living experience" and of "guiding and leading the youth through *sensual experience* that excites a sense of wonder at the same time as it is of such use that it includes the basics of the real sciences."³⁸⁵ In this way they "will quickly learn to know the truth more accurately than if they would go through I don't know how many logics."³⁸⁶ Elaborating further on this topic he again underscored the importance of sensual experience. "But in addition to this comes sensual experience, which excites a wonder and that also excites the natural desire for truth that is present in all human beings."³⁸⁷ Tschirnhaus thus advocated a kind of sensual experience that excited as large a part of the soul as possible, including not only its sensual and intellectual but also its affectual part.

In addition to Tschirnhaus' emphasis on sensual experience, another Halleian intellectual provides a more detailed discussion of how such sensual experience could be structured. In 1708 the preacher and devoted mathematician Christoph Semler, who would play an important role as scientist at the Orphanage, published a plan for the foundation of a *Realschule* for the teaching of the useful sciences.³⁸⁸ In the plan he established a hierarchy for how to view and observe objects.

³⁸² Ehrenfried Walter von Tschirnhaus, "E. W. v. Tschirnhaus an A. H. Francke Leipzig, 17. 1. 1698," in *Gründliche Anleitung zu nützlichen Wissenschaften, absonderlich zu der Mathesi und Physica, wie sie anitzo von den gelehrtesten abgehandelt werden*, 1967.

³⁸³ Ibid. "ein Zeichen besonderer Freundschaft und Vertrauens".

³⁸⁴ Tschirnhaus, *Gründliche Anleitung zu nützlichen Wissenschaften, absonderlich zu der Mathesi und Physica, wie sie anitzo von den gelehrtesten abgehandelt werden*.

³⁸⁵ Ibid., 13–15. "lebendige Erfahrung", "die Jugend so führe und leite durch sensuale experienzen, die sie in Verwunderung bringen, aber zugleich von solchem Nutzen, daß sie die fundamenta der realen Wissenschaften in sich includiren".

³⁸⁶ Ibid., 16. "Denn hiedurch werden sie in kurtzer Zeit viel richtiger die Wahrheit lernen erkennen, als wenn sie, ich weiß nicht wie viel Logicken durchgiengen."

³⁸⁷ Ibid., 17. "Aber hierzu müssen sensuale experienzen kommen, die eine Verwunderung excitiren, und also die natürliche Begierde so bey allen Menschen ist zu der Wahrheit... excitieren".

³⁸⁸ Christoph Semler, *Nützliche Vorschläge von Aufrichtung einer Mathematischen Handwercks-Schule bey der Stadt Halle* (Halle, 1708).

There are thus different grades in the understanding of visible things. For example, I can acquire understanding of the fruit of an Indian tree from:

1. a description with words in a book. This understanding is dead, as when one sees something at night. If the fruit
2. is described verbally by someone who has seen it himself, then my understanding will become much more vivid [lebhafter] because I can ask this person more questions about that which I do not quite understand enough; this doesn't work with a book. If the fruit of the foreign tree is presented
3. in a copper plate engraving, or
4. painted with vivid [lebendigen] colours, or presented
5. in a model made of wax or wood, then the understanding is much brighter and more distinct. But when it
6. is laid before one's eyes in its natural state then this, of all the aforementioned ways, is without question the highest degree of understanding, and then the soul will be able to form the best idea of it.³⁸⁹

Much like Leibniz had done in the *De modo distinguendi*, Semler established a progressive scale stretching from dead book learning to the experience of objects in their full material vividness. In addition to the general progression from textual description to real objects, it is also worth noticing the reference to living colours. With this background of the rhetoric of vivid images and the theological metaphor of living colours, the "painting with vivid colours" illustrates the way in which the same metaphors appeared in different discourses.

Having emphasised the importance of real material objects, Semler added that "When such ocular demonstrations are combined with vivid [lebhafter] verbal instruction then the knowledge of the thing will imprint even deeper in the soul."³⁹⁰ To make this happen in practice, Semler constructed several models, some of which were used at the Orphanage. The most famous of these, which has been analysed more in detail by Whitmer, was a wooden model of Salomon's Temple that Semler constructed and presented in a text published in

³⁸⁹ Ibid., 9.10. "Denn in der Erkenntnuß derer sichtbaren Dinge finden sich unterschiedene gradus. Zum Exempel bey einer Indianischen Baum-Frucht gibt mir eine Erkenntnuß davon 1) Eine Beschreibung mit Worten in einem Buche. Diese Erkenntnuß ist wie tod / und als wenn man etwas bey Nachte siehet. Wird nun solche durch 2) Mündliche Nachricht von einem beschrieben / der sie selbst gesehen / so wird meine Erkenntnuß viel lebhafter / weil ich ihn selbst deßhalben weiter dasjenige fragen kan / was ich noch nicht genug verstehe; das geht mit dem Buche nicht an. Wird mir solche Baum-Frucht vorgestellt 3) In Kupffer-Stück / oder 4) Gemahlt mit lebendigen Farben / oder 5) In einen Modell von Wachs oder Holtz / so ist die Erkenntnuß davon noch viel heller und deutlicher. Wenn aber dieselbe 6) In natura selbst und gegenwärtig vor Augen geleyet wird / so ist unstreitig solches unter allen vorerwähnten der höchste Grad der Erkenntnuß / und kan sich das Gemüthe alsdenn die beste ideam davon fürstellen."

³⁹⁰ Ibid., 10. "Wenn nun bey solcher ocularen Demonstration ein lebhafter mündlicher Unterricht dazu kommt/ so sencket sich die Erkenntnuß der Sache dem Gemüthe um desto tieffer ein."

1718 titled *Der Tempel Salomonis* (*The Temple of Salomon*, 1718).³⁹¹ In the text Semler explained that he had constructed the model especially for use in the Orphanage. There is no better way of achieving a “distinct and vivid [lebhaft] idea”, Semler claimed, “than when one sees the whole temple standing before one’s eyes in the material form of a model.”³⁹² As this happens, he said, “obscure ideas” become “light and clear” and are “deeply imprinted in the soul so that the present observer becomes convinced of the events that once occurred there.”³⁹³ The case of Semler and his model of Salomon’s Temple illustrate the way in which models were used at the Orphanage to train and culture the senses. As Whitmer has remarked, these models stimulated the imagination at the same time as they fostered new forms of “collective perception.”³⁹⁴

Educational plans and documents confirm that science took the form of work with concrete practical observations and experiments.³⁹⁵ Whereas the youngest pupils were to focus on basic reading, writing, counting and music, the more mature children at the *Pedagogium* engaged in a broader spectrum of activities. In addition to prayer and church visits, study included 18 hours of Latin, 12 hours of Hebrew, Greek and French, and 22 hours divided between a number of subjects such as arithmetic, geometry, astronomy, history, botany, anatomy, geography, calligraphy and music.³⁹⁶ When it came to the subjects that belonged to natural philosophy the so-called *Naturalienkammer* played an important role. At the end of the seventeenth century the possession of a collection of rare and exotic objects, a curiosity cabinet, or a *Naturalienkammer*, signalled status and worldliness of individuals and organisations.³⁹⁷ In the early years the *Naturalienkammer* at the Orphanage included about 150 objects. In the 1730s the collection had grown to include more than 4000 rare objects. In the programmatic *Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführet ist* (*Order and Teaching as it has been Implemented at the Paedagogium in*

³⁹¹ Christoph Semler, *Der Tempel Salomonis. Nach allen seinen Vorhöfen / Mauren / Thoren/ Hallen/ heiligen Gefässen/ Brand-Opfer-Altar/ ehernen Meer...* (Halle, 1718).

³⁹² Ibid., 1. “distincte und lebhaft Idee, als wenn man den gantzen Tempel in einer materiellen Fürstellung und Modell vor seinen Augen stehen siehet.”

³⁹³ Ibid. “dunkeln Concept”, “helle und klar”, “drucken sich dem Gemüth dermassen tief ein, daß man, tanquam praesens spectator derselben, desto völliger de veritate rerum ibi peractarum convinciret wird.”

³⁹⁴ Whitmer, *The Halle Orphanage as Scientific Community*, 4.

³⁹⁵ Francke, “Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführet ist”; August Hermann Francke, “Ordnung und Lehr-Art / Wie selbige in denen zum Waysen-Hauße gehörigen Schulen eingeführet ist,” in *Oeffentliches Zeugniß Vom Werck / Wort und Dienst Gottes*, vol. 1 (Halle, 1702).

³⁹⁶ Francke, “Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführet ist,” 246–47.

³⁹⁷ For the history of *Naturalienkammer* or cabinets of curiosities in the early modern age see: O. R. Impey and Arthur MacGregor, eds., *The Origins of Museums: The Cabinet of Curiosities in Sixteenth and Seventeenth-Century Europe* (Oxford: Clarendon Press, 1985); Maria Zytaruk, “Cabinets of Curiosities and the Organization of Knowledge,” *University of Toronto Quarterly* 80, no. 1 (2011): 1–23.

Glauchau at Halle, 1702) Francke emphasised the active use of the *Naturalienkammer* in education. *Naturalien* were to be:

demonstrated and explained according to their nature and qualities, use and utility. Sometimes other *naturalien*, which are to be found in the apothecary and that are not so familiar to everyone, can be shown instead. When this happens some physical experiments are also demonstrated.³⁹⁸

In addition to the natural philosophical subjects and the rather hands-on exercises with the *Naturalien*, there was also regular training in craftsman skills such as lathing, glass grinding, wood carving and engraving.³⁹⁹ In the context of Leibniz, Tschirnhaus and Semler's emphasis on vividness and living knowledge, the *Naturalienkammer* and the *Naturalien* appear as the space and the material for the concrete work with vivid observations that imprint in the entirety of the soul. Francke's own remarks on experience provide further support. For instance, in *Von rechtschaffenen Wachstum des Glaubens* he discussed experience in terms of daily, internal as well as external experiences of God's wonders:

Next you must realise that you must not neglect the real experience of all those things that God has promised through his word. Because one can have these daily, internally as well as externally, and the more diligently the human being strengthens his faith through daily experience, thereby growing in the true divine truths, the more complete he will become and the more wonderfully God's childlikeness [Kindschaft] will be realised within him.⁴⁰⁰

Although Francke does not refer explicitly to scientific observations, an appealing interpretation would be that the daily external experience of God's wonder was precisely the kind of experience that would later be systematised – through the support of Leibniz, Tschirnhaus and others – into scientific observation at the Orphanage. Thus seen, the passage illustrates yet another instance of overlap between religious and scientific experience, between living experience of God's wonder and scientific observations of things in nature. The idea that the daily experience of real objects played a role in the active formation of souls

³⁹⁸ Francke, "Ordnung und Lehr-Art wie selbige in dem Paedagogio zu Glaucha an Halle eingeführt ist," 291. "Hier werden nun diejenigen Dinge vorgenommen / die in der Naturalien-Kammer befindlich / und nach ihrer Natur und Eigenschaften / Nutzen und Gebrauch erklärt. An deren statt werden bißweilen auch andere Naturalien / so in der Apothecken zu finden / und jederman nicht so gar gar bekant sind / genommen: auch wol dann und wann einige experimenta physica gezeigt."

³⁹⁹ Ibid., 244–45.

⁴⁰⁰ Francke, "Vom Rechtschaffenen Wachstum Des Glaubens, 1691," 32. "Hiernächst haben sie auch wol dahin zu sehen, daß sie auch sonst die wirkliche Erfahrung derjenigen Dinge, welche ihnen von GOTT in seinem Wort verheissen sind, nicht versäumen; denn die kan man täglich haben, so wol im innerlichen als in dem äusserlichen, und ie fleißiger nun der Mensch ist durch tägliche Erfahrung seinen Glauben zu stärcken, und also in der wahren göttlichen Wahrheit zu wachsen, ie völliger wird er allezeit, und ie herrlicher wird in ihm die Kindschaft GOTTes versiegelt."

also appeared in the *Kurzer und einfältiger Unterricht*. To control and reshape restless, unruly and unfocused children at the Orphanage it was first necessary to tame and direct attention and then to establish appropriate experiences.⁴⁰¹ One effective way of doing this was to teach children how to learn from their mistakes. According to Francke, since mistakes and failures raised strong feelings they also provided especially intense or vivid experiences that tended to stick in memory. Fuelling this argument was the underlying idea that experience first became especially intense or living when it upset the emotions or the *Gemüth*. While this worked best when the students themselves made the mistakes, they should, through a similar but less strong mechanism, learn from the mistakes of their peers. To transform these experiences into lasting memories Francke further argued that one should teach children how to systematically recall previous experiences in memory to the point where they were irrevocably imprinted on the mind. By proceeding in this way, the Orphanage inspectors were to oversee that “experience is accumulated daily and that a true wisdom grows out of it in the course of time.”⁴⁰²

In this part of the section I have drawn attention to the way in which Francke, Tschirnhaus and Semler’s discourse on the living took form in relation to religious and scientific experience, and more particularly in relation to three partly overlapping, partly distinct, early modern discourses on the living. Schematically, these discourses can be illustrated as follows:

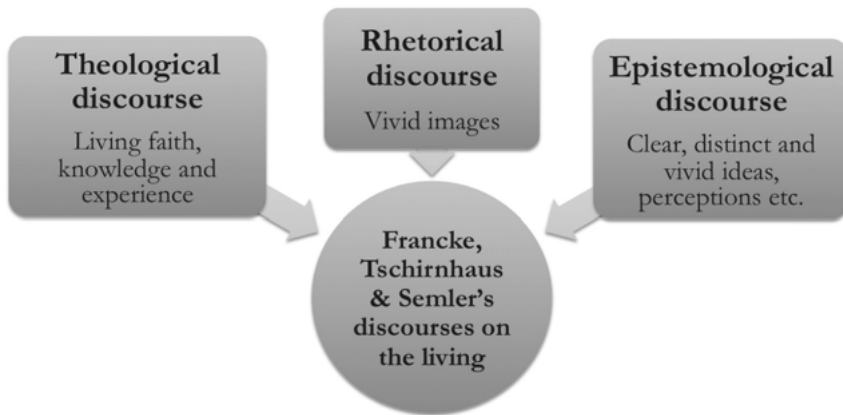


Figure 11. Model of the impact of theological, rhetorical and epistemological discourses on Francke, Tschirnhaus and Semler’s discourses on the living.

Firstly, there was the theological discourse on the living God. At the core of this discourse was the vision of a complete spiritual transformation in which

⁴⁰¹ Francke, *Kurzer und einfältiger Unterricht*, 48.

⁴⁰² Francke, *Kurzer Und Einfältiger Unterricht Wie Die Kinder Zur Wahren Gottseligkeit Und Christlichen Klugheit Anzuführen Sind*, 50. “Erfahrung täglich vermehret werde / und mit der Zeit eine wahre Klugheit daraus erwachse.”

living faith, knowledge and experience played key roles. Only insofar as one believed in, knew and experienced the fear and love of God in one's whole soul, including both its cognitive and affectual parts, would one undergo this transformation. Secondly, there was the rhetoric of vivid images, according to which the task of the orator was to produce images so vivid that they could almost be mistaken for the real thing. Thirdly, there was the philosophical or epistemological discourse regarding the hierarchisation of knowledge in terms of degrees of vividness. As a result of these three strands of influence, the Halleian discussion of the living appears as a highly eclectic discourse that combined religious and scientific theories and practices in order to observe and know the external and the internal.

Reconciling histories of religious and scientific experience

The history of vividness and the living comes down to the intersection and cross-fertilization of philosophical, rhetorical and religious discourses at various places and points in history. As I have shown, early eighteenth-century Halle was one such point of intersection. At this site, the philosophical and rhetorical category of vividness fused with the religious discourse of the living. Why did vividness fuse with the living and with religious experience more generally? What did the new science and the rather technical discourse of vivid images have to offer a theologian such as Francke? In order to answer these questions, which have so far received no scholarly attention, I provide a reading that breaks with the traditional picture of the opposition between faith and reason, religion and philosophy at Halle at the same time as it also dissolves some of the paradoxes connected to these dichotomies.

According to the traditional reading, early eighteenth-century Halle was the place of the victory of reason over religious fanaticism.⁴⁰³ It was here that philosophy, represented by Wolff, defeated religious superstition, represented by Francke and his crisis, thereby sowing the seed of the *Frühauferklärung*. In supporting the reading of Francke as hostile to philosophy and science, historians have often referred to some of his many critical remarks on science and intel-

⁴⁰³ Zeller, *Vorträge und Abhandlungen geschichtlichen Inhalts*, 108–39; Schrader, *Geschichte der Friedrich-Universität zu Halle*, 211–19. For more modern examples see: Schneider, “Das geistige Leben von Halle im Zeichen des Endkampfes zwischen Pietismus und Rationalismus”; Beutel, “Causa Wolffiana: Die Vertreibung Christian Wolffs aus Preußen 1723 als Kulminationspunkt des theologisch-politischen Konflikts zwischen halleschen Pietismus und Aufklärungsphilosophie.” For modern readings of Francke as hostile to science see: Karl Eger, *August Hermann Francke*, Hallesche Universitätsreden 32 (Halle, 1927), 16; Erhard Selbmann, “Die gesellschaftlichen Erscheinungsformen des Pietismus hallischer Prägung,” in *450 Jahre Martin-Luther-Universität Halle-Wittenberg*, vol. 2 (Halle: Martin-Luther Univ., 1952), 66. For a recent and more critical discussion see: Menck, *Die Erziehung der Jugend*, 31–37.

lectual knowledge.⁴⁰⁴ And there are in fact quite a number of such remarks. In the *Lebenslauf* Francke for instance complained that he understood theology “in the head and not in the heart” and that it therefore was more of a “dead science than a living knowledge.”⁴⁰⁵ In *Kurzer und einfältiger Unterricht*, he criticised “worldly wisdom”, drawing from St. Paul, for being “no real wisdom to speak of.”⁴⁰⁶ In *Der lebendige Glaube*, he depicted “natural knowledge or science” as the antithesis to “living knowledge.”⁴⁰⁷ Further, in *Das todte Wesen des falschen, und das lebendige Wesen des wahren Christenthums* (*The Dead Nature of the False, and the Living Nature of the True Christianity*, 1710) he again returned to St. Paul, interpreting his saying that “the letter kills” as a criticism of the intellectual capability of reason.⁴⁰⁸ To trust too much in reason is “nothing else than to introduce a dead essence in Christianity.”⁴⁰⁹ Against the intellectual and dead stood the “living essence of the true Christianity.”⁴¹⁰ In *Idea studiosi Theologiae* (*Idea of a Theology Student*, 1712) he emphasised that the theology student should appreciate “a pinch of living faith more than a *centner* of merely historical knowledge, and a drop of true love as nobler than a whole sea of science of all secrets.”⁴¹¹ About ten years later he would again return to the metaphor of the sea of science..

Oh yes, my dear, one drop of faith is far more wonderful than a whole sea filled with science, be it even the historical sciences of the divine word. One drop of faith is better than to know the Bible without faith and to be able to recite it by heart and to retell a large amount of its teachings.⁴¹²

Despite Francke’s many critical remarks recent scholars have shifted focus and managed to show that Francke actively collaborated with leading scientists, that

⁴⁰⁴ Menck, *Die Erziehung der Jugend*, 32.

⁴⁰⁵ Francke, *Lebensläufe August Hermann Franckes*, 12. “in den kopff, und nicht ins hertz”, “eine todte wissenschaft als eine lebendige Erkenntniß”.

⁴⁰⁶ Francke, *Kurzer und einfältiger Unterricht*, 37. “Welt-Klugheit keine Klugheit zu nennen sey.”

⁴⁰⁷ Francke, “Der lebendige Glaube,” 1052. “natürliche Erkänntniß oder Wissenschaft”, “lebendige Erkänntniß”.

⁴⁰⁸ August Hermann Francke, “Das todte Wesen des falschen, und das lebendige Wesen des wahren Christenthums,” in *Predigten über die Sonn- und Fest-Tags-Episteln nebst einer Vorrede vom erbaulichen predigen und von dem rechten Gebrauch dieser Predigten, auch mit nöthigen Registern versehen* (Halle: Waysenhaus, 1726), 1072. “Der Buchstabe tödtet”.

⁴⁰⁹ Ibid. “nichts anders als ein todes Wesen in die Christenheit einführen”.

⁴¹⁰ Ibid. “lebendige Wesen des wahren Christenthums.”

⁴¹¹ Francke, “*Idea studiosi Theologiae*,” 183. “ein Qventlein des lebendigen Glaubens höher / als einen Centner des blossen historischen Wissens / und ein Tröpflein wahrer Liebe edler / als ein ganzes Meer der Wissenschaft aller Geheimnisse.”

⁴¹² August Hermann Francke, *Betrachtungen über das Hohenpriesterliche Gebeth unsers Herrn und Heylandes JESU CHRISTI* (Halle: Waysenhaus, 1738), 432. “Ach ja, ihr Lieben, ein Tröpfstein Glaubens ist weit herrlicher, als ein gantzes Meer voller Wissenschaften, und wäre es auch selbst die historische Wissenschaft des göttlichen Worts. Ein Tröpfstein Glaubens ist besser, als wenn man ohne Glauben die ganze Bibel auswendig wüste und eine ganze Menge Lehren daraus vortragen könnte.”

he himself engaged in and implemented science in the Orphanage pedagogy.⁴¹³ Whitmer has even argued that the Orphanage was essentially a scientific community.⁴¹⁴

While the revaluation of Francke has been convincing, the tendency has nonetheless been to simply leave out Francke's many critical remarks. As a result, the reader is stuck with a paradox where Francke seems to be both an eager proponent for and, at the same time, a harsh critic of science. In solving this paradox, I provide a reinterpretation of Francke's critical remarks rather than simply leaving these out. At the core of this reinterpretation is the assumption that a closer look reveals that the opposition did not revolve so much around scientific and intellectual knowledge as around an ideal of living knowledge. For Francke scientific knowledge was problematic only insofar as it was merely intellectual and dead in the sense that it did not involve the whole of the soul, including both its intellectual, volitional and affectual parts. This reading is in line with the distinction between false and true wisdom in the *Kurtzer und einfältiger Unterricht*. "All wisdom, be it the false or the true, rests on two main pillars, namely on science or knowledge, and experience. However, the difference is that the first [false wisdom] abuses both pillars whereas the second [true wisdom] uses both in the right way."⁴¹⁵ The problem with false wisdom, Francke continued, was that it rested on dead intellectual knowledge. While there was a theological dimension to this dead knowledge, in the sense that it isolated the believer from God, there was also a cognitive and moral dimension. For Francke, dead intellectual knowledge was cognitively and morally deficient in the sense that it did not engage and thereby did not perfect the soul. In contrast, living knowledge engaged and perfected the soul, thereby bringing the human being closer to God.

While he focused on the living rather than on science per se, Francke in fact shared the ideal of perfection with philosophers such as Leibniz, Tschirnhaus and even Wolff. Whereas Francke identified the honour of God as the highest perfection, the philosophers identified wisdom as the highest goal. Despite this difference, however, they all saw the purely intellectual as a dead knowledge associated with worldly ambitions and immoral action. Be it Leibniz and Wolff, or Spener and Francke, the real enemy was thus not science or religion as such but a kind of decadent intellectual and pretentious book-learning that was driven by desire for status and worldly gains rather than by the search for truth, wisdom and piety. I would like to suggest that it was this common idealist vi-

⁴¹³ Menck, *Die Erziehung der Jugend*; Gierl, "Francke, die Wissenschaft und das Wissen – die Praxis des Glaubens und die Praxis des Wissens um 1700"; Whitmer, *The Halle Orphanage as Scientific Community*.

⁴¹⁴ Whitmer, *The Halle Orphanage as Scientific Community*.

⁴¹⁵ Francke, *Kurtzer und einfältiger Unterricht*, 44. "Alle Klugheit aber / es sey die falsche oder die rechte / ruhet auf 2. Haupt-Seulen / nemlich auff der Wissenschaft oder Erkäntniß / und der Erfahrung / mit diesem Unterschied / daß jene diese beyden Stücke mißbrauchet / diese aber dieselben recht gebrauchet."

sion of faith and knowledge that united people such as Leibniz, Tschirnhaus, Francke and Spener..

Perceiving early eighteenth-century Halle as the place of reconciliation between scientific and religious experience and between science and religion adds to three major fields of research. Firstly, it contributes to the history of experience both by calling for a more inclusive approach, focusing on the ways in which forms of scientific and religious experience overlapped and blended, and by showing that this actually happened at Halle. Secondly, it contributes to the history of emotion.⁴¹⁶ Within this rapidly growing field, scholars have started to question the predominating scholarly view that the passions played a primarily negative view in early modern philosophy and science.⁴¹⁷ The challenge in this area has been to reevaluate the classical negative view of the passions as irrational oppositions to reason by re-reading classical canonical texts.⁴¹⁸ While this has so far led to a revaluation of the status of the passions, very little has so far been said of the cultures and practices of passion.⁴¹⁹ With this background living experience appears as an example of how passion took form in concrete practices. More specifically, living experience was about cultivating virtuous Christian passions through methodologically structured exercises such as specific forms of prayer and meditation. Thirdly, this reading connects to the recent reassessment of the dominating story of European Enlightenment as a gradual process of secularisation.⁴²⁰ While some of these scholars have pushed

⁴¹⁶ For overviews of this expansive field see: Jan Plamper, *The History of Emotions: An Introduction* (Oxford: Oxford University Press, 2015), 40–74; Rüdiger Schnell, *Haben Gefühle eine Geschichte?: Aporien einer History of emotions*, 2 vols. (Göttingen: Vandenhoeck & Ruprecht, 2015); Susan J. Matt, “Current Emotion Research in History: Or, Doing History from the Inside Out,” *Emotion Review* 3, no. 1 (2011): 117–24; William M. Reddy, “Historical Research on the Self and Emotions,” *Emotion Review* 1, no. 4 (2009): 302–15. For the revaluation of emotions in history see also: Thomas Dixon, *From Passions to Emotions: The Creation of a Secular Psychological Category* (Cambridge: Cambridge University Press, 2003), 2–3.

⁴¹⁷ Robert C. Solomon, *The Passions: Emotions and the Meaning of Life* (Indianapolis: Hackett Pub. Co, 1993); Susan James, *Passion and Action: The Emotions in Seventeenth-Century Philosophy*, Reprinted (Oxford: Clarendon Press, 1999); Dixon, *From Passions to Emotions*. While historians of science have tended to reproduce the negative view of the passions, a few voices have also raised a more positive view. See: White, “Introduction”; Alberti, “Bodies, Hearts and Minds.”

⁴¹⁸ Solomon, *The Passions*; James, *Passion and Action*; Richard Sorabji, *Emotion and Peace of Mind: From Stoic Agitation to Christian Temptation* (Oxford: Oxford University Press, 2002); Dixon, *From Passions to Emotions*.

⁴¹⁹ An exception to this tendency is the works that, in the wake of Hadot, read ancient philosophy and medicine as spiritual exercise. Strictly speaking these works belong more to the history of philosophy than to the history of emotion. See: Sorabji, *Emotion and Peace of Mind*; Martha Craven Nussbaum, *The Therapy of Desire: Theory and Practice in Hellenistic Ethics* (Princeton, NJ: Princeton University Press, 1996); Julia Annas, *The Morality of Happiness* (Oxford: Oxford University Press, 1993).

⁴²⁰ For such accounts see: J. G. A. Pocock, *Barbarism and Religion*, 6 vols. (Cambridge: Cambridge University Press, 1999); Roy Porter and Mikulás Teich, eds., *The Enlightenment in National Context* (Cambridge: Cambridge University Press, 1981); J. C. D. Clark, *English Society, 1660–1832: Religion, Ideology, and Politics during the Ancien Régime* (Cambridge: Cambridge University Press, 2000); Jonathan I. Israel, *Radical Enlightenment: Philosophy and the Making of Modernity 1650–1750* (Oxford:

for the existence of several Enlightenments others have questioned the picture of a secular Enlightenment, or even argued for a religious Enlightenment.⁴²¹ Following these readings, I ally with and further elaborate the reading of early eighteenth-century Halle as a place of reconciliation between faith and reason and between science and religion.⁴²²

Conclusions

In the previous chapter I situated Wolff in the context of philosophy as *cultura animi*, arguing that he and many other early modern philosophers thought of experience as organised along a continuous scale from the external to the internal. In this second chapter I elaborate this reading further not by focusing on scientific but on what scholars have referred to as religious experience. Drawing on recent scholarly studies, I start by showing that early modern religious experience was essentially inner, affectual and connected to spiritual exercises such as prayer and meditation. I then analyse the category of the living, and in particular Francke's notions of living experience, knowledge and faith as specific manifestations of this kind of experience. I particularly highlight how these involved a turn to the inner and particularly to the cultivation of specific virtu-

Oxford University Press, 2001). For a good review article see: Jonathan Sheehan, "Enlightenment, Religion, and the Enigma of Secularization: A Review Essay," *The American Historical Review* 108, no. 4 (2003): 1061–80.

⁴²¹ David Sorkin, *The Religious Enlightenment: Protestants, Jews, and Catholics from London to Vienna* (Princeton: Princeton University Press, 2008); Sheehan, "Enlightenment, Religion, and the Enigma of Secularization: A Review Essay"; S. J. Barnett, *The Enlightenment and Religion: The Myths of Modernity* (Manchester: Manchester University Press, 2003); James E. Bradley and Dale K. Van Kley, eds., *Religion and Politics in Enlightenment Europe* (Notre Dame, IN: University of Notre Dame Press, 2001); Knud Haakonssen, ed., *Enlightenment and Religion: Rational Dissent in Eighteenth-Century Britain* (Cambridge: Cambridge University Press, 1996).

J. G. A. Pocock remarks that the "Enlightenment was a product of religious debate and not merely a rebellion against it." Similarly, S. J. Barnett sees the Enlightenment as "the *result* of a profound politicization of religion" A third example is David Sorkin who claims that "the Enlightenment was not only compatible with religious belief but conducive to it." See: J. G. A. Pocock, *Barbarism and Religion: The Enlightenment of Edward Gibbon, 1737–1794* (Cambridge: Cambridge University Press, 1999), 5; Barnett, *The Enlightenment and Religion*, 15; Sorkin, *The Religious Enlightenment*, 3.

⁴²² Whitmer, *The Halle Orphanage as Scientific Community*; Kelly Joan Whitmer, "Eclecticism and the Technologies of Discernment in Pietist Pedagogy," *Journal of the History of Ideas* 70, no. 4 (2009): 545–67; Kelly Joan Whitmer, "Learning to See in the Pietist Orphanage: Geometry, Philanthropy and the Science of Perfection, 1695–1730" (PhD diss., Vancouver, 2008); Gierl, "Francke, die Wissenschaft und das Wissen – die Praxis des Glaubens und die Praxis des Wissens um 1700"; Andreas Pecar, "Unsicherheit und neue Horizonte – Francke und die Welt um 1700," in *Die Welt verändern: August Hermann Francke: ein Lebenswerk um 1700*, ed. Holger Zaunstöck, Thomas Müller-Bahlke, and Claus Veltmann, Katalog der Franckeschen Stiftungen 29 (Halle: Verlag der Franckeschen Stiftungen, 2013).

ous affects of fear and love of God. Regarding this latter aspect, I contribute to and partly shed new light on the scholarly discussions of emotions and their history. In the third and fourth parts of the section I shift focus from the theological to the pedagogical by analysing the role of living experience in Francke's large-scale attempt to shape pious Christians through what he explicitly labelled a *cultura animi*. For Francke, the Orphanage *cultura animi* involved both religious and scientific theories and practices. This, in turn, raises questions regarding the relation between religious and scientific experience..

In the second section of the chapter I follow up these questions, arguing that Francke's notions of living experience, knowledge and fate took form not only in relation to religious discourses but also in relation to scientific discourses on the living. More specifically, I argue that they took shape in relation to the rhetorical discourse on how to form vivid images, and the philosophical discourse on vividness and how to make vivid observations. Thus seen, the example of Francke illustrates the overlap between religious and scientific discourses on experience. This, in turn, shows why it is necessary to expand the analysis of scientific experience to include not only the internal spectrum of experience but also the relation to other, apparently distinct and separate forms of experience.

4. Baumgarten and the aesthetic experience

On his deathbed the evangelical preacher Jacob Baumgarten made one last wish: his sons were to study theology at Halle.⁴²³ Accordingly, the Baumgarten brothers were sent to Halle where they received their education at the Orphanage in the 1720s and early 1730s. Alexander Baumgarten, the youngest of the surviving brothers, was fostered at the very institutions created by Francke and was systematically drilled in the Orphanage *cultura animi*. As part of this learning he absorbed the scientific and theological discourses on vividness and the living. Simultaneously, however, he also delved into the Wolffian philosophy that was banned at the time. Equipped with the Wolffian method Baumgarten returned to and activated vivid or extensively clear representations within what he referred to as *aesthetics: the science of sensual knowledge*.

In this chapter I analyse Baumgarten's aesthetics. What kind of project was aesthetics? Baumgarten defined aesthetics as the science of sensual knowledge. What kind of knowledge was this? How did one acquire such knowledge? Baumgarten ascribed vivid or extensively clear representations a central function in the context of aesthetic knowledge. What was the function of these representations? How did extensive clearness relate to the rhetorical, philosophical and theological discourses on vividness and the living? These are the questions I seek to answer in this chapter.

The chapter is divided into three main sections. In the first section I address the overall project of aesthetics. Discussing earlier studies, I draw attention to the way in which epistemological readings have gradually been replaced by more inclusive readings of aesthetics as a project of moral and cognitive self-perfection. In relation to these readings I argue that we here see yet another specific form of Halleian *cultura animi*. In the second section I discuss sensual

⁴²³ The two principal sources for biographical information on Baumgarten's life are: Georg Friedrich Meier, *Alexander Gottlieb Baumgartens Leben, beschreiben von Georg Friedrich Meier* (Halle, 1763); Thomas Abbt, *Alexander Gottlieb Baumgartens Leben und Character beschrieben von Thomas Abbt* (Halle: Carl Hermann Hemmerde, 1765). In addition to these sources there are also scattered biographical remarks in Baumgarten's own works. For modern concise biographies see: Courtney D. Fugate and John Hymers, "Introduction to the Translation," in *Metaphysics: A Critical Translation with Kant's Elucidations, Selected Notes and Related Materials*, by Alexander Gottlieb Baumgarten (London: Bloomsbury, 2013); Dagmar Mirbach, "Einführung zur fragmentarischen Ganzheit von Alexander Gottlieb Baumgartens Aesthetica (1750/58)," in *Ästhetik I*, by Alexander Gottlieb Baumgarten, Philosophische Bibliothek 572a (Hamburg: Felix Meiner, 2007). For Jacob Baumgarten's wish that his sons were to study at Halle see: Meier, *Alexander Gottlieb Baumgartens Leben*, 7.

knowledge. What kind of knowledge was this and how did one acquire such knowledge? The main argument is that sensual knowledge took form as a radical kind of inner experience in which vivid or extensively clear representations had a key role. In the third section I elaborate further along these lines by showing that Baumgarten's notion of extensive clearness took form in relation to both scientific and religious experience. Much like in the analysis of Francke, the example of Baumgarten thus further supports the call for a broader analysis of the relations, and particularly the mutual overlaps and interdependencies, between scientific and religious experience.

Towards a new understanding of Baumgarten's aesthetics

Throughout this dissertation I have criticised the so-called epistemological paradigm, that is, the idea that the theory of knowledge has been and should be at the core of all sound philosophy.⁴²⁴ Guided by this idea historians of philosophy have tended to write the history of philosophy as a series of more or less successful attempts to solve epistemological problems. Following this line of reading, Baumgarten has often been viewed as the epistemological forerunner of Kant. In contrast to such epistemological reading, however, a number of recent scholars have approached Baumgarten's aesthetics as spiritual exercise and moral education. In this section I start by accounting for these approaches. I then continue by providing my own reading of Baumgarten's aesthetics as yet another example of Halleian *cultura animi*.

Breaking with the epistemological paradigm

Ever since the nineteenth century scholars have tended to adopt a retrospective Kantian perspective on Baumgarten's aesthetics.⁴²⁵ Accordingly, Baumgarten and the other Wolffians were transitory authors in a linear development extending from Leibniz to Kant, Herder and Hegel.⁴²⁶ In the early twentieth century the markedly teleological histories left room for more critical accounts that nevertheless tended to see the nineteenth century as the time when aesthetics

⁴²⁴ See: Haakonssen Knud, "The Idea of Early Modern Philosophy."

⁴²⁵ The historiography of aesthetics has received little scholarly attention. For a short but good and updated discussion see: Stefanie Buchenau, *The Founding of Aesthetics in the German Enlightenment: The Art of Invention and the Invention of Art* (Cambridge: Cambridge University Press, 2013), 3–10.

⁴²⁶ Robert Zimmermann, *Geschichte der Aesthetik als philosophischer Wissenschaft* (Wien: Braumüller, 1858), Vorrede; Hermann Lotze, *Geschichte der Ästhetik in Deutschland* (München, 1868); Wilhelm Dilthey, "Die drei Epochen der modernen Ästhetik und ihre heutige Aufgabe," in *Die geistige Welt: Einleitung in die Philosophie des Lebens. Zweite Hälfte. Abhandlungen zur Poetik, Ethik und Pädagogik*, Gesammelte Schriften 6 (Leipzig: B. G. Teubner, 1924).

finally matured into a modern science.⁴²⁷ In the second half of the twentieth century this view still tends to hold, and in a recent book the author remarks that the pre-Kantian attempts “ultimately failed to establish an aesthetic paradigm to serve as a starting-point for productive elaborations or dissent for future generations.”⁴²⁸ Although views such as this stand out today, most studies still tend to adopt a Kantian retrospective epistemological focus.⁴²⁹

As Haakonssen has pointed out, the epistemological paradigm predominated until the so-called new history gained ground during the course of the 1970s and 1980s.⁴³⁰ At the core of this history was a pronounced contextual awareness. Philosophical problems, it seemed, had to be understood as a part of the context in which they ensued. Led by this view recent historians of philosophy have argued for a more contextualist approach to Baumgarten.⁴³¹ This, in turn, has opened up for an array of new research questions and themes. One such theme revolves around Leibniz, Wolff and Baumgarten and the context of the *Frühaufklärung*.⁴³² Another theme concerns the ethical and anthropological sides

⁴²⁷ See for instance: Bernhard Poppe, *Alexander Gottlieb Baumgarten: seine Bedeutung und Stellung in der Leibniz-Wolffschen Philosophie und seine Beziehungen zu Kant* (Borna-Leipzig: Robert Noske, 1907); Ernst Cassirer, *The Philosophy of the Enlightenment*, trans. Fritz C. A. Koelln and James P. Pettegrove, Princeton classic ed. (Princeton, NJ: Princeton University Press, 2009); Alfred Baeumler, *Das Irrationalitätsproblem in der Ästhetik und Logik des 18. Jahrhunderts bis zur Kritik der Urteilskraft* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1967); Benedetto Croce, *The Aesthetic as the Science of Expression and of the Linguistic in General*, trans. Colin Lyas (Cambridge: Cambridge University Press, 1992).

⁴²⁸ Kai Hammermeister, *The German Aesthetic Tradition* (Cambridge: Cambridge University Press, 2002), 3.

⁴²⁹ Today the majority of the epistemological readings of Baumgarten are critical to progressivist and presentist readings such as the one above. For critical and good exegetical and epistemological studies see the different contributions in Alexander Aichele and Dagmar Mirbach, eds., *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, *Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte* 20 (Felix Meiner, 2008). See also: Ursula Franke, *Kunst als Erkenntnis: Die Rolle der Sinnlichkeit in der Ästhetik des Alexander Gottlieb Baumgarten*, vol. Bd. 9, *Studia Leibnitiana Supplementa* (Wiesbaden: Franz Steiner Verlag, 1972); Hans Rudolf Schweizer, *Ästhetik als Philosophie der sinnlichen Erkenntnis* (Basel: Schwabe & CO, 1973).

⁴³⁰ Haakonssen Knud, “The Idea of Early Modern Philosophy.”

⁴³¹ Buchenau, *The Founding of Aesthetics in the German Enlightenment*; Simon Grote, “Moral Philosophy and the Origins of Modern Aesthetic Theory in Scotland and Germany” (PhD diss., University of California, Berkeley, 2010); Simon Grote, “Pietistische Aisthesis und moralische Erziehung bei Alexander Gottlieb Baumgarten,” in *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, ed. Alexander Aichele and Dagmar Mirbach, *Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte* 20 (Hamburg: Felix Meiner, 2008); Salvatore Tedesco, “A.G. Baumgartens Ästhetik im Kontext der Aufklärung: Metaphysik, Rhetorik, Anthropologie,” in *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, ed. Alexander Aichele and Dagmar Mirbach, *Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte* 20 (Hamburg: Felix Meiner, 2008); Steffen Gross, *Felix Aestheticus: Die Ästhetik als Lehre vom Menschen* (Würzburg: Königshausen & Neumann, 2001).

⁴³² In this context scholars have referred to aesthetic rationalism as an early Enlightenment project to found an aesthetics based on certain principles and rules. See: Buchenau, *The Founding of Aesthetics in the German Enlightenment*; Stefanie Buchenau, “Die Sprache der Sinnlichkeit. Baumgart-

of Baumgarten's philosophy and aesthetics.⁴³³ Ernst Cassirer has already remarked that Baumgarten's aesthetics was first of all a "philosophical anthropology."⁴³⁴ More recently Steffen Gross has spearheaded a similar ethical and anthropological reading.⁴³⁵ Gross argues that the tension between the rationalist Wolffian philosophy and the more sensual Halleian Pietism created a need for a more inclusive theory. To fill this need Baumgarten launched aesthetics not as a distinct discipline but as an overall attempt to improve human knowledge and cognition. "In short, Baumgarten transcends the old opposition between rationalism and sensualism. His core theme is the improvement of human knowledge and cognition and how to reach this goal."⁴³⁶ A third example of an anthropological reading is Simon Grote's study of aesthetics as moral education.⁴³⁷ Grote criticises Gross's reading of the opposition between philosophical rationalism and sensual Pietism. Much like Whitmer did in her study of the Orphanage as a scientific community, Grote sees common points of interest

ens poetische Begründung der Ästhetik in den Meditationes philosophicae," in *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, ed. Alexander Aichele and Dagmar Mirbach, Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte 20 (Felix Meiner, 2008); Frederick C. Beiser, *Diotima's Children: German Aesthetic Rationalism from Leibniz to Lessing* (Oxford: Oxford University Press, 2009); Leonard P. Wessell, "Alexander Baumgarten's Contribution to the Development of Aesthetics," *The Journal of Aesthetics and Art Criticism* 30, no. 3 (1972): 333–42.

⁴³³ Whereas ethical readings have tended to be exegetical, anthropological readings have been more interested in the cultural context. For the first reading see: Clemens Schwaiger, "The Theory of Obligation in Wolff, Baumgarten, and the Early Kant," in *Kant's Moral and Legal Philosophy*, ed. Karl Ameriks and Otfried Höffe (Cambridge: Cambridge University Press, 2009); Clemens Schwaiger, "Baumgartens Ansatz einer philosophischen Ethikbegründung," in *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, ed. Alexander Aichele and Dagmar Mirbach, Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte 20 (Hamburg: Felix Meiner, 2008); Clemens Schwaiger, "Ein 'missing link' auf dem Weg der Ethik von Wolff zu Kant," *Jahrbuch für Recht und Ethik* 8 (2000): 247–61; Dagmar Mirbach, "Ingenium venustum und magnitudo pectoris. Ethische Aspekte von Alexander Gottlieb Baumgartens Aesthetica," in *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*, ed. Alexander Aichele and Dagmar Mirbach, Aufklärung: Interdisziplinäres Jahrbuch zur Erforschung des 18. Jahrhunderts und seiner Wirkungsgeschichte 20 (Felix Meiner, 2008). For the second strand see: Grote, "Moral Philosophy and the Origins"; Grote, "Pietistische Aisthesis und moralische Erziehung bei Alexander Gottlieb Baumgarten"; Tedesco, "A.G. Baumgartens Ästhetik im Kontext der Aufklärung: Metaphysik, Rhetorik, Anthropologie"; Steffen Gross, "The Neglected Programme of Aesthetics," *British Journal of Aesthetics* 42, no. 4 (2002): 403–14; Gross, *Felix Aestheticus: Die Ästhetik als Lehre vom Menschen*; Cassirer, *The Philosophy of the Enlightenment*.

⁴³⁴ Cassirer, *The Philosophy of the Enlightenment*, 353.

⁴³⁵ Gross, "The Neglected Programme of Aesthetics"; Gross, *Felix Aestheticus: Die Ästhetik als Lehre vom Menschen*.

⁴³⁶ Gross, "The Neglected Programme of Aesthetics," 404.

⁴³⁷ Grote, "Moral Philosophy and the Origins." See also: Simon Grote, "Vom geistlichen zum guten Geschmack? Reflexionen zur Suche nach den pietistischen Wurzeln der Ästhetik," in *Schönes Denken: A. G. Baumgarten im Spannungsfeld zwischen Ästhetik, Logik und Ethik*, ed. Andrea Allerkamp and Dagmar Mirbach, Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft Sonderheft 15 (Hamburg: Felix Meiner, 2016); Grote, "Pietistische Aisthesis und moralische Erziehung bei Alexander Gottlieb Baumgarten."

and collaboration between theologians and philosophers.⁴³⁸ Moreover, and most interestingly, Grote connects Baumgarten's aesthetics to Francke's discussion of *aesthesis*. For Francke *aesthesis* was at the core of a larger discussion of moral education. By highlighting this connection Grote establishes a link between Francke's *cultura animi* and Baumgarten's aesthetics as a project of moral education. The fourth and last example of an anthropological reading is Gabriel Trop's study *Poetry as a Way of Life*.⁴³⁹ Drawing on Hadot and Foucault, Trop analyses German eighteenth-century aesthetics as *askesis*. In the first chapter of the book he reads Baumgarten's aesthetics as a systematic exercise of the sensual parts of the soul. Among other things he draws attention to the way in which the aesthetic exercise revolved around the cultivation of perception and of inner senses such as memory and imagination.

In short, epistemological readings of Baumgarten's aesthetics have predominated in the last two centuries. Over the last decades, however, a small but steadily increasing number of scholars have broken with the epistemological paradigm by raising questions regarding the ethical and anthropological aspects of Baumgarten's aesthetics. While Gross sees aesthetics as an attempt to overcome the opposition between rationalism and sensualism by improving human cognition, Grote views it as a programme for moral education intimately connected to Francke and the Pietists. Trop, in turn, draws on Hadot and Foucault to make the case that aesthetics constituted a way of life marked by *askesis* and spiritual exercise. In the following I provide my own reading of Baumgarten's aesthetics as spiritual exercise and *cultura animi*.

Aesthetics as moral education and spiritual exercise

At the core of Leibniz and Wolff's philosophy was the concept of perfection according to which God constituted the most perfect being of which all singular substances are manifestations.⁴⁴⁰ While the majority of these substances exist as singular, limited and static perfections, the human being has the ability to acquire partial knowledge of the perfection of God and the universe. By acquiring and by acting according to this knowledge the human being contributes to the overall perfection of the universe at the same time as he thereby also increases his own perfection. It is in this context that the law of nature (*ius naturae*) comes in. According to the law of nature, the human being is inclined towards perfection (good) and disinclined towards imperfection (bad). The mechanism driving these inclinations is psychological: from perfection comes pleas-

⁴³⁸ Whitmer, *The Halle Orphanage as Scientific Community*.

⁴³⁹ Gabriel Trop, *Poetry as a Way of Life: Aesthetics and Askesis in the German Eighteenth Century* (Evanston, IL: Northwestern University Press, 2015). While Trop's analysis might seem to be very close to my own, he in fact comes more from literary analysis than from history. Apart from providing an interesting reading of Baumgarten's aesthetics as *askesis* and *exercitium*, he says very little about the historical context.

⁴⁴⁰ Hunter, *Rival Enlightenment*.

ure – defined as a “sense or knowledge of perfection” – and from pleasure comes the motivation for further perfection. The inclination to further one’s perfection through action was referred to as obligation (*obligatio*) or duty (*officium*). The human being is thus obliged to act according to the law of nature, that is, virtuously.

Following Leibniz and the natural law tradition, Wolff formulated his own version of the natural law in the *German Ethics*. “Do that which makes you and your state of being more perfect, and avoid that which makes you and your state of being less perfect.”⁴⁴¹ Just like Leibniz, Wolff argued that the human being is naturally inclined and thereby obliged to follow the law of nature, since it is natural to seek pleasure, defined as “the perception of perfection.”⁴⁴² To perceive perception and act accordingly is thus something that humans do naturally insofar as they are not misled by the affects. Seeing the affects as potential sources of disturbance it was important to strengthen the self and particularly reason. This was preferably to be done through engagement in various exercises. In the *German Ethics* Wolff for instance suggests that one was to start every morning by reflecting on what one had to do and how the different actions contribute to and increase one’s perfection. Before going to bed in the evening, one was then to evaluate how well one had managed to do one’s duties during the day. By doing this regularly, virtuous acting would be transformed into a daily habit.⁴⁴³ Other exercises revolved more directly around engagement in philosophy and science, including experimental philosophy.⁴⁴⁴

The publication of Wolff’s *German Philosophy* was followed by a heated debate regarding the nature of morality and obligation.⁴⁴⁵ According to Wolff, the human being is naturally obliged to further his perfection by following his reason. For the theologians the problem with this view was that it seemed to allow for moral perfection quite independently of revelation. That is, Wolff’s philosophy seemed to make revelation and a number of other theological cornerstones superfluous. Enraged by Wolff’s apparently heretic philosophy, the theologians attacked and eventually managed to have Wolff expelled from Prussia in 1723. After the expulsion and the subsequent ban of the Wolffian philosophy, the debate on obligation continued to rage throughout the 1720s.⁴⁴⁶ Such was the situation when Baumgarten came to the Orphanage in 1727, a place where he would stay for the next three years before enrolling at the University of Hal-

⁴⁴¹ Wolff, *German Ethics*, 16. “Thue, was dich und deinen Zustand vollkommener machet und unterlaß, was dich und deinen Zustand unvollkommener machet”.

⁴⁴² Wolff, *German Metaphysics*, 247. “Anschauen der Vollkommenheit”.

⁴⁴³ Wolff, *German Ethics*, 105–6.

⁴⁴⁴ *Ibid.*, 207–45.

⁴⁴⁵ This debate, which eventually led to Wolff’s expulsion from Prussia, has caught the interest of numerous scholars. For some of these accounts see: Grote, “Moral Philosophy and the Origins,” 141–54; Hinrichs, *Preußentum und Pietismus*; Wundt, *Die deutsche Schulphilosophie*; Schneider, “Das geistige Leben von Halle im Zeichen des Endkampfes zwischen Pietismus und Rationalismus.”

⁴⁴⁶ Grote, “Moral Philosophy and the Origins,” 141–95.

le in 1730. After his arrival at the Orphanage, it didn't take more than a year before his elder brother Siegmund Baumgarten introduced him to the Wolffian philosophy.⁴⁴⁷ While their interest initially revolved around the Wolffian method, both brothers soon became interested in metaphysics and ethics.⁴⁴⁸ As a result Siegmund published an extensive treatise entitled *Theologische Moral* (*Theological Moral*, 1736).⁴⁴⁹ The treatise, which advanced a theological moral based on Wolffian metaphysics and ethics, immediately enraged the theologians who accused Siegmund of plunging young theology students into atheism.⁴⁵⁰ However, after Joachim Lange, with the support of Francke's son Gotthilf August Francke, had been unsuccessful in their process against Siegmund, the text was eventually published in full in 1738.⁴⁵¹ The *Theologische Moral* provided detailed practical instructions in how to become a pious theologian by engaging in a broad spectrum of religious and philosophical exercises such as Bible reading, prayer, meditation and self-reflection. Siegmund's undertaking inspired Alexander who in the following years published first the *Metaphysica* (*Metaphysics*, 1739), and then the *Ethica Philosophica* (*Philosophical Ethics*, 1740).⁴⁵² Especially the *Ethica* appears to have been written in close proximity to the *Theologische Moral*. Apart from discussing religious exercises such as prayer and meditation in some detail, Alexander also shared Siegmund's interest in philosophical exercises of the self. Here the principal moral imperative was *perfect yourself* (*perficie te*).

PERFECT YOURSELF, That is *perfect yourself* AS MUCH AS YOU CAN *in the state of nature*. In other words, in this state of nature do things which perfect you either as an end where you yourself are the determining ground of perfection, or as a means by which, those things make you accord with others, to the determining ground of perfection that is placed outside yourself. DO GOOD THINGS and *cease to do bad things* AS MUCH AS YOU CAN *in the state of nature*. In that state, DO WHAT IS BEST FOR YOU THROUGH YOUR OWN DEEDS.⁴⁵³

⁴⁴⁷ Mirbach, "Einführung zur fragmentarischen Ganzheit von Alexander Gottlieb Baumgartens Aesthetica (1750/58)," 16.

⁴⁴⁸ For biographical details on Siegmund Jacob Baumgarten see: Johann Salomo Semler, "Kurzer Entwurf des Lebens herrn D. Siegmund Jacob Baumgartens," in *Ehrendächtnis des weiland Hochwürdigen und Hochgelarten Herrn Herrn Siegmund Jacob Baumgartens* (Halle, 1758). For modern studies of Siegmund Baumgarten see: Martin Schloemann, *Siegmund Jacob Baumgarten: System und Geschichte in der Theologie des Überganges zum Neuprotestantismus*, *Forschungen zur Kirchen- und Dogmengeschichte* 26 (Göttingen: Vandenhoeck & Ruprecht, 1974); Sorkin, *The Religious Enlightenment*.

⁴⁴⁹ Schloemann, *Siegmund Jacob Baumgarten*, 43–44.

⁴⁵⁰ *Ibid.*, 43–49.

⁴⁵¹ Siegmund Jacob Baumgarten, *Unterricht vom rechtmäßigen Verhalten eines Christen, oder Theologische Moral* (Halle: Johann Andreas Bauer, 1738).

⁴⁵² Baumgarten, *Metaphysica*; Baumgarten, *Metaphysica*; Alexander Gottlieb Baumgarten, *Ethica Philosophica* (Halle: Carl Herrmann Hemmerde, 1740).

⁴⁵³ Baumgarten, *Ethica Philosophica*, 4. "PERFICE TE, Ergo *perficie te in statu, naturali*, QUANTUM POTES, i.e. *fac in eodem, quae te perficiunt, vel ut finem, quorum tu ipse es ratio perfectionis determinans, vel ut medium, quae te cum aliis consentire faciunt ad rationem perfectionis determinantem extra te positam. FAC BONA, omitte mala, QUANTUM POTES, in statu naturali: FAC in eodem, quod TIBI FACTU OPTIMUM.*"

While knowledge of God was seen as the basis of any further knowledge, knowledge of the self was a necessary requirement for further participation in God's plan for the perfection of the world. Elaborating further on self-knowledge, Baumgarten stressed the importance of identifying one's own "perfections and imperfections as much as can be done."⁴⁵⁴ This was preferably to be done with the help of concrete practical exercises. Here he encouraged his readers to use a specific template as a tool for self-reflection. According to this template, one was to focus on the depth of one's qualities and on the reasons behind them. Alexander stressed the importance of systematic reflection on our past, present and future. "Beware lest you create for yourself a state, whether of your past, present or future, which is anything other than true, especially when it is moral."⁴⁵⁵ Writing diaries served as a device for such reflection:

Clearly display your past states of being that are especially moral as much as you can because if it is to become an exploration of yourself, it will be A RECONSIDERATION OF YOUR PRECEDING LIFE. DIARIES, which are supporting material for reminiscing, should not be scorned, and the same goes for day-to-day notes of things pertaining to you. Nor should you forget your pristine states.⁴⁵⁶

Baumgarten's discussion of self-knowledge clearly illustrates the practical nature of the project; above all, self-knowledge was a matter of engaging in a number of systematic and methodologically guided exercises..

So far I have followed the philosophy of perfection from Leibniz to Wolff and on to Siegmund and Alexander Baumgarten. At the core of this philosophy was the view that the human being ought to participate in God's great plan for perfection by engaging in his own cognitive and moral perfection. To do so meant to engage in a broad spectrum of religious and philosophical exercises. Taken together the emphasis on and detailed instruction in these exercises suggest that the philosophy of perfection was essentially meant to work as moral education or *cultura animi*. By retrospectively reducing it to epistemology one not only misses an important aspect, but one also fails to see what this philosophy was essentially about.

The philosophy of perfection provides the immediate context of Baumgarten's aesthetics. This becomes clear already in his dissertation, the *Meditationes*

⁴⁵⁴ Ibid., 63. "Obligaris ad perfectiones tuas omnes appetendas, imperfectiones auersandas, quantum potes.... Ergo perfectiones imperfectionesque tuas nosce, quam fieri potest".

⁴⁵⁵ Ibid., 68. "Caue, ne vel praeteritum, vel praesentem, vel futurum tuum statum, praesertim moralem, alium tibi fingas, quam verum".

⁴⁵⁶ Ibid., 67. "Status tuos praeteritos, praesertim morales clare tibi repraesenta, quantum potes, quod si fiat in exploratione tui erit VITAE ANTEACTAE REPUTATIO. Nec contemnenda sunt iuuandae reminiscendae adminicula DIARIA, f. rerum ad te pertinentium chronologicae adnotationes: ne obliuiscaris status tui pristini".

philosophicae de nonnullis ad poema pertinentibus (*Reflections on Poetry*, 1735).⁴⁵⁷ Here Baumgarten referred to “the science of perception or aesthetic.”⁴⁵⁸ At the core of this science was the formation of sensate discourses, which could be more or less perfect. Once they reached a certain level of perfection Baumgarten referred to them as poems. Philosophical poetics therefore is “the science guiding sensate discourse to perfection.”⁴⁵⁹ Later, in the monumental *Aesthetica* (*Aesthetics*, 1750/1758), Baumgarten further elaborated the idea of aesthetics as perfection. “The goal of aesthetics is the perfection of sensual knowledge as such. This is beauty. And to avoid it is thus its imperfection as such. This is ugliness.”⁴⁶⁰ While paragraphs such as this might give the impression that aesthetics took the form of a rather abstract enterprise with few connections to the kind of practical exercises that marked the *Ethica*, the *Aesthetica* in fact provides a detailed account of how to perfect one’s aesthetic being and become the *aestheticus felix* or *Happy Aesthetician*. In the next part of this section I will discuss this personhood more in detail.

The Happy Aesthetician

In the *Aesthetica* Baumgarten emphasised that aesthetics requires the cultivation of a certain virtuous personhood that he labelled the *Happy Aesthetician*.

Since the beauty of knowledge is an effect of the beautiful thoughts and neither superior nor nobler than this living force, we first of all want to sketch...the CHARACTER OF THE HAPPY AESTHETICIAN and compose a list all things that in a soul naturally provides the more specific foundations for beautiful thinking.⁴⁶¹

Drawing on Leibniz and Wolff’s definitions of pleasure as the perception of perfection, Baumgarten stated that the Happy Aesthetician was happy given that he perceived sensual or aesthetic perfection. To be able to do this he was equipped with a natural aesthetic ability (*aesthetica naturalis*) to know and appre-

⁴⁵⁷ Alexander Gottlieb Baumgarten, *Reflections on Poetry: Alexander Gottlieb Baumgarten’s Meditationes Philosophicae de Nonnullis Ad Poema Pertinentibus*, trans. Karl Aschenbrenner and William B. Holter (Berkeley: University of California Press, 1954).

⁴⁵⁸ Ibid., 78, 39. “αισθητα επιστημης αισθητικης sive AESTHETICAE”.

⁴⁵⁹ Ibid., 77, 39. “scientia ad perfectionem dirigens orationem sensitivam.”

⁴⁶⁰ In the analysis of the *Aesthetica* I use the Latin-German critical edition. When providing the Latin original quotes in the footnotes, however, for the sake of readability I have omitted Baumgarten’s many references to other paragraphs. Alexander Gottlieb Baumgarten, *Ästhetik I*, trans. Dagmar Mirbach, Philosophische Bibliothek 572a (Hamburg: Felix Meiner, 2007), 20–21. “Aesthetices finis est perfectio cognitionis sensitivae, qua talis. Haec autem est pulcritudo, et cavenda eiusdem, qua talis, imperfectio. Haec autem est deformitas.”

⁴⁶¹ Ibid., 26–27. “Pulcritudo cognitionis, quum sit effectus pulcre cogitantis huius viribus vivis nec maior, nec nobilior, ante omnia delineemus...CHARACTEREM FELICIS AESTHETICI, enumerationem eorum, quae in anima naturaliter pulcræ cognitionis caussae propiores sunt.”

ciate the beautiful. This ability required the co-operation of the intellect, the senses and the appetites. While the assumption of the cooperation of these faculties reflected the typical early modern faculty psychology, the emphasis on sensual or poetic knowledge, and the assumption that the affects played a vital role in the acquisition of this knowledge, was much more controversial. Contrary to the typical early modern view of the affects as disturbances or threats to knowledge and wisdom, Baumgarten saw them as the very motor of poetic knowledge. In this context he emphasised what he referred to as the aesthetic temperament (*temperamentum aestheticum*). By aesthetic temperament he meant “a very big MAGNITUDE OF THE HEART” or a “drive towards the great.”⁴⁶² In another passage he discussed aesthetic motion (*impetus aestheticus*) as the “wonderful excitement of the soul or flaming, the inner force, delight, rage and enthusiasm” that fuels the aesthetic mind.⁴⁶³ This passion-like force is also what sets the Happy Aesthetician apart from the Wolffian philosopher. While the latter exercised strict control over the lower appetites, the Happy Aesthetician depended on his ability to channel his appetites into creativity. If cultivated right, the *aesthetic motion* served as a creative force, guiding the Happy Aesthetician in the creation of beautiful poems. Elaborating further on aesthetic motion, Baumgarten stressed that it ensues in particular situations. Such situations occur 1) when one is *forced to take a quick decision – Now or never!*, 2) when *expectations of certain outcomes are low*, 3) when *amazement is evoked by heroic histories, music, dance, painting etc.*, 4) when *the muses cause emotions in the mind*, 5) when the mind *experiences something wholly foreign and unknown* (as in natural science), 6) when the mind is *affected by wine*, 7) when the mind is *affected by love*, 8) when a person is *completely destitute and exposed*, 9) when a person is *indignant at, for instance, injustice*, 10) when an *already indignant person is met with scorn*, 11) when *minor arousals of the soul are suppressed* such as in the following, 12) when *tragic happenings or joyful events are not mourned or enjoyed* and, lastly, 13) *in youth when the imagination of the soul is more vivid*.⁴⁶⁴ The aesthetician was to take advantage of these occasions and channel the aesthetic motion into poetic creativity..

While aesthetic motion appears as a wild and uncontrollable force, the whole point was to tame, control and channel it into what Baumgarten referred to as the aesthetic discipline (*disciplina aesthetica*).⁴⁶⁵ The aesthetic discipline referred to the specific theories that were to be deduced through exercises.

The aesthetic discipline should be deduced through rather severe exercises so that the abilities of learning do not roam about either through ignorance or incertitude of rules or their principles or that someone thinks freely or believes that everybody will see his er-

⁴⁶² Ibid., 36–37. “MAGNITUDINEM aliquam PECTORIS CONNATAM”, “magna potissimum”.

⁴⁶³ Ibid., 62–63. “pulcra mentis incitatio, inflammatioque, ὄρμη, ecstasis, furor, ἐνθουσιασμός, πνεῦμα θεοῦ”.

⁴⁶⁴ Ibid., 64–75.

⁴⁶⁵ Ibid., 48–61.

rors, which he all the same is ignorant of himself, and through this is deterred from the use of beautiful meditation.⁴⁶⁶

Baumgarten divided the aesthetic discipline into beautiful erudition (*pulcra eruditio*) and aesthetic art (*ars aesthetica*). Beautiful erudition provides the knowledge from which beautiful thoughts are formed. Following Wolff, Baumgarten stressed God, the world and the human being as the three main domains of knowledge. On a more concrete level, however, learning corresponded to a profound knowledge of the historical and literary tradition. For the Happy Aesthetician, it was this knowledge that allowed him to form true and beautiful poetic representations. Here Baumgarten again stressed the importance of fortifying this knowledge through recurrent daily exercises. The second subcategory, aesthetic art referred to all the laws and rules that governed and guided the aesthetician in his striving for aesthetic knowledge. Without discussing these rules in detail, Baumgarten hints at a mixture of Wolffian methodological rules and the rules that, according to the literary tradition of his time, guided the composition of verses and poems.

In addition to the general emphasis on practicing exercises Baumgarten also discussed the topic under a separate heading. Here he warned the reader of the dangers of neglecting exercises. “When its [natural aesthetics] capacities or abilities are not improved through regular exercises, they will gradually shrink and stiffen, no matter how great they once were.”⁴⁶⁷ To prevent this from happening, he recommended two kinds of exercises: spontaneous lay improvisations and learned exercises. The first type of exercise did not require any preparation but entailed spontaneous play with poetic expressions. In this regard, Baumgarten gave the “unpolished Saturnic verse” as an example.⁴⁶⁸ To stress the importance of this form of exercise he emphasised that an uneducated person could possess the most delicate poetic mind. The second type of exercise was that of devoted academic study. By diligently pursuing studies in the fine arts of poetics it was possible to improve and perfect the aesthetic mind considerably.⁴⁶⁹

In establishing the person of the Happy Aesthetician Baumgarten distinguished the great aesthetic thought style from a number of less virtuous

⁴⁶⁶ Ibid., 48–49. See the whole paragraph 62: “Ad characterem felicitis aesthetici generalem, requiritur Μάθησις et DISCIPLINA AESTHETICA, theoria perfectior in materiam et formam pulchrae cognitionis propius influentium, ac ea per naturam solam, et solum eius usum impetrari solet, severioribus iam exercitiis in usum deducenda, ne vagetur habitus ex rerum cogitandarum, vel ex regularum earumque rationum ignorantia vel incertitudine, cogitave licenter, aut omnes visuros peccata sua putans, quae tamen ipse nesciat, ab ipso pulchrae meditationis usu deterreatur.”

⁴⁶⁷ Ibid., 38–39. “hinc nisi continuis exercitiis augeantur eius vel dispositiones vel habitus, decrescit, quantacunque ponatur, nonnihil ac torpescit.”

⁴⁶⁸ Ibid., 42–43. “horridus ille numerus Saturnius”.

⁴⁶⁹ For a detailed analysis of exercises in Baumgarten’s aesthetics see: Trop, *Poetry as a Way of Life*, 25–49.

thought styles (*cogitandi genus*).⁴⁷⁰ One example was the scholastic thought style, which either suffocated beauty in an excess of erudition or provided “the kind of erudition that can only fool children and certain grammarians.”⁴⁷¹ Another example was the uncultivated and imperfect thought style associated with “foul philosophers and physicians.”⁴⁷² The problem of these persons lay in their indolence, in their inability to penetrate further into the truth of nature. Baumgarten’s criticism can be seen as an attack on the local factions of Wolffian philosophers and physicians, the latter who described the human soul in terms of law-governed, mechanical movements of nerves and nerve-liquids. Placed in this context, Baumgarten’s portrait of the Happy Aesthetician was not launched as a freestanding scientific *persona* but as a considerable challenge to other Halleian personhoods.

My analysis of the Happy Aesthetician aligns closely with the recent scholarly relocation of early modern philosophy, a relocation that displays philosophy as a practice marked by spiritual exercises and acknowledges that this practice was essentially moral rather than epistemological. Drawing on this relocation, I oppose the predominating tendency to read Baumgarten’s aesthetics as an abstract, spatially independent theory of beauty and knowledge.⁴⁷³ In contrast to such epistemological readings, which often misunderstand what kind of activity aesthetics was and what it meant to be engaged in this activity, I argue that Baumgarten’s aesthetics is better understood as moral education or *cultura animi*. While here sympathising with Gross, Grote and Trop, who have all advanced similar readings, I am primarily interested in using this reading to analyse aesthetic experience.

Aesthetic experience

In this section I use the *cultura animi* reading to further explore scientific experience, not as external observations but as an operation of the mind where the

⁴⁷⁰ Ibid., 84–93.

⁴⁷¹ Ibid., 88–89. “aut omnino speciem eruditionis tantum apud pueros et grammaticorum aliquos mentientia congeruntur.”

⁴⁷² Ibid., 90–91. “pigri philosophi ac medici”.

⁴⁷³ What I question is not so much the lack of scholarly rigour as the choice of perspective. By systematically prioritising epistemology, the epistemological reading fails to account for the moral educational aspects of Baumgarten’s aesthetics. My claim here is that if one does not take these aspects into account, one also fails to understand what Baumgarten’s project was essentially about. This said, there are also a number of good and critical epistemological readings. See for instance some of the contributions in: *Schönes Denken - Baumgartens Epoche (1714/2014)*, *Schönes Denken: A.G. Baumgarten im Spannungsfeld zwischen Ästhetik, Logik und Ethik*, ed. Andrea Allerkamp and Dagmar Mirbach, *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft Sonderheft 15* (Hamburg: Felix Meiner, 2016); Aichele and Mirbach, *Alexander Gottlieb Baumgarten: Sinnliche Erkenntnis in der Philosophie des Rationalismus*. See also: Franke, *Kunst als Erkenntnis: Die Rolle der Sinnlichkeit in der Ästhetik des Alexander Gottlieb Baumgarten*; Schweizer, *Ästhetik als Philosophie der sinnlichen Erkenntnis*.

internal senses played a pivotal role. In the chapter on Wolff I drew attention to the refinement of experience. For Wolff, experience was scientifically valuable only after it had been refined into clear and distinct definitions and propositions. While Baumgarten agreed that such a process of abstraction and refinement was necessary within philosophy, he saw it as highly problematic within poetics since it seemed to reduce the poetic expression of the very richness that defined it. How could there ever be beautiful poems without affluence in words and expressions? To solve this problem, Baumgarten broke with some of the fundamental assumptions of early modern epistemology. The ensuing result was the emergence of aesthetics as a realm of knowledge that played out almost completely within the internal sphere of experience. Thus read, Baumgarten provides a radical example of early modern inner experience.

Aesthetic representation

In the *Meditationes* Baumgarten provides his own account of how he came to be interested in aesthetics.

Since the time when the worthy co-rector of the high school which flourishes at Berlin, the celebrated Christgau, whom I cannot name without a sense of deepest gratitude, adroitly guided my first steps in the study of the humanities, scarcely a day has passed for me without verse... Meanwhile, by divine will, which I honour, it happened that duty required me to tutor young men preparing for the university, in poetics, along with so-called Rational Philosophy. What in such a situation was more reasonable than, at the first opportunity, to translate our philosophical precepts into practice?... By way of preparation I set to work to consider all those things which I had learnt in the usual way and by the traditional method, through practice, or by imitation – if not blind, at least one-eyed – and by watching out for other possible sources of errors.⁴⁷⁴

Like many other young students Baumgarten was captivated by the beauty of Latin literature and poetry. In contrast to his fellow students, however, his interest in Latin poetry intersected and fused with his enthusiasm for the Wolffian method. According to his own account, the encounter triggered a process of critique, unlearning and re-learning. Led by the Wolffian method he set out to apply the idea of certain knowledge and proof on poetry.

⁴⁷⁴ Baumgarten, *Reflections on Poetry*, 35–36, 3–4. “Ex quo enim tempore ad humanitatem informari coeperam, incitante dexterrimo tirocinii mei moderatore, quem sine gratissimi animi sensu nominare non possum Cl. CHRISTGAVIO gymnasii, quod Berolini floret, contractore meritissimo, transiit mihi paene nulla dies sine carmine.... Inter ea contigit divino nutu, quem veneror, ut iuventutem ad academias maturescentem docendi poetice cum philosophia, quam vocant, rationali coniunctam mihi demandaretur provincia. Quid hic erat aequius, quam praecepta philosophandi transferre in usum, qua se prima nobis offerebat occasio?... Accingendus eram ad meditationem eorum, quae de more cognoveram historice, per usum, imitationem, nisi coecam, luscam tamen, & expectationem casuum similium.”

I intend to demonstrate that many consequences can be derived from a single concept of a poem which has long ago been impressed on the mind, and long since declared hundreds of times to be acceptable, but not once proved. I wish to make it plain that philosophy and the knowledge of how to construct a poem, which are often held to be entirely antithetical, are linked together in the most amiable union.⁴⁷⁵

Having cherished an interest in poetry for a long time, Baumgarten saw in the Wolffian method a way to turn aesthetics into a systematic, scientific discipline. Doing this, however, required him to delve into and reconsider some of the principal assumptions of early modern epistemology.

Earlier in this dissertation I discussed the way in which the clear and distinct became an early modern epistemological fundament. Leibniz elaborated the division, which had been introduced by Descartes, into two categories of useful representations: clear-confused representations and clear-distinct representations. By way of exemplifying, notions of colours tend to be clear-confused, meaning that they are easy to discern yet difficult to capture in nominal definitions. In contrast, if one has a clear-distinct notion of gold one is both able to identify something as gold and to account for its essential features, that is, what makes it into gold and not something else. For Leibniz and most other philosophers in the Cartesian tradition, philosophy was about forming and using clear and distinct definitions in philosophical demonstrations.

Drawing on Leibniz, Wolff discussed the colour red as an example of a clear-confused concept.⁴⁷⁶ He explained that while the human being could clearly distinguish red as a distinct whole he was nevertheless unable to provide the criteria for how he did it. According to Wolff, to attain distinct concepts and definitions one had to distinguish the defining features, that is, everything that makes a thing into this or that kind of thing. Once a clear and distinct definition has been acquired the next step was to put it to use in the scientific demonstration. Only as this last step had been successfully completed could one talk about actual philosophical and scientific knowledge.

Wolff's methodology was intimately connected to his psychology. In his psychology he divided the human psyche into the inferior and the superior cognitive faculties. The inferior faculties included the external and internal senses as well as appetites such as pleasure and disgust. The superior faculties included attention, reflection, the intellect and superior appetites such as will. Rather than working as two wholly separate units the inferior-superior division composed a continuous scale along which information was processed and refined. When working successfully this scale resulted in clear-distinct concepts

⁴⁷⁵ Ibid., 36, 4. "Ut enim ex una, quae dudum mente haeserat, poematis notione probari plurima dicta iam centies, vix semel probata posse demonstrare, & hoc ipso philosophiam & poematis pangendi scientiam habitas saepe pro dissitissimis amicissimo iunctas connubio ponerem ob oculos".

⁴⁷⁶ Wolff, *German Logic*, 129.

and definitions, which in turn, constituted the cornerstones of scientific demonstrations.

Although clear-confused representations were not considered completely worthless, they were clearly seen as inferior, unreliable and in need of further processing. Baumgarten made two major changes in relation to this view. Firstly, he drew a distinct line between the superior and the inferior faculties. Secondly, he connected the superior faculties to the clear-distinct representation and the inferior faculties to the clear-confused representations. The result can be illustrated as follows:

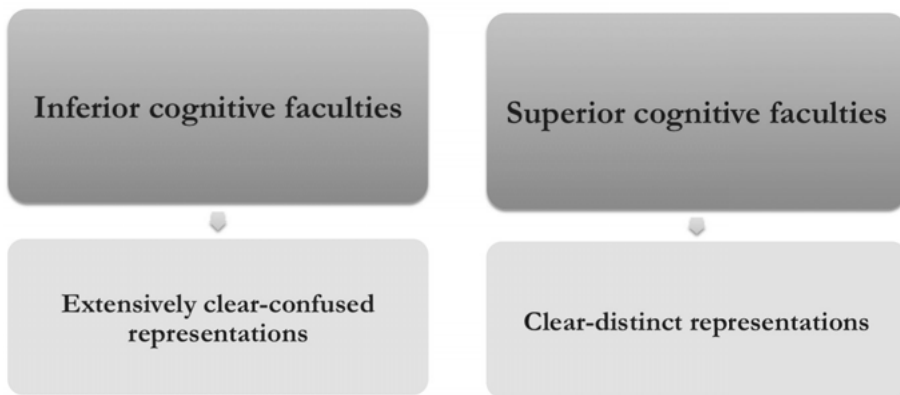


Figure 12. Schematic illustration of the difference between extensively clear-confused and clear-distinct representations.

A separation between two different realms of knowledge followed the joining together of faculties and representations. While the superior faculties provided the kind of knowledge that we recognise from Wolff's philosophy and science, the inferior faculties introduced a new autonomous category of sensual knowledge. With this basic but crucial division, we can now return to Baumgarten's discussion of aesthetics.

In obscure representations there are not contained as many representations of characteristic traits as would suffice for recognizing them and for distinguishing them from others, and as, in fact, are contained in clear representations (by definition). Therefore, more elements will contribute to the communication of sensate representations if these are clear than if they are obscure. A poem, therefore, whose representations are clear is more perfect than one whose representations are obscure, and clear representations are more poetic than obscure ones, § 11.⁴⁷⁷

⁴⁷⁷ Baumgarten, *Reflections on Poetry*, 41, 8. "In repraesentationibus obscuris non tot continentur notarum repraesentationes, quot ad recognoscendum & distinguendum ab aliis repraesentatum sufficiunt, continentur vero in repraesentationibus claris (per deff.) ergo plura varia facient ad communicandas repraesentationes sensitivas, eae, si fuerint clarae, quam si fuerint obscurae. Ergo

By stressing the role of clear representations in poetry, Baumgarten contested the view that poetry was about composing as obscure and intricate representations as possible. While being cautious of those who mistook poetry for obscurantism, he was equally eager to show that clear-distinct representations are not poetic:

The truth of this will become evident a posteriori by an experiment. Suppose we read to a man trained in philosophy, and at the same time not entirely a stranger to poetry, little verses overladen with distinct representations, for example:

*Refutation is the proof that others err.
No one refutes unless he proves thereby
Another's fallacy. But if you want to prove
Such things, it's clear you have to study logic.
When you refute, you're sure to get it wrong
If you are a logician—by verse one.*

He will scarcely let the verses go unchallenged though they are perfect in versification. Perhaps he himself will not know for what reason they seem worthless to him, as there is nothing to criticize either in form or in content. This is the principal reason why philosophy and poetry are scarcely ever thought able to perform the same office, since philosophy pursues conceptual distinctiveness above everything else, while poetry does not strive to attain this, as falling outside its province.⁴⁷⁸

The passage illustrates the limitations of clear-distinct representations within poetry, which, in turn, points to the separation of philosophy and poetry. By establishing this separation on a more technical level Baumgarten added the category of extension to the clear-confused distinction. “When in representation A more is represented than in B, C, D, and so on, but all are confused, A will be said to be *extensively clearer* than the rest.”⁴⁷⁹ According to Baumgarten, extension or *extensive clearness* captures the fullness of sensual representations.

poema, cuius repraesentationes clarae, perfectius, quam cuius obscurae, & *clarae repraesentationes magis poeticae* §. 11 *quam obscurae*.”

⁴⁷⁸ Ibid., 42, 9. “A posteriori experiundo patescet veritas, si talibus repraesentationibus praegnantibus praeglegantur versiculi homini philosopho simulque poeseos non prorsus ignario: quales e. gr.

*Quum qui demonstrant alios errasse, refutant,
Nemo refutabit, nisi demonstretur ab illo
Erratum alterius: Qui demonstrare iubetur
Hunc logicam scivisse decet, quicumque refutat.
Ergo, tamen logicus non est, non rite refutat.* Per vers. 1.

vix admittet eos omnibus numeris absolutos, licet ipse fortean ignoret, quam ob causam sibi reiiciendi videantur nec in forma, nec in materia peccantes. Haec autem est praecipua ratio, cur philosophia et poesis vix unquam in una sede morari posse putentur, illa maximopere sectante conceptuum distinctionem, quam haec tamen extra suos circulos ascendentem non curat.”

⁴⁷⁹ Alexander Gottlieb Baumgarten, *Reflections on Poetry: Alexander Gottlieb Baumgarten's Meditations Philosophicae de Nonnullis Ad Poema Pertinentibus*, trans. Karl Aschenbrenner and William B. Holter (Berkeley: University of California Press, 1954), 43, 9. “Si in repraesentatione A plura repraesent-

In extensively very clear representations more is represented in a sensate way than in those less clear; therefore, they contribute more to the perfection of a poem. For this reason extensively clearer representations are especially poetic.⁴⁸⁰

And:

The more determinate things are, the more their representations embrace. In fact, the more that is gathered together in a confused representation, the more extensive clarity the representation has, and the more poetic it is. Therefore, for things to be determined as far as possible when they are to be represented in a poem is poetic.⁴⁸¹

The notion of extension or extensive clearness provides the key to Baumgarten's aesthetics. As the creator of poems or perfect sensate discourses the poet should use his external and internal senses – vision, smell, hearing, memory, imagination etc. – to maximise the extensive clearness of his representations. To do this meant to imitate and capture the beauty of nature not by reducing it until only the clear and distinct remained, but by representing it in all its richness and perfection in such a way that it disclosed “the glory of the Creator, the ultimate and highest theme of some immense poem.”⁴⁸²

To sum up, Baumgarten broke with the early modern epistemological scheme in two ways. Firstly, he established sensual knowledge as a distinct category of knowledge connected to the inferior cognitive faculties and to the clear-confused representation. Secondly, he created a new category of extensively clear-confused representations. What made these representations so valuable was their richness and fullness, that is, exactly the kind of “secondary qualities” that the philosopher so eagerly strived to abstract in order to achieve distinctness. In introducing the criteria of extensiveness Baumgarten thus radically increased the status of sensual knowledge by claiming that it was not just an incomplete form of knowledge in need of further refinement, but also a separate category of knowledge that possessed its own unique and irreducible quality. For the aesthetician or the poet, poetics was about exploiting this quality by composing extensively clear-confused representations into poems or *perfect sensate discourses*.

tentur, quam in B. C. D. etc. sint tamen omnes confusae, A erit reliquis EXTENSIVE CLARIOR.”

⁴⁸⁰ Ibid., 42, 10. “In extensive clarissimis repraesentationibus plura repraesentantur sensitive, quam in minus clavis ergo plura faciunt ad perfectionem poematis. Hinc repraesentationes extensive clariores sunt maxime poeticae.”

⁴⁸¹ Ibid., 43, 10. “Quo magis res determinantur, hoc repraesentationes earum plura complectuntur; quo vero plura in repraesentatione confusa cumulantur, hoc fit extensive clarior magisque poetica. Ergo in poemate res repraesentandas quantum pote, determinari poeticum.”

⁴⁸² Ibid., 64, 27. “creatoris gloriam, summum & ultimum thema immensi...poematis.”

Aesthetic truth

Having introduced the idea of extensive clearness already in the *Meditationes*, Baumgarten furthered the analysis in the *Aesthetica* by connecting it to a division between different truths.⁴⁸³ Although Baumgarten fell back on the traditional understanding of truth as the correspondence of a representation with the object it represents, he distinguished between metaphysical truth (*veritas metaphysica*) and subjective truth (*veritas subiectiva, mentalis*). The metaphysical truth is always one and the same, independent of the perceiver. The subjective truth, on the other hand, is the metaphysical truth reflected through the perceiving subject. Regardless of whether a representation is clear-confused or clear-distinct, it is thus always a subjective reflection of reality. This means that each individual to some extent experiences his own subjective and individual truth. In discussing subjective truth, Baumgarten made a further sub-division between logical truth in the strict sense (*veritas logica latius dicta*) and aesthetic truth (*veritas aesthetica*). The logical truth in the strict sense focused on a thing's defining features. These are thus the characteristics that were traditionally used to produce nominal definitions. The aesthetic truth, on the other hand, revolved around the extension or fullness of things. The aesthetic truth occupied an autonomous space in relation to the logical truth. To take an example, the physical and mathematical features of the sun are fully irrelevant for a person who experiences the sun in its fullness. Likewise, the beauty of a poem is wholly independent of the essential features of the things and phenomena that it depicts. Adding the category of truth to the picture we end up with the following scheme.

⁴⁸³ Baumgarten, *Ästhetik* I, 402–22. See also: Mirbach, “Einführung zur fragmentarischen Ganzheit von Alexander Gottlieb Baumgartens *Aesthetica* (1750/58)”; Hans Adler, “Was ist ästhetische Wahrheit?,” in *Schönes Denken: A. G. Baumgarten im Spannungsfeld zwischen Ästhetik, Logik und Ethik*, ed. Andrea Allerkamp and Dagmar Mirbach, *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft Sonderheft* 15 (Hamburg: Felix Meiner, 2016).

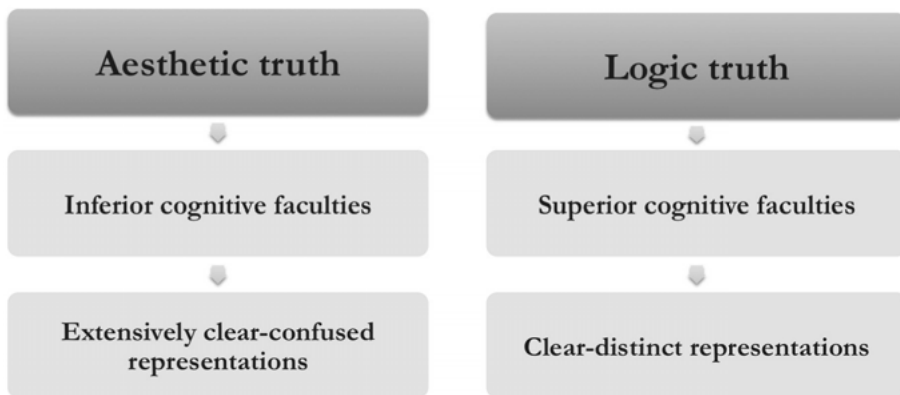


Figure 13. Schematic illustration of the difference between aesthetic and logic truth.

The scheme illustrates the boundary that is established between the aesthetic realm of sensation and the philosophical realm of reason. By establishing this boundary Baumgarten claimed a unique and irreducible aesthetic territory. We are thus not dealing with an overlap between aesthetic and philosophical knowledge. What the aesthetician sought was rather a specific aesthetic truth, a truth irreducible to, but likewise insufficient as, philosophical knowledge. To seek this truth meant to engage in a practice devoted to strenuous exercise in how to perceive, represent and compose poems or perfect sensate discourses.

In the first chapter I used the example of Wolff to illustrate the systematic cultivation of experience into clear and distinct perceptions, concepts, definitions and empirical propositions. In this chapter I show how Baumgarten broke with the epistemic order on which Wolff and many other early modern philosophers relied. While these philosophers dismissed clear and confused perceptions, concepts etc. on the grounds that they did not lead to scientific and philosophical knowledge, Baumgarten saw them as the key to a new kind of sensual or aesthetic knowledge. What characterised this knowledge was exactly the kind of fullness or extensiveness that philosophers typically wished to disregard until only the clear and distinct remained. As Baumgarten saw it, the extensively clear and confused representation provided the Happy Aesthetician with the material of which poems or perfect sensate discourses are made. Freed from the fetters of the logical truth, the Happy Aesthetician was able to use the whole range of his inner faculties without worrying that imaginary, fantastic or fictive representations were less clear and true than other representations. In the *Meditationes* and the *Aesthetica* this is reflected in the discussion of wonders, fictions and predictions of the future as fully legitimate poetic representations.

Contextualising aesthetic experience

So far I have analysed Baumgarten's aesthetics, the science of sensual knowledge, as a radical example of inner experience. While also depending on actual observations of objects in nature, the real poetic work took form as an internal operation where the aesthetician composed experiences or sensual representations into extensively clear sensate discourses or poems. From the perspective of the history of science one could object that the kind of inner experience that I analyse in fact has very little to do with scientific experience. My response to this objection is that my whole point is to provide a more inclusive analysis by taking into account a broader spectrum of traditions, genres, discourses and practices, and by analysing the ways in which these intersected and gave rise to new forms of scientific experience. In this last section of the chapter I elaborate further along these lines by showing how different forms and subforms of experience fuelled and shaped Baumgarten's notion of aesthetic experience, and more specifically, of extensive clearness and vividness.

In the previous chapter I presented a schema of how scientific and religious discourses shaped Francke's discourse on vividness and the living. In this section I provide a similar reading of Baumgarten with the exception that I add the kind of scientific/pedagogical discourse to which Tschirnhaus, Semler, Francke and others contributed. Firstly, there was the religious discourse regarding how to acquire living experience, knowledge and faith in God. Secondly, there was the rhetorical discourse of how the orator should produce vivid images that would ignite the souls of both orator and audience, thereby contributing to persuasion. Thirdly, developing at least partly from the rhetorical discourse, was the early modern epistemological discourse on clear, distinct and vivid perceptions, ideas etc. Fourthly, there was the pedagogical and scientific discourse regarding vivid objects and how to observe these in order to reach vivid knowledge. In this final section of the chapter I argue that all four discourses funnelled into and influenced Baumgarten's aesthetics as a specific form of inner experience.

Epistemological and pedagogical discourses on vividness

As I pointed out in the last chapter, Descartes came into contact with the rhetoric of vivid images at the Jesuit school in La Flèche. The Jesuits had developed a distinctive rhetorical style at this school, based on Quintilian and others, in which the production of vivid images was crucial. According to Gaukroger, the discussion of vivid images might have played a critical role for Descartes's discussion of truth in terms of clear and distinct ideas.⁴⁸⁴ A similar case can be

⁴⁸⁴ Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas."

made regarding Leibniz, who discussed how to distinguish real from imagined phenomena.⁴⁸⁵ By way of exemplifying he juxtaposed an imagined golden mountain with a real mountain, thus claiming that the real mountain differed from the imagined golden mountain in terms of its vividness.⁴⁸⁶

A third example in the same tradition is Wolff. Following the natural law tradition, he depicted the human being as obliged to perfect himself by obtaining clear and distinct knowledge. Insofar as he acquires such knowledge he will also, by virtue of natural law, act according to it. In this context Wolff remarked that living knowledge is knowledge “which moves the will to act to either realise the good or to avoid the bad.”⁴⁸⁷ For Wolff, living knowledge thus signified the complex phenomenon of acting virtuously by acting in accordance with clear and distinct knowledge.

While Descartes, Leibniz and Wolff discussed vividness at various times, it remained a peripheral category in comparison with the absolutely central criteria of clearness and distinctness. A partial explanation for this is that vividness was seen as connected to the senses and to sensual knowledge, a category that was at best regarded as a lower form of knowledge in need of further refinement. As we have seen, it was exactly this idea that Baumgarten opposed by depicting sensual knowledge as a distinct category connected to the inferior cognitive faculties and to extensively clear-confused representations. While Wolff had admitted that representations could be more or less clear, Baumgarten elaborated further this idea into the separate category of extensiveness. In the *Meditationes* he explained that, “In extensively very clear representations more is represented in a sensate way than in those less clear; therefore, they contribute more to the perfection of a poem.”⁴⁸⁸ Later on in the same text he explained that, “We call something VIVID if we are allowed to perceive in it many parts, either simultaneously or in succession.”⁴⁸⁹ In the *Meditationes* Baumgarten used extensiveness and vividness to advance the thesis that exactly the kind of richness and fullness that most early modern philosophers wanted to reduce and abstract gave sensual knowledge its own unique quality. As we have seen, he later took it so far as to connect this richness to a specific and irreducible aesthetic truth.

As basic epistemological categories, extensiveness and vividness were not restricted to aesthetics. On the contrary they ran all through Baumgarten’s phi-

⁴⁸⁵ Leibniz, “On the Method of Distinguishing Real from Imaginary Phenomena”; Leibniz, “De modo distinguendi phaenomena realia ab imaginariis.”

⁴⁸⁶ Leibniz, “On the Method of Distinguishing Real from Imaginary Phenomena,” 363; Leibniz, “De modo distinguendi phaenomena realia ab imaginariis,” 1500–1501.

⁴⁸⁷ Wolff, *German Ethics*, 102. “welche einen Bewegungsgrund des Willens abgiebet entweder das Gute zu vollbringen, oder das Böse zu lassen.”

⁴⁸⁸ Baumgarten, *Reflections on Poetry*, 43, 10. “In extensive clarissimis repraesentationibus plura repraesentantur sensitive, quam in minus clavis ergo plura faciunt ad perfectionem poematis. Hinc repraesentationes extensive clariores sunt maxime poeticae.”

⁴⁸⁹ Ibid., 76, 38. “VIVIDUM dicimus, in quo plura varia, seu simultanea fuerint, seu successiva, appercipere datur.”

losophy. In the *Metaphysica* Baumgarten discussed extensive clearness and vividness in connection to the inferior cognitive faculties. The case in point was an example where a person perceives notes. Baumgarten referred to intensive and extensive clarity, depending on whether the person perceived some notes more clearly or perceived *more* notes.

Greater clarity due to clarity of notes can be called INTENSIVELY GREATER CLARITY, while greater clarity due to the multitude of notes can be called EXTENSIVELY GREATER CLARITY. An extensively clearer PERCEPTION is LIVELY.⁴⁹⁰

The *Metaphysica* thus further establishes sensual knowledge as a specific kind of knowledge connected to the inferior cognitive faculties and to extensively clear and lively or vivid representations. Again it becomes clear how intimately connected extensiveness was with vividness. Yet another example is the *Ethica*. In the *Ethica* Baumgarten distinguished what Toshiro Osawa has characterised as four epistemic virtues.⁴⁹¹ These were truth (*veritas*), clarity (*claritas*), certitude (*certitudo*) and ardour or vividness (*ardens*).⁴⁹² Although the relation between these virtues is not completely easy to untangle, the basic idea was that one should form a clear idea of the object of truth. Baumgarten again stressed that such clear ideas could be either intensively or extensively clear.⁴⁹³ The third epistemic virtue was certitude. As Baumgarten saw it truth and clarity lead to a sense of certitude. Similarly, the fourth virtue, vividness, followed logically after truth, clarity and certitude since, and here Baumgarten followed the Wolffian schema, it signified a drive to act in accordance with one's certain knowledge. In this sense, the account in the *Ethica* differs from that of the *Meditationes* and the *Metaphysica* by depicting vividness as a category distinct from that of clearness and connected to the Wolffian category of living knowledge.

Osawa has suggested that Baumgarten adopted the category of vividness from Wolff.⁴⁹⁴ While Wolff probably constituted one source, the assumption that he constituted the most important source is implausible for two reasons. Firstly, vividness was more obscure in the Wolffian philosophy both in terms of the number of references to it and the importance ascribed to these references. Secondly, while this was the case with Wolff, other Halleian intellectuals found vividness highly interesting. In the early eighteenth century these intellectuals developed parallel discourses on vividness that, most likely, exercised a considerable influence on Baumgarten.

⁴⁹⁰ Baumgarten, *Metaphysics*, 204; Baumgarten, *Metaphysica*, 185. "CLARITAS claritate notarum maior, INTENSIVE, multitudine notarum, EXTENSIVE MAIOR dici potest. Extensive clarior PERCEPTIO est VIVIDA."

⁴⁹¹ Toshiro Osawa, "Perfection and Morality: A Commentary on Baumgarten's *Ethica Philosophica* and Its Relevance to Kantian Ethics" (PhD diss., Macquarie University, Sydney, 2014), 98–99.

⁴⁹² Baumgarten, *Ethica Philosophica*, 11.

⁴⁹³ *Ibid.*, 15–16.

⁴⁹⁴ Osawa, "Perfection and Morality," 102.

Vividness certainly occupied a position in the tradition of Descartes, Leibniz and Wolff. However, there was also the parallel and partly overlapping partly distinct pedagogical discussion of how vivid observations facilitated effective learning. As we have seen one contributor to this discussion was Leibniz, who emphasised that real objects are superior to imagined objects in terms of the vivid impressions they give rise to. Another more local Halleian example is Tschirnhaus, who presented a hierarchy stretching from textual learning at the bottom to vivid observations of real objects at the top in his mathematics textbook used at the Orphanage. A third example is Semler, who worked practically at the Orphanage with different ways of using models in teaching. Again, the idea was that vivid observations and concrete work with practical models would allow students to learn better. A fourth example is Francke, who emphasised that children at the Orphanage should work practically with natural objects, preferably by making careful observations and by learning from their practical mistakes. With all these examples taken together, the Orphanage appears as a place where vivid observation constituted an integral part of the pedagogical practice. Given the fact that Baumgarten spent three formative years at the Orphanage it is plausible that he was influenced by the discussion on vivid observations and the practical pedagogical work with such observations. In terms of Baumgarten's own writings there are a number of passages pointing to this context. In the *Metaphysica* for instance he discusses the impediments to external sensation.

External sensation is impeded (1) by impeding the sense organ such that it is not moved appropriately; (2) or at least by presenting it in such a way that it is less moved (§. 537); (3) by moving the sensible object further away, (4) or by reducing it, (5) or by absolutely impeding it so that it does not become present; (6) by arousing stronger sensations; (7) by distracting one's attention by means of many other sensations or (8) perceptions, each one of which is weaker, but which taken together nevertheless obscure the sensation that is to be impeded (§. 542, 221).⁴⁹⁵

In a similar passage, this time in the *Ethica*, Baumgarten stressed the importance of exercising the senses.

Get to know, experience and measure your senses, both external and internal. Pay attention to senses to be sharpened, conserved, intensified, and extended, as well as avoid their blunting. Exercise the senses as much as you can by using 1) many, 2) few, 3) remote, 4) removable parts, 5) clear representations.⁴⁹⁶

⁴⁹⁵ Baumgarten, *Metaphysica*, 207; Baumgarten, *Metaphysica*, 191. "Impeditur sensatio externa 1) organon sensorium impediendo, ne modo conuenienti moueatur, 2) saltim praestando, ut minus moueatur, §. 537. 3) sensibile remouendo, 4) imminuendo, 5) prorsus impediendo, ne praesens fiat, 6) sensationem fortiozem exitando, 7) per plures sensationes aut 8) plures perceptiones alias ita dispartiendo attentionem, ut, singulae licet debiliores, tamen simul sumtae obscurant sensationem impediendam, §. 542, 221."

⁴⁹⁶ Baumgarten, *Ethica Philosophica*, 90. "Nosce, experire et metire sensus tuos tam externos, quam internum. Da acuendis, conservandis, intendendis extendendisque sensibus operam, fuge eos

Elaborating further along these lines, Baumgarten encouraged his readers to deepen their sense perception by being more attentive to how large, hard, bright, and so on, an object was; how the object could be memorised, how it related to other objects and so on. To engage in the cultivation and perfection of these faculties was a moral duty insofar as perfection was to be realised at all possible levels of human existence.

In this section I have charted the way in which the epistemological and scientific/pedagogical discourses on vividness influenced Baumgarten's philosophy and aesthetics. Firstly, when presenting the criterion of extensive clearness, Baumgarten did so in direct connection to the discussion of clear and distinct perceptions, concepts etc. In fact, it was first with Baumgarten's discussion that extensiveness became an integral part of this discourse. Secondly, in addition to the epistemological discourse, Baumgarten also shaped extensive clearness in relation to the Halleian pedagogical and scientific discussion of vivid observations. In contrast to the epistemological discourse, this discourse revolved around using vivid observations to learn more efficiently. Having been fostered at the Orphanage before entering the university, Baumgarten was most probably influenced by its various theories and practices regarding how to observe.

Rhetorical and religious discourses on vividness and the living

So far I have discussed the impact of the epistemological and the pedagogical discourses. Both of these discourses provide important clues for how to understand Baumgarten's interest in extensive clearness and vividness. What they do not explain, however, is why Baumgarten used extensive clearness and vividness to overthrow the very early modern epistemic order, that is, the assumption that sensual knowledge was at best an incomplete form of knowledge in need of refinement, at worst a source of immoral action and vice. After all, it was this order that provided the foundation of both the epistemological and the pedagogical discourses. In this last part of the section I argue that the rhetorical and religious discourses on vividness and the living help explain why Baumgarten made extensive clearness and vividness the epistemological criteria for a new, distinct and unique category of sensual knowledge. More specifically, I argue that the key lies in the way in which both discourses ascribed a unique role to the sensual and to the affectual.

In the last chapter I discussed the concept of *enargeia* or *evidentia* in the roman rhetorical tradition. In the monumental *Institutio Oratoria*, Quintilian described *enargeia* or *evidentia* as a means to arouse the emotions and to transfer these to

hebetantia. Exercendo sensus assuefac, 1) plura, 2) minora, 3) remotiora, 4) minus mouentia organon, 5) clarius repraesentare, quantum potes."

his audience.⁴⁹⁷ While the role of the rhetorical discussion of vivid images in the early modern age yet remains to be explored, the few available studies suggest that it might have played an important role within a wide range of disciplines, from philosophy to jurisprudence and theology.⁴⁹⁸ In early eighteenth-century Halle, most university students could be expected to be familiar with Quintilian, and probably also with the discussion of vivid images, through the Latin school at the Orphanage and later on through the university.⁴⁹⁹ Baumgarten was certainly very familiar with Quintilian from his years at the Orphanage, during which he distinguished himself as a particularly talented student in the classical languages.⁵⁰⁰ His major writings on aesthetics, the *Meditationes* and the *Aesthetica*, are filled with references to Cicero and Quintilian and, as Stephanie Buchenau has pointed out, they also show structural affinity with the works of these authors.⁵⁰¹ In terms of the contexts in which Baumgarten cited Cicero and Quintilian, they revolve much around how to prove and persuade listeners by appealing to both intellect and appetite. Another context in which Baumgarten cites Quintilian is that of different thought styles. In one passage he for instance describes the aesthetic thought style in terms of grandness, fullness and vividness.⁵⁰²

The numerous references to Quintilian and Cicero together with the specific contexts of these references suggest that the rhetorical category of vividness and vivid images fuelled Baumgarten's aesthetics. The emphasis on the affects and the affectual parts of the soul sets the rhetorical element of influence apart from the philosophical and pedagogical influences. Far from reducing the affects to a potential threat, the rhetoricians ascribed them a key function in persuasion. More specifically, it was by arousing the affects in one's own soul and by transferring these to one's audience that the rhetorician succeeded.

In the same way that the Quintilian tradition revolved around the culture of the sensual and affectual parts of the soul, a similar point can be made regarding the religious discourse on the living. Typically, it relied on the culture of the

⁴⁹⁷ Bussels, *The Animated Image*, 87–106; Webb, *Ekphrasis, Imagination and Persuasion in Ancient Rhetorical Theory and Practice*, 58–61; Eden, *Poetic and Legal Fiction in the Aristotelian Tradition*, 85–96.

⁴⁹⁸ Gaukroger, "Descartes's Early Doctrine of Clear and Distinct Ideas"; Wragge-Morley, "'Vividness' in English Natural History and Anatomy, 1650–1700."

⁴⁹⁹ Breymayer, "Pietismus"; Martens, "Hallescher Pietismus und Rhetorik. Zu Hieronymus Frey-ers Oratoria."

⁵⁰⁰ For Baumgarten and the rhetorical tradition see: Buchenau, *The Founding of Aesthetics in the German Enlightenment*, 116–21; Rüdiger Campe, "Baumgartens Ästhetik: Metaphysik und techné," in *Schönes Denken: A. G. Baumgarten im Spannungsfeld zwischen Ästhetik, Logik und Ethik*, ed. Andrea Allerkamp and Dagmar Mirbach, *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft Sonderheft 15* (Hamburg: Felix Meiner, 2016); Christiane Frey, "Zur ästhetischen Übung: improvisiertes und Vorbewusstes bei A. G. Baumgarten," in *Schönes Denken: A.G. Baumgarten im Spannungsfeld zwischen Ästhetik, Logik und Ethik*, ed. Andrea Allerkamp and Dagmar Mirbach, *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft Sonderheft 15* (Hamburg: Felix Meiner, 2016).

⁵⁰¹ Buchenau, *The Founding of Aesthetics in the German Enlightenment*, 116–21.

⁵⁰² Baumgarten, *Ästhetik* I, 203–37.

lower sensual and appetitive faculties, and more specifically on the culture of specific virtuous affects such as fear and love of God. As we have seen, these affects were the results of rather specific Christian spiritual exercises such as penance meditation, passion meditation and various forms of prayer. The emerging picture is that of a *cultura animi* that revolved around the appetites and more specifically the affects rather than around the cognitive faculties.

Scholars have tended to either completely neglect the Pietist influence on Baumgarten's aesthetics, or analyse it on a rather superfluous level. However, there is in fact a direct empirical connection that has to do with the Greek aesthetics⁵⁰³ since Baumgarten derived the label aesthetics from the Greek term *aisthesis*, which referred to perception. In the *Meditationes* he explicitly discussed this matter.

As our definition is at hand, a precise designation can easily be devised. The Greek philosophers and the Church fathers have already carefully distinguished between *things perceived* [αἰσθητά] and *things known* [νοητά]. It is entirely evident that they did not equate *things known* with things of sense, since they honoured with this name things also removed from sense (therefore, images). Therefore, *things known* are to be known by the superior faculty as the object of logic; *things perceived* [are to be known by the inferior faculty, as the object] of the science of perception, or AESTHETIC.⁵⁰⁴

The passage reveals the connection to *aisthesis*. According to the translators of the *Meditationes*, the distinction between *aisthesis* and *noeta* goes back to Plotinus' *Enneads*.⁵⁰⁵ More recently, however, Grote has connected the distinction to St. Paul.⁵⁰⁶ Grote also shows that the term *aesthesis* was at the core of a Pietist debate in which Francke participated. In this debate, which revolved around the hermeneutical role of the affects, *aisthesis* was what allowed the reader to actually experience the affections of those sanctified souls who had recorded their words in the Bible. That is, *aisthesis* allowed the reader to see, to imitate, and ideally to become like those holy people. "On Francke's account, grasping the spiritual truth of a biblical text means being morally transformed by the text, not only on the superficial level of behaviour, but on the deeper level of one's

⁵⁰³ Of the many scholarly studies of Baumgarten's aesthetics only a few have drawn attention to the Pietist line of influence. See: Grote, "Vom geistlichen zum guten Geschmack? Reflexionen zur Suche nach den pietistischen Wurzeln der Ästhetik"; Grote, "Moral Philosophy and the Origins"; Grote, "Pietistische Aisthesis und moralische Erziehung bei Alexander Gottlieb Baumgarten"; Gross, *Felix Aestheticus: Die Ästhetik als Lehre vom Menschen*.

⁵⁰⁴ Baumgarten, *Reflections on Poetry*, 78, 39. "Existente definitione, terminus definitus excogitari facile potest, graeci iam philosophi & patres inter αἰσθητά & νοητά sedulo semper distinxerunt, satisque apparet αἰσθητά iis non solis acquipollere sensualibus, quum absentia etiam sensa (ergo phantasmata) hoc nomine honoretur. Sunt ergo νοητά cognoscenda facultate superiore obiectum logices, αἰσθητά επιστημης αἰσθητικης sive AESTHETICAE."

⁵⁰⁵ Ibid., 78, 88.

⁵⁰⁶ Grote, "Moral Philosophy and the Origins," 115.

own affections.”⁵⁰⁷ For Francke *aisthesis* was essentially about transforming the soul through various exercises in how to read and reflect on the Bible.

Francke’s notion of *aesthesis* was intimately connected to his understanding of the living. For Francke, the living referred to the intense affectual state that ensued as God made himself present in the human soul as a consequence of the conversion. Theologically, it was thus God who ignited life in the soul. From a practical point of view, however, the living was a product of the sincere and prolonged engagement in spiritual exercises such as various forms of prayer and meditation. At their basic level, typically, these exercises entailed the systematic cultivation of virtuous affectual states such as fear and love of God.

Baumgarten was most probably familiar with the theological discussion of *aesthesis*. I argue that, with its essentially affectual connotations, this discussion provides an important context for how to understand Baumgarten’s notions of extensive clearness and vividness. In the *Meditationes* several passages link the affects with extensive clearness. In one passage he argued that “since affects are rather marked degrees of pleasure or pain, their sense representations are given in the representing of something to oneself confusedly as good or bad. Therefore, they determine poetic representations; and therefore, to arouse affects is poetic.”⁵⁰⁸ Baumgarten continued by explaining that the clearer an impression was the more affectual it would be. “Stronger impressions are clearer impressions, thus more poetic than feeble and less clear impressions. Stronger impressions attend an affect more, rather than less, powerful. Therefore, it is highly poetic to excite the most powerful affects.”⁵⁰⁹ For Baumgarten it was the intensity of the affects that determined the vividness of representations. In this context he further emphasised that vivid representations equate with extensively clear representations.⁵¹⁰ In terms of the *Aesthetica*, I’ve already drawn attention to Baumgarten’s discussion of aesthetic temperament and aesthetic motion. When it comes to vividness, Baumgarten planned to discuss the topic later on in the *Aesthetica*. Unfortunately, however, this discussion belonged to the parts of the planned three-volume work that were never finished.

Throughout this section I have distinguished four discourses that fuelled and shaped Baumgarten’s aesthetics and particularly the notions of vividness and extensive clearness. These are the epistemological, the pedagogical/scientific, the rhetorical and the religious:

⁵⁰⁷ Ibid., 118.

⁵⁰⁸ Baumgarten, *Reflections on Poetry*, 47, 13. “Affectus cum sint notabiliores taedii & voluptatis gradus, dantur eorum repraesentationes sensuales in repraesentante sibi quid confuse, ut bonum & malum, ergo determinant repraesentationes poeticas ergo affectus mouere est poeticum”.

⁵⁰⁹ Ibid., 48, 13. “Sensiones fortiores sunt clariores, ergo magis poeticae, quam minus clarae, & imbecilles sensiones fortiores comitantur affectum vehementiorem, quam minus vehementem. Ergo excitare affectus vehementissimos maxime poeticum.”

⁵¹⁰ Ibid., 77, 38.

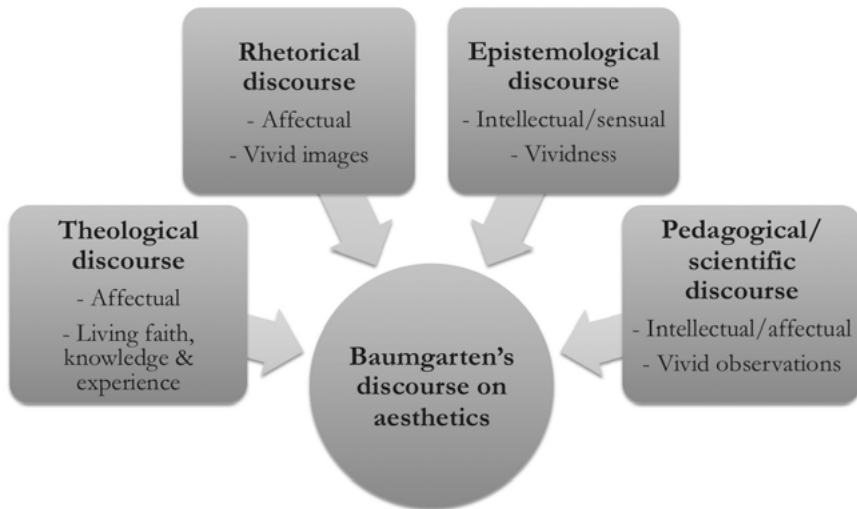


Figure 14. Schematic illustration of early modern discourses influencing Baumgarten's aesthetics.

According to the epistemological discourse, knowledge was living insofar as it inclined the soul to act to either realise the good or avoid the bad. As Wolff saw it clear-distinct perceptions granted virtuous actions, whereas clear-confused perceptions triggered the affects, which in turn fuelled immoral actions. In reasoning this way, Wolff and his associates saw the affects as threats and disturbances connected to lack of knowledge. In comparison, the scientific/pedagogical discourse adopted a more ambivalent position, seeing the passions as potentially harmful but also as something that contribute to vividness if cultivated in the right way. The third discourse, the rhetorical, is more positive to the passions, ascribing them a crucial role in the production of vivid images that touch the soul of both the rhetorician and his listeners. Finally, the religious discourse emphasises the cultivation of specific passionate states of fear and love of God as the very essence of the living. Without these states, experience, knowledge and faith are nothing but dead intellectual states left to the forces of worldly passions.

It should by now be clear that Baumgarten drew on all four discourses when launching his form of aesthetics more generally, and the notions of extensive clearness and vividness more particularly. Why did he use these notions to overthrow the early modern epistemic order though? Or more concretely, why did he use them to turn sensual knowledge, a category traditionally viewed as problematic or even as a source of immoral action and vice, into a distinct and irreducible category of knowledge? While these questions cannot be answered by referring to the epistemological tradition itself, I would like to suggest that the answer resides within the rhetorical and religious traditions. Within these traditions the sensual and affectual enjoyed a high status both theoretically, and practically through the many concrete exercises in how to produce living imag-

es through rhetorical exercises and through meditations revolving around the visualisation of one's own sin and of specific Biblical scenes such as hell or the suffering of Christ. At the Orphanage Baumgarten received systematic training in these exercises as a part of his education. I argue that these exercises, together with the theories to which they were connected, inspired Baumgarten to radically reappraise the category of sensual knowledge and to launch the notions of extensive clearness and vividness as central elements in this project.

Conclusions

In this chapter I chart Baumgarten and the aesthetic experience. In the first section I focus on the overall project of aesthetics. Discussing earlier studies, I draw attention to the way in which epistemological and disciplinary readings have gradually been replaced by more inclusive historical readings of aesthetics as a project of moral and cognitive self-perfection. Elaborating further along these lines, I argue that we here see yet another specific form of Halleian *cultura animi*.

In the second section I turn from the overall context of aesthetics as *cultura animi* to the more specific questions regarding the aesthetic experience. Much like in previous chapters, I argue that the *cultura animi* or culture of the soul provides an important context to the preoccupation with the soul and especially with inner senses and inner experience. In other words, I claim that aesthetic experience was played out within the larger context of the *cultura animi* project. More specifically, I argue that sensual knowledge took form as a radical form of inner experience where clear-confused representations were not only useful but in fact fundamental for a new type of sensual or aesthetic knowledge. To produce this knowledge meant to engage in an internal processing, using the whole range of imagination and memory, without worrying that imaginary, fantastic or fictive representations were less clear and true than other representations.

In the third and last section I situate aesthetic experience in the larger context of religious and scientific experience. Much like in the last chapter, I argue that Baumgarten's notions of extensive clearness and vividness took form in relation to various forms of religious and scientific experience. By highlighting this connection the section elaborates further the claim that religious and scientific experience should be seen as two overlapping and interconnected categories. The analysis is thus in line with the call for a more inclusive history of scientific experience that takes into account a broader spectrum of traditions, genres, discourses and practices.

5. Medicina *cultura animi* and experimental psychology

At the end of the 1670s two unusually diligent young students absorbed the new type of scientific medicine at what was then probably the most progressive faculty of medicine in Germany; the faculty was at the University of Jena and the students were Georg Ernst Stahl and Friedrich Hoffmann.⁵¹¹ Formed by

⁵¹¹ For two early biographies on Stahl see: Johann Samuel Strebel, *Vita et Elogio viri quondam illustis Georgii Ernesti Stahlü* (Ansbach, 1758); August Heinrich Faschius, “Discours prononcé par le docteur Aug. -H. Faschius, professeur d’anatomic, de chirurgie et de botanique, premier Médecin du Duc de Saxe, Doyen de la faculté de médecine d’Jena, a l’occasion de la thèse inaugurale de G. -E. Stahl,” in *Œuvres médico-philosophiques et pratiques de G. -E. Stahl*, ed. Théodore Blondin, 2 vols. (Paris, 1859). For modern biographies see: Johanna Geyer-Kordesch, *Pietismus, Medizin und Aufklärung in Preussen im 18. Jahrhundert: das Leben und Werk Georg Ernst Stahls* (Tübingen: Niemeyer, 2000), 10–35; Irene Strube, *Georg Ernst Stahl, Biographien hervorragender Naturwissenschaftler, Techniker und Mediziner 76* (Leipzig: B. G. Teubner, 1984).

Stahl wrote almost exclusively in Latin. There are, however, a number of translations available. The principal *Theoria medica vera* is available in two German translations: Georg Ernst Stahl, *Theorie der Heilkunde. Erstes und zweites Buch.*, ed. Ruf. Wendelin (Halle, 1802); Georg Ernst Stahl, *Georg Ernst Stahl’s Theorie der Heilkunde*, ed. Karl Wilhelm Ideler (Berlin, 1831). Some of his earlier texts are also available in a German translation from 1961: Georg Ernst Stahl, *Georg Ernst Stahl. Über den mannigfaltigen Einfluß von Gemütsbewegungen auf den menschlichen Körper* (Halle 1695). *Über die Bedeutung des synergistischen Prinzips für die Heilkunde* (Halle 1695). *Über den Unterschied zwischen Organismus und Mechanismus* (1714). *Überlegungen zum ärztlichen Hausbesuch* (Halle 1703), trans. Bernward Josef Gottlieb, *Sudhoffs Klassiker der Medizin* 36 (Leipzig: Johann Ambrosius Barth, 1961). In addition to the German translations there is also a French *Œuvres* in five volumes: Théodore Blondin, ed., *Œuvres médico-philosophiques et pratiques de G. E. Stahl*, 1-5 vols. (Paris, 1859).

When it comes to my own analysis, I have provided the Latin original quotes in the footnotes. When there are translations I have also included references to the corresponding passages. For a contemporary biography on Hoffmann see: Johann Heinrich Schulze, “Commentarius de vita Friderici Hoffmanni regis Prussiae consilarii intimi, archiatrorum & professorum in academia regia Halensi senioris &c. auctore Joanne Henrico Schulze philosophiae ac medicinae professore publico,” in *Friderici Hoffmanni consilarii regis borussiae intimi, et archiatri, professoris medicinae primarii in academia Halensi, opera omnia physico-medica denuo revisa, correctae auctae, in sex tomos distributa; quibus continentur doctrinae solidis principiis physico-mechanicis, & anatomicis, atque etiam observationibus clinico-practicis superstructae; methodo facili ac demonstrativa deductae, & per experientiam LVII. annorum stabilitae. cum vita auctoris, et eius praefatione de differente medicinae & medicorum statu atque conditione, & criteriis boni ac periti medici. tomus primus. tomus primus*, by Friedrich Hoffmann (Geneve, 1748). For a short contemporary biography in German see: Johann Christoph Dreyhaupt, *Pagus Neletizi et Nudzici, oder ausführliche diplomatisch-historische Beschreibung des zum ehemaligen Primat und Ertz-Stifts, nunmehr aber durch den westphälischen Friedens-Schluß secularisirten Herzogthum Magdeburg gehörigen Saal-Kreyses...Zweyter Theil* (Halle, 1755), 636–41. For a modern biography see: Lester S. King, “Introduction,” in *Fundamenta Medicinae* (New York: Neale Watson Academic Publications, 1971). Hoffmann’s *Funda-*

this new medicine both Stahl and Hoffmann came to view rigorous observations and experiments as the key to medical knowledge.⁵¹² In addition to this common perspective they also later shared a career as professors of medicine at the University of Halle. Here, however, their teachings would soon diverge and develop into two opposing and competing schools of medicine.⁵¹³ On the one side were the Stahlans and their holistic medicine of the living organism that soon became closely intertwined with the Orphanage *cultura animi*. On the other side were Hoffmann and his followers who spearheaded a physiological medicine of the body as a hydraulic machine, circulating life fluids. Later on, in the 1740s and 1750s, a new generation of mechanically inclined physiologists would discuss first how to measure the soul by measuring these life fluids, and then how to realise experimental psychology as a new scientific discipline.

What was medical experience? What distinguished medical experience from other forms of scientific experience? What was the more specific role of medical experience in Stahl and Hoffmann's medicine? To what extent did the two systems rely on different forms of experience? What did it mean to measure and conduct experiments on the soul? These are the questions that I seek to answer in this chapter.

Stahl and Hoffmann have traditionally been placed in the context of the modern vitalism-mechanism debate.⁵¹⁴ Thus seen they become early contributors to a debate that would first reach its peak in the nineteenth century. While this anachronistic reading has predominated, recent scholars have started to

menta medicinae has been translated and commented by Lester S. King. When quoting I have used King's translation but provided references to the Latin original.

⁵¹² For the medical faculty at Jena see: Christian Friedrich Richter, *Kurzer und deutlicher Unterricht von dem Leibe und natürlichen Leben des Menschen* (Halle, 1705).

⁵¹³ There can hardly be any doubt that Stahl, Hoffmann and their respective followers did their best to depict the two systems as opposites. As modern scholars have pointed out, however, both systems in fact shared a number of common theoretical assumptions regarding the human body and its relation to the soul. See: Jürgen Helm, "Hallesche Medizin zwischen Pietismus und Frühaufklärung," in *Universitäten und Aufklärung*, ed. Notker Hammerstein (Göttingen: Wallstein, 1995); Ingo W. Müller, "Mechanismus und Seele – Grundzüge der frühen hallensischen Medizinschulen," in *Aufklärung und Erneuerung: Beiträge zur Geschichte der Universität Halle im ersten Jahrhundert ihres Bestehens (1694-1806)*, ed. Günter Jerouschek and Arno Sames (Hanau: Verlag Werner Dausien, 1994); K. E. Rothsuh, "Studien zu Friedrich Hoffmann (1660–1742): Erster Teil: Hoffmann und die Medizingeschichte. Das Hoffmannsche System und das Aetherprinzip," *Sudhoffs Archiv* 60, no. 2 (1976): 163–93; Lester S. King, "Stahl and Hoffmann: A Study in Eighteenth Century Animism," *Journal of the History of Medicine and Allied Science* 19 (1964): 118–30.

⁵¹⁴ For such readings see: Reinard Mocek, "Zum Mechanismus-Vitalismus-Paradigma der Stahl-Ära," *Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg* 66 (1985): 59–66; King, "Stahl and Hoffmann: A Study in Eighteenth Century Animism"; Lester S. King, "Rationalism in Early 18th Century Medicine," *Journal of the History of Medicine and Allied Science* 18 (1963): 257–71; Johannes Karcher, "Die animistische Theorie G. E. Stahls im Aspekt der pietistischen Bewegung und der Universität zu Halle and der Saale im zu Ende gehenden 17. und beginnenden 18. Jahrhundert," *Gesnerus* 15 (1958): 1–16; Gottlieb Bernward Joseph, *Das Problem des Lebendigen im ärztlichen Weltbild: G. E. Stahl, Hahnemann und Virchow* (Leipzig, 1943); Gottlieb Bernward Joseph, "Vitalistisches Denken in Deutschland im Anschluß an G. E. Stahl," *Klinische Wochenschrift* 20 (1942): 445–48.

acknowledge the local cultural context, emphasising especially the intimate connection to Pietism.⁵¹⁵ In this chapter I align with this recent, more critical reading at the same time as I also break new ground by situating Stahl and the Stahlians in the context of the early modern *cultura animi* tradition. Much like in previous chapters I use the concept of *cultura animi* to analyse and make sense of the internal side of scientific experience.

This chapter is divided in three sections. In the first section I analyse the relation between medical and scientific experience, arguing that medical experience both reflects and differs from the kind of early modern scientific experience brought forth by Shapin, Schaffer, Dear and others. In the second section I examine the meaning and function of experience in Stahlian medicine. In addition to underscoring the role of scientific observations and experiments, I argue that the Stahlian discourse gradually fused with religious discourses on experience as being inner, affectual and cultivated through religious exercises such as prayer and meditation. In the third section I shift focus from Stahlian medicine to Hoffmann and his followers, focusing especially on their attempts to measure the human soul and to launch an experimental psychology. In relation to the overall thesis of the dissertation, I argue that this medicine points away from the *cultura animi* tradition towards epistemic virtues such as discipline, control and disinterestedness, virtues that some scholars have connected to the modern ideal of an objective, value-free science.

⁵¹⁵ Jürgen Konert, “Hoffmann oder Stahl? – Medizinische Fakultät und Franckesche Stiftungen in der Gründungsära,” in *Die Geburt einer sanften Medizin: Die Franckeschen Stiftungen zu Halle als Begegnungsstätte von Medizin und Pietismus im frühen 18. Jahrhundert*, ed. Richard Toellner (Halle: Verlag der Franckeschen Stiftungen, 2004); Johanna Geyer-Kordesch, “Psychomedizin – die Entwicklung von Medizin und Naturanschauung in der Frühaufklärung,” in *Vernünftige Ärzte: Hallesche Psychomediziner und die Anfänge der Anthropologie in der deutschsprachigen Frühaufklärung*, ed. Carsten Zelle, Hallesche Beiträge zur europäischen Aufklärung 19 (Tübingen: Niemeyer, 2001); Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*, Johanna Geyer-Kordesch, “Stahl – Leben und seine medizinische Theorie,” *Acta historica Leopoldina*, no. 30 (2000): 33–48; Johanna Geyer-Kordesch, “Georg Ernst Stahl’s Radical Pietist Medicine and Its Influence on the German Enlightenment,” in *The Medical Enlightenment of the Eighteenth Century*, ed. Andrew Cunningham and Roger French (Cambridge: Cambridge University Press, 1990); Helm, “Hallesche Medizin zwischen Pietismus und Frühaufklärung”; Wolfram Kaiser, “Pro memoria Georg Ernst Stahl (1659–1734),” in *Georg Ernst Stahl (1659–1734)*, ed. Wolfram Kaiser and Arina Völker, Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg 66 (Halle, 1985); Wolfram Kaiser, “Der Lehrkörper der Medizinischen Fakultät in der halleschen Amtszeit von Georg Ernst Stahl,” in *Georg Ernst Stahl (1659–1734)*, ed. Wolfram Kaiser and Arina Völker, Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg 66 (Halle, 1985).

Early modern medical experience

Throughout this dissertation I have drawn attention to the recent scholarly analysis of early modern scientific experience.⁵¹⁶ According to this analysis scientific experience underwent an almost paradigmatic transformation during the course of the seventeenth century. From having been couched in terms of universally true statements about the world, experience came to signify singular observations, often made in so-called experimental situations. In this section I analyse the meaning and function of medical experience in Stahl and Hoffmann's medicine. While medical experience reflects scientific experience in the sense that it was composed of singular observations, I argue that it constituted a considerably broader category that included not only observation (*observatio*) and experiment (*experimentum*), but also example (*exemplum*), history or description (*historia*) and case (*casus*).

Epistemic technologies of medical experience

Gianna Pomata has remarked that in the fifteenth century, what we now call observational practices developed within various fields such as astronomy, medicine and natural history.⁵¹⁷ Within these fields experience (*experientia*) and experiment (*experimentum*) referred to knowledge of the particular and singular, a meaning that went back to the Middle Ages and even further back to the Aristotelian term *empeiria* (experience).⁵¹⁸ While *experientia* and *experimentum* thus referred to a category of knowledge rather than to actual observations, *observatio* gradually gained ground during the course of the sixteenth century. Originally, *observatio* conveyed two rather different meanings.⁵¹⁹ Firstly, it conveyed the meaning of observance in the sense of obedience to a rule. This prescriptive meaning was common in medieval monastic discourses, and also in philosophical parlance and everyday usage.⁵²⁰ Secondly, it conveyed the more familiar meaning of an empirical observation. While this meaning was common in the ancient world, it was more obscure in the Middle Ages. In the early modern age, however, it again became common, especially within astronomy and medicine.⁵²¹

⁵¹⁶ Dear, "The Meanings of Experience"; Dear, *Discipline and Experience*; Shapin and Schaffer, *Leviathan and the Air-Pump*.

⁵¹⁷ Pomata, "Observation Rising," 45.

⁵¹⁸ Kambartel, "Erfahrung"; Park, "Observation in the Margins."

⁵¹⁹ Pomata, "Observation Rising," 47.

⁵²⁰ For the monastic spiritual meaning see: Park, "Observation in the Margins," 22.

⁵²¹ Pomata, "Observation Rising," 48.

Within medicine singular empirical observations were typically composed into examples (*exempla*) and cases (*casus*).⁵²² While examples had featured within the historical genre, in the humanistic-Ciceronian form of *historia magistra vitae* (history as life's teacher), that is, moralising examples of famous or infamous people and events, the medical usage of examples and cases revolved around individual cases of sick people or diseases.⁵²³ The idea here was that collections of examples and cases, which described the typical courses and cures of diseases, should help physicians choose treatment. Although examples and cases had figured in medieval textbooks, in medicine it wasn't until the sixteenth century that these were composed into genres of their own.⁵²⁴ Three such genres were the *Observationes* (Observations), the *Curationes* (Cures) and the *Historiae* (Histories). Pomata has remarked that these genres were the result of a new culture of scrupulous observation and note-taking that accompanied the humanist reform of medical training.⁵²⁵

Pomata's analysis suggests that the *Observationes*, *Curationes* and *Historiae* developed in connection to a new medical culture of empirical observation. The practical physician in this instance was someone who conducted scrupulous clinical observations that were composed into *exempla* and *casus*, which, in turn, were collected and composed into *Observationes*, *Curationes* and *Historiae*. These collections or manuals were used in the practical identification and classification of diseases, as I will show in this section.

As I have pointed out before in this dissertation, historians of science have drawn attention to what seems to be a transition from experience in terms of evidently true statements of the world to experience in terms of singular observations made in experimental situations.⁵²⁶ What made these singular observations necessary was the fact that they targeted hitherto concealed phenomena

⁵²² For the history of examples and cases see: Giana Pomata, "Praxis Historialis: The Uses of Historia in Early Modern Medicine," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: MIT Press, 2005); Chiara Crisciani, "Histories, Stories, Exempla, and Anecdotes: Michele Savonarola from Latin to Vernacular," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: MIT Press, 2005), 316; Chiara Crisciani, "Exempla in medicina. Epistemologia, insegnamento, retorica (secoli XIII-XV). Una proposta di ricerca," in *Exempla medicorum: Die Ärzte und ihre Beispiele (14.-18. Jahrhundert)*, ed. Mariacarla Gadebusch Bondio and Thomas Ricklin, Micrologus' library 26 (Firenze: Sismel, 2008); Mariacarla Gadebusch Bondio, "Von der Vielfalt der Exempla in frühneuzeitlichen medizinischen Texten," in *Exempla medicorum: Die Ärzte und ihre Beispiele (14.-18. Jahrhundert)*, ed. Mariacarla Gadebusch Bondio and Thomas Ricklin, Micrologus' library 26 (Firenze: Sismel, 2008); Roberto Poma, "Formes de l'exemplarité dans la médecine des XVIe et XVIIe siècle," in *Exempla medicorum: die Ärzte und ihre Beispiele, 14.-18. Jahrhundert*, ed. Mariacarla Gadebusch Bondio and Thomas Ricklin, Micrologus' library 26 (Firenze: Sismel, 2008).

⁵²³ Crisciani, "Histories, Stories, Exempla, and Anecdotes: Michele Savonarola from Latin to Vernacular," 304.

⁵²⁴ Pomata, "Observation Rising," 54. For medical *exempla* in the early modern period see also: Gadebusch Bondio, "Von der Vielfalt der Exempla in frühneuzeitlichen medizinischen Texten."

⁵²⁵ Pomata, "Observation Rising," 57.

⁵²⁶ Dear, *Discipline and Experience*, 25.

of nature, which had now been made observable mainly due to new devices such as air-pumps, microscopes etc.

In relation to the analysis of the transition from evidently true to experimental experience, there are no signs of a corresponding epistemic transition within medicine. Recent scholarly studies in fact suggest that medical examples, cases and observations were used in a similar way within ancient, medieval and early modern medicine.⁵²⁷ How could this be the case? Why did medical experience not undergo a similar transformation? While these questions call for further analysis, one rather obvious reason would be that since medicine was essentially about the hidden causes of disease, it relied on the logic of singular observations long before, and quite independently of, technologies such as air-pumps and microscopes.

Medical experience in Stahl and Hoffmann

As medical students at the University of Jena, Stahl and Hoffmann were drilled in the new scientific medicine.⁵²⁸ At the core of this new medicine was the ideal of an experimental science where theory and practice, reason and senses, provided new medical truths. The fact that Stahl and Hoffmann sympathised with this ideal is clear from their writings. In Stahl's principal work the *Theoria medica vera* (*True Medical Theory*, 1708) he recalls how in his youth he actively sought to overcome the old but still prevalent discrepancy between theory and practice.⁵²⁹ Struggling with this dilemma, the solution appeared as sudden as a religious revelation:

⁵²⁷ Gianna Pomata, "Sharing Cases: The Observations in Early Modern Medicine," *Early Science and Medicine* 15, no. 3 (2010): 193–236; Pomata, "Observation Rising"; Crisciani, "Histories, Stories, Exempla, and Anecdotes: Michele Savonarola from Latin to Vernacular"; Mariacarla Gadebusch Bondio and Thomas Ricklin, eds., "Einleitung," in *Exempla medicorum: die Ärzte und ihre Beispiele, 14.-18. Jahrhundert*, Micrologus' library 26 (Firenze: Sismel, 2008); Gadebusch Bondio, "Von der Vielfalt der Exempla in frühneuzeitlichen medizinischen Texten."

⁵²⁸ For Stahl and Hoffmann's education at Jena see: Konert, "Hoffmann oder Stahl? – Medizinische Fakultät und Franckesche Stiftungen in der Gründungsära"; Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*, 16–17, 118–21; King, "Introduction"; Giese and Hagen, *Geschichte der medizinischen Fakultät der Friedrich-Schiller-Universität Jena*.

For an overview of early modern medicine and its relation to science see also: Thomas Rütten, "Early Modern Medicine," in *The Oxford Handbook of the History of Medicine*, ed. Mark Jackson, The Oxford Handbooks (Oxford: Oxford University Press, 2013); Staffan Müller-Wille, "History of Science and Medicine," in *The Oxford Handbook of the History of Medicine*, ed. Mark Jackson, The Oxford Handbooks (Oxford: Oxford University Press, 2013); Andrew Cunningham and Roger French, eds., *The Medical Enlightenment of the Eighteenth Century* (Cambridge: Cambridge University Press, 1990); Charles Webster, *The Great Instauration: Science, Medicine, and Reform, 1626-1660* (London: Duckworth, 1975); Lester S. King, *The Road to Medical Enlightenment 1650–1695* (London: Macdonald, 1970).

⁵²⁹ Georg Ernst Stahl, *Theoria medica vera. Physiologiam & pathologiam, tanquam doctrinae medicae partes vere contemplativas, naturae & artis veris fundamentis, intaminata ratione, & inconcussa experientia sistens* (Halle, 1708), 8. See also: Stahl, *Georg Ernst Stahl's Theorie der Heilkunde*, 35.

But as a *Deus ex machina* the solution to the whole of this enigma suddenly appeared to me: Nature is united not through particular deductions and speculations but through reason and through sober observations. I have to admit that I could hardly understand this, but with this thought ensued in me a living determination to look deeper into the true foundation of these difficulties as far as my powers allowed, and through these difficulties to find a better way, and at least clear this way of obstacles.⁵³⁰

While this picture is clearly part of Stahl's self-fashioned *vita*, it nevertheless shows that he associated the project of reforming medicine with the use of method in the sense of rational conclusions and empirical observations.

Much like Stahl, Hoffmann was a clinical physician who emphasised the connection between theory and practice, reason and experience.⁵³¹ In the programmatic *Fundamenta medicinae* (*Fundamentals of Medicine*, 1695) Hoffmann stressed the intimate connection between the two latter. "In medicine there are two supports – experience, which is the first parent of truth; and reason, which is the key to medical science. Experience comes first in order, and reason follows. Hence in medical affairs, reasons which are not founded on experience have no value."⁵³² Likewise, in the *Medicinae rationalis systematicae* (*Rational and Systematic Medicine*, 1718-1734) he stressed that the *medicus* relies on two principles "that provide the sole and genuine fundamentals for truth and certainty in the art of healing, the first is EXPERIENCE and the second REASON."⁵³³

Stahl and Hoffmann both saw medicine as the joint product of theory and practice, reason and experience. But what was the more precise meaning and function of experience in medical practice? What did it mean to make medical observations and experiments? To answer these questions it's necessary to return to the specific epistemic circumstance of the medical experience. As I point out above, the object of observation within clinical medicine, that is the disease, stands out by being unknown. Hence, the task becomes to identify the

⁵³⁰ Stahl, *Theoria medica vera*, 9. "En autem Θεὸν ἂν μὴ μηχανῆς et temere elapsus totius huius religionis mysterium. Cum ILLIS rationibus dico: adeoque non simpliciter cum ratione: cum ILLIS speculationibus, non simpliciter cum omni consideratione. Possum asseuerare, quod hanc contemplationem vix animo comprehenderim, quin statim ingens desiderium coarretur, quantum per Vires liceret profundius in verum fundamentum harum difficultatum introspectendi, & quid ex illis ad meliorem spem aditum quendam promittat, imo quid illum hactenus intercludat, delegendi." See also: Stahl, *Georg Ernst Stahl's Theorie der Heilkunde*, 35.

⁵³¹ Ingo Wilhelm Müller, *Iatromechanische Theorie und ärztliche Praxis im Vergleich zur galenistischen Medizin: Friedrich Hoffmann, Pieter van Foreest, Jan van Heurne*, Historische Forschungen 17 (Stuttgart: Franz Steiner, 1991), 18.

⁵³² Friedrich Hoffmann, *Fundamenta Medicinae*, trans. Lester S. King (New York: Neale Watson Academic Publications, 1971), 5; Friedrich Hoffmann, *Fundamenta medicinae ex principiis naturae mechanica in usum philiatorum succincte proposita* (Halle, 1695), 2. "Duo in Medicina fulcra sunt experientia, quae prima veritatis parens, & ratio, quae clavis scientiae Medicae est. Experientia ordine praecedat & ratio sequitur. Hinc rationes in rebus Medicis experientia non conditae nihil valent."

⁵³³ Friedrich Hoffmann, *Medicinae rationalis systematicae tomus prior quo philosophia corporis humani vivi et sani ex solidis mechanicis et anatomicis principiis methodo plane demonstrativa per certa theorematum ac scholia traditur et pathologiae ac praxi medicae clinicae seu verum fundamentum praemittitur in usum docentium et discipulorum* (Halle, 1718), 8. "quae sola & genuina fundamenta veritatis & certitudinis in arte medendi sunt, quorum unum EXPERIENTIA, alterum RATIO".

disease, and its causes and possible cures. To do this, the physician engaged in a dialectical movement, going from singular observations to manuals and back again.⁵³⁴ An illustrative example of how this played out is Stahl's *Observationes clinico-practicae* (*Clinical-Practical Observations*, 1718).⁵³⁵ In the introduction to the work he stressed the importance of acquiring both a general knowledge of disease as such and a deeper knowledge of individual diseases and their courses and states. To the latter, which Stahl referred to as *Historiae medicae*, belonged the many examples and cases (*observationes medicae*) that had been collected in books throughout the centuries. Once the physician had assured himself that they came from "experienced and honourable people" he used them to identify the particular disease a certain patient suffered from.⁵³⁶ Once this had been done, he entered into the more clinical stage of identifying causes and choosing treatments. Stahl divided this clinical stage, the *praxis curativa*, into a dogmatic and an empirical part. Whereas the former had to do with the practical use of medicines, the latter "is methodological and examines all the circumstances, and considers everything that might benefit disease-knowledge. This practice is based exclusively on experiments."⁵³⁷ The empirical part, which was the most important, was to be practiced daily, and here Stahl added that he could not understand "what those physicians who don't believe the experiments that remain true daily are thinking of."⁵³⁸ For Stahl it was this daily empirical practice that constituted the core of the medical discipline.

In a similar way as Stahl, Hoffmann depicted the medical practice as a systematic work with clinical observations and cases collected in manuals. In the clinical part of the *Medicinae rationalis systematicae* he provided numerous examples or cases. In these Hoffmann described in detail the course of disease, often by following the events hour by hour. In one such case he described how the disease proceeds through stages of fever, chest pain, loss of appetite, sweating, increased fever, irregular pulse, disturbed sleep, dyspnoea, increased fever, delirium with changed face colour, a wild look and irregular sleep and eventually

⁵³⁴ Jürgen Helm has made similar points regarding the role of experience in Stahl and Hoffmann's medicine. See: Jürgen Helm, "'observatio' und 'experia' – Fallgeschichten i der Medizin des 18. Jahrhunderts," in *"Aus Gottes Wort und eigener Erfahrung gezeigt" Erfahrung – Glauben, Erkennen und Handeln im Pietismus. Beiträge zum III. Internationalen Kongress für Pietismusforschung 2009*, ed. Christian Soboth and Udo Sträter, Hallesche Forschungen, Bd. 33.1 (Halle: Verlag der Franckeschen Stiftungen, 2004), 370–71.

⁵³⁵ Georg Ernst Stahl, *Observationes clinico-practicae, worinnen gezeigt wird, wie ein practicus die menschlichen Kranckheiten nach den verschiedenen Eigenschaften der Temperamenten, des Alters und Geschlechts und anderer Umstände gründlich heilen solle*, 2nd ed. (Leipzig, 1718).

⁵³⁶ *Ibid.*, §. 5. "erfahrene und redliche Leute".

⁵³⁷ *Ibid.*, §. 46. "jene richtet sich nach der methode, und untersucht alle Umstände genau, conferiret auch alles, was zur Krankheit-Erkänntniß und Hebung gereichen mag; diese berufft sich allein auf experimenta".

⁵³⁸ *Ibid.*, §. 50. "was dabey etlichen Medicis im Kopfe fißt, daß sie denen Experimenten, welche täglich die Probe halten, nicht glauben wollen."

death.⁵³⁹ To follow such cases was not just a matter of looking but involved focused observations, rigorous note-taking and regular comparison with the examples and cases of the *Observationes*, *Curationes* and *Historia*.⁵⁴⁰

While Stahl and Hoffmann's references to singular observations reflect the new culture of observation of the time, the references to daily experiments are harder to understand. What did Stahl mean by these experiments? Are we dealing with the same kind of experiments as those of Boyle, and in the more immediate context, Wolff? While Stahl was certainly familiar with British experimental philosophy, the daily arranging of experimental situations seems unlikely. A second interpretation would be that Stahl simply used *experimentum* as a synonym for *observatio*, something that was common in the early modern period.⁵⁴¹ If this was the case, then Stahl's point was that the physician must conduct daily observations as part of the clinical work. A third possibility would be that *experimentum* had a more specific meaning that connected to medieval medicine. Pomata has remarked that in medieval medicine *experimentum* referred to remedies that had proved successful but whose efficacy could not be justified on doctrinal grounds.⁵⁴² The format for storing this knowledge was the medical prescription, which usually composed a list of ingredients with more or less detailed instructions. The fact that Stahl contrasted the dogmatic and the empirical part of the *praxis curativa* might suggest that the daily experiments were about the application of remedies in the sense of medicines. In relation to these three options, I suggest that Stahl probably operated with a rather heterogeneous notion of experiment, sometimes borrowing from British experimental philosophy, sometimes using the term *experimentum* as a synonym for *observatio*, and sometimes ascribing it the more technical meaning of a particular remedy. This suggestion, which is the most moderate interpretation, reflects the complexity and heterogeneity of early modern scientific experience and particularly of the notion of experiment.

Throughout this dissertation I have both relied on, and partly questioned, Dear's analysis of scientific experience in terms of a transition from universal and evidently true propositions to singular observations of hidden phenomena revealed in experimental situations. In relation to this model, medical experience reflects both kinds of experience. On the one hand, it revolved around the accumulation of singular observations into evidence revealing the hidden causes of disease. On the other hand, medical experience played out in a dialectic pro-

⁵³⁹ Friedrich Hoffmann, *Medicinae rationalis systematicae tomus quartus quo specialis morborum pathologia et huic superstructa solida therapia cum medendi methodo cautelis clinicis et morborum enarrationibus adiuncta epirisi exhibentur pars prima doctrinam de omnis generis febribus tam intermittentibus quam continuis et acutis inflammatoriis perspicua et demonstrativa methodo tradens* (Halle, 1729), 438.

⁵⁴⁰ In this context Müller has remarked that Hoffmann was primarily a clinical physician who thought of experience as concrete singular observations. See: Müller, *Iatromechanische Theorie und ärztliche Praxis im Vergleich zur galenistischen Medizin*, 19.

⁵⁴¹ Pomata, "Observation Rising."

⁵⁴² Pomata, "Praxis Historialis: The Uses of Historia in Early Modern Medicine," 126.

cess where singular observations were interpreted and compared with the examples and cases that formed the *Observationes* or *Historiae*. The reliance on these illustrates the dependency on evidently true experience collected in authoritative texts. In this sense, medical experience appears as a hybrid between the evidently true proposition and the singular observation.

A number of scholars have drawn attention to the early modern culture of observation.⁵⁴³ Daston has argued that it developed into a way of life where intellectuals were nearly obsessed with observing and documenting everything from the human body to animals, plants and the heavenly bodies.⁵⁴⁴ Drawing on these and other works, I claim that both Stahl and Hoffmann reflect this early modern culture of observation. In their works they not only emphasised practice and experience in the form of singular observations, but they also portrayed themselves as representatives for a new kind of scientific medicine modelled on the new natural philosophy.

The Stahlian therapy of the living organism

Although Stahl embraced the new scientific medicine, his medical theory centred not on mechanics but on the *living organism* as the body-soul interaction. What particularly caught Stahl's interest was the complex ways in which cognition and appetites affected the cause of disease and health. As the Stahlian medicine was adopted at the Orphanage in the 1690s it gradually fused with the Pietist *cultura animi*.⁵⁴⁵

The fusion between Stahlian medicine and Orphanage *cultura animi* raises questions regarding the relation between scientific and religious experience. On the one hand, scientific experience permeated the Stahlian medicine in the form of frequent references to, and emphasis on, singular observations backed up by epistemic techniques such as repetition and note-taking. On the other hand, the theory and therapy of the living organism point towards an essentially internal and affectual form of experience. In this section I analyse these two sides of

⁵⁴³ The list of recent studies of the early modern culture of observation is long. For a selection see: Daston, "The Empire of Observation"; Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007); Pomata, "Observation Rising"; Pomata, "Sharing Cases"; Shapin and Schaffer, *Leviathan and the Air-Pump*; Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994).

⁵⁴⁴ Daston, "The Empire of Observation," 101–4.

⁵⁴⁵ Although he didn't focus on experience, Oliver Auge has made similar points regarding the intimate relations between medical and religious practices in medieval and early modern medicine. See: Oliver Auge, "Leben im mittelalterlichen und frühneuzeitlichen Hospital als Exemplum," in *Exempla medicorum: Die Ärzte und ihre Beispiele (14.-18. Jahrhundert)*, ed. Mariacarla Gadebusch Bondio and Thomas Ricklin, *Micrologus'* library 26 (Firenze: Sismel, 2008).

Stahlian medicine, focusing especially on the relation to scientific and religious discourses on experience.



Figure 15. Title page and frontispiece to Stahl's *Theoria Medica Vera*, 1708, Archiv und Bibliothek der Franckeschen Stiftungen.

Stahl's medicine of the living organism

If historians of science have analysed early modern scientific experience as intimately connected to the external senses and as antithetical to passion and emotion, theologians and church historians have painted an almost reverse picture of religious experience.⁵⁴⁶ They argue that religious experience revolved around the internal senses and the controlled culture of passions and affects.⁵⁴⁷ Earlier in this dissertation I analysed religious experience as essentially inner, affectual and connected to Christian spiritual exercises such as prayer and meditation. In this and the two next parts of the section I argue that although Stahl was an eager proponent for the new science, religious discourses on experience nevertheless exercised a considerable influence on Stahlian medicine.

⁵⁴⁶ For studies of religious experience see particularly the works of Martin Jay and Ulrich Köpf: Jay, *Songs of Experience*; Köpf, "Erfahrung III/1"; Köpf, *Religiöse Erfahrung in der Theologie Bernhards von Clairvaux*. See also Karl Rahner's articles on spiritual senses in medieval theology: Rahner, "Die geistlichen Sinne nach Origen"; Rahner, "Die Lehre von den geistlichen Sinnen im Mittelalter."

⁵⁴⁷ Köpf, "Erfahrung III/1"; Köpf, *Religiöse Erfahrung in der Theologie Bernhards von Clairvaux*; Bayer, *Martin Luther's Theology*, 21–22; Nicol, *Meditation bei Luther*, 81–96.

In the *Theoria medica vera* Stahl recalls how in his youth he became convinced that medicine must rely on the foundation of reason and observation.⁵⁴⁸ In emphasising “reason” and “sober observations” as opposed to “deductions” and “speculations”, Stahl showed his readers that he wished to be associated with the kind of new empirical and scientific medicine that he had himself imbibed at Jena.⁵⁴⁹ Yet, the kind of medical theory and therapy that Stahl generated from these observations diverged from those of most of his contemporaries. Whereas they saw the body as a machine, circulating different bodily fluids, Stahl saw the living organism (*organismus*) as the body-soul interaction. In *Theoria medica vera* Stahl contrasted his own theory of the living organism with mechanical medicine.

Our next undertaking is thus not only to clear out the difference between MECHANISM and ORGANISM but to examine the impact of these concepts on a large number of subjects. Many, especially in recent times, have used the expressions mechanism, mechanic, machine, mechanic power, but nowhere is a clear definition of these expressions to be found.... According to the modern view each body is merely mechanical, moved only through itself regardless of the goal, the mechanism of movement and its necessity for other bodies.⁵⁵⁰

Stahl claimed that the movement and activity of the physical body could not be explained in terms of a mechanism inherent in the body itself. In this sense, the body was strictly speaking passive. The soul, on the other hand, could be defined in terms of its ability to act and cause movement. Far from the metaphysics of his time, however, Stahl looked to what he regarded as clinical proof. These proofs seemed to point in one direction: that of the living organism as the body-soul interaction. Rather than focusing on the functions of specific organs, Stahl understood “organism” to be the ability of the whole living being to organise change. The organism was thus the sum of cooperating mental and physical processes, processes that could not in any meaningful way be separated.⁵⁵¹

How should one understand Stahl’s theory of the living organism? What kind of project was it? According to most historians of medicine it took form

⁵⁴⁸ Stahl, *Theoria medica vera*, 9; Stahl, *Georg Ernst Stahl’s Theorie der Heilkunde*, 35.

⁵⁴⁹ Stahl, *Theoria medica vera*, 9; Stahl, *Georg Ernst Stahl’s Theorie der Heilkunde*, 35. “Cum ILLIS rationibus dico: adeoque non simpliciter cum ratione: cum ILLIS speculationibus, non simpliciter cum omni consideratione.”

⁵⁵⁰ Stahl, *Theoria medica vera*, 13–14. “Unde quidem potius magis in genere totam hanc rem perlustrabimus, MECHANISMI simpliciter, & ORGANISMI non solum diversitatem, sed utrisque etiam in diversis, neque certe levibus, aut exiguis, imo etiam minime paucis rebus, existentiam atque veritatem cordi habentes. Maximo hodie, imo passim perpetuo & absoluto in usu est, appellatio Mechanismi, mechanici, machinae, potestatum mechanicarum.... At hodierna sententia, quodlibet corpus in se mechanicum est, & non solum per se, sed etiam simpliciter pro movetur, nullo alio, sive cur moveatur, sive cur ita moveatur, quomodo, aut quare in ordine ad alterum, scopo.” See also: Stahl, *Georg Ernst Stahl’s Theorie der Heilkunde*, 10–11.

⁵⁵¹ Geyer-Kordesch, “Georg Ernst Stahl’s Radical Pietist Medicine and Its Influence on the German Enlightenment,” 69.

as an early contribution to the lengthy vitalism-mechanism debate, a debate that would peak in the nineteenth century.⁵⁵² While this anachronistic reading of Stahl has dominated, recent scholars have started to acknowledge the early modern context.⁵⁵³ Most prominently, Johanna Geyer-Kordesch has situated Stahl in the context of early eighteenth-century intellectual culture and debate.⁵⁵⁴ In addition to drawing attention to Stahl's Pietist sympathies and to his close friendship with Francke, Geyer-Kordesch has also argued that Stahl's holistic and anti-mechanic medicine provided scientific legitimacy for many of the "anthropological assumptions" on which the Pietist theology rested.⁵⁵⁵ These included the assumptions that the soul often influences the body, and that thoughts and appetites are central in this process. While drawing on Geyer-Kordesch, I further elaborate her reading by situating the living organism in the context of the early modern *cultura animi* tradition. The *cultura animi* tradition thus provides a context for how to understand the preoccupation with the soul and especially with the emotions or passions. This, in turn, adds to my overall analysis of early modern scientific experience.

In the short treatise *De synergeia naturae in medendo* (*On the Importance of the Principle of Synergy in Medicine*, 1695) Stahl examined the equilibrium and lack of equilibrium in the living organism. "The synergy is well and happy in a harmonious body, where the life movements go well."⁵⁵⁶ When the passions were too strong and dominating, however, the synergy was put out of balance and the organism would fall sick. In *De passionibus animi corpus humanum varie alterantibus* (*On the*

⁵⁵² For such readings see: Mocek, "Zum Mechanismus-Vitalismus-Paradigma der Stahl-Ära"; King, "Stahl und Hoffmann: A Study in Eighteenth Century Animism"; King, "Rationalism in Early 18th Century Medicine"; Karcher, "Die animistische Theorie G. E. Stahls im Aspekt der pietistischen Bewegung und der Universität zu Halle and der Saale im zu Ende gehenden 17. und beginnenden 18. Jahrhundert"; Bernward Joseph, *Das Problem des Lebendigen im ärztlichen Weltbild: G. E. Stahl, Hahnemann und Virchow*; Bernward Joseph, "Vitalistisches Denken in Deutschland im Anschluß an G. E. Stahl."

⁵⁵³ Konert, "Hoffmann oder Stahl? – Medizinische Fakultät und Franckesche Stiftungen in der Gründungsära"; Geyer-Kordesch, "Psychomedizin – die Entwicklung von Medizin und Naturanschauung in der Frühaufklärung"; Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*; Geyer-Kordesch, "Stahl – Leben und seine medizinische Theorie"; Geyer-Kordesch, "Georg Ernst Stahl's Radical Pietist Medicine and Its Influence on the German Enlightenment"; Helm, "Hallesche Medizin zwischen Pietismus und Frühaufklärung"; Kaiser, "Pro memoria Georg Ernst Stahl (1659–1734)"; Kaiser, "Der Lehrkörper der Medizinischen Fakultät in der halleschen Amtszeit von Georg Ernst Stahl."

⁵⁵⁴ Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*. See also: Geyer-Kordesch, "Georg Ernst Stahl's Radical Pietist Medicine and Its Influence on the German Enlightenment"; Geyer-Kordesch, "Stahl – Leben und seine medizinische Theorie"; Geyer-Kordesch, "Psychomedizin – die Entwicklung von Medizin und Naturanschauung in der Frühaufklärung."

⁵⁵⁵ Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*, 80.

⁵⁵⁶ Georg Ernst Stahl, *Propempticon inaugurale de synergeia naturae in medendo* (Halle, 1695), 5. "Quemadmodum vero Συνεργεια nostra, in Corpore caeteroquin bene ordinato, & Motuum Vitalium tenori adueto, bene & feliciter procedit." See also: Georg Ernst Stahl, "Über die Bedeutung der synergischen Prinzips für die Heilkunde (Halle 1695)," in *Georg Ernst Stahl*, trans. Bernward Josef Gottlieb, *Sudhoffs Klassiker der Medizin* 36 (Leipzig: Johann Ambrosius Barth, 1961), 46.

Various Effects of the Passions on the Human Body, 1695) Stahl elaborated further along these lines arguing that human health presupposes equilibrium of the passions or the *Gemüths*. “After thorough consideration I thus assume that human health above all requires the peace of the passions. Just as the greatest of moral happiness, comes from this, almost everything else that physically affects the human body is dependent on the movements of the soul.”⁵⁵⁷ When the passions became too strong, however, they often caused disease. This was the case with the choleric who was often haunted by “headache, sleeplessness, violent catarrhs and agonising pains.”⁵⁵⁸ Another case used for illustration was the melancholic. “Thus they [the melancholics] live in a constant state of deep sorrow, succumbed to a series of chronic states of disease with worries and trepidations, hectic fever, quartan fever, destructive hypochondria, palpitations of the heart, and melancholy.”⁵⁵⁹ The strong appetites of the sanguine, on the other hand “put the digestion out of order, and disturb the life-force.”⁵⁶⁰ Lastly, the phlegmatic, lacking passion altogether, fell victim to “cancer” and “diarrhoea.”⁵⁶¹ By empirically supporting the analysis of the connection between temperament, passion and disease, Stahl launched a number of examples and cases. One such example tells the story of a boy who was wounded in his head: “The wound was cleaned with success. The symptoms disappeared and the threat to life was removed. Then, fourteen days later he flew into a rage and the fever and frenzy came back so that four days later he died.”⁵⁶² Another example depicts a young man sick with fever. “A young man who suffered from tertian fever, walked to another city to get better air. On the way there he saw soldiers

⁵⁵⁷ Georg Ernst Stahl, *Disputationem inauguralem de passionibus animi corpus humanum varie alterantibus* (Halle, 1695), 3. “Non sine magna ratione dico, ad hominis sanitatem primario requiri Tranquillitate Animi, uti enim in hac summa hominis felicitas moralis consistit, sic etiam non minus ab animi motib[us] reliqua fere omnia Physice in corpore humano contingentia, dependent.” See also: Georg Ernst Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” in *Georg Ernst Stahl*, trans. Bernward Josef Gottlieb, *Sudhoffs Klassiker der Medizin* 36 (Leipzig: Johann Ambrosius Barth, 1961), 24–25.

⁵⁵⁸ Stahl, *Disputationem inauguralem de passionibus*, 6. “capitis doloribus, agrypniis, catarris acris, doloris lancinantibus obnoxii” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 28.

⁵⁵⁹ Stahl, *Disputationem inauguralem de passionibus*, 6. “Hinc in perpetuis vivunt solitudinibus, in morbos Chronicos assiduos, anxietatibus & trepidationibus conjunctos, hecticam, quartam, Malum hypochondriacum, palpitationes Cordis, Melancholiam” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 28.

⁵⁶⁰ Stahl, *Disputationem inauguralem de passionibus*, 7. “ventriculi fermentum iners reddunt, ac vitale robur destrunt” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 29.

⁵⁶¹ Stahl, *Disputationem inauguralem de passionibus*, 7. “Tumores”, “Diarrhoeis” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 29.

⁵⁶² Stahl, *Disputationem inauguralem de passionibus*, 9–10. “vulnere feliciter ad suppurationem perducto omnibusque symptomatibus remissis, imo ab omni periculo (ut ipse loquitur) liberatum, elapso iam decimo quarto die, ad Iram provocatum, recidisce in febrem, & phrenesin, ita ut quarto post die, e vita decesserit” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 32.

in the far distance and was struck by fear and anxiety. Fearing for his own security he did not feel the fever any more.”⁵⁶³ A third example tells of a noble woman receiving the news of the death of her son. “She was so deeply shaken and struck by sorrow that having hardly read the letter she suddenly fell, struck by sudden unconsciousness, on her bed. Eventually an apoplectic fit put an end to her life.”⁵⁶⁴ Together, examples such as these were used to accumulate evidence of the impact of the affects on health and disease.

Throughout *De passionibus* Stahl provided numerous examples and cases supporting the claim that the soul influences the body and that the affects and the passions severely affect states of health and disease. Stahl’s final point, however, concerned therapy rather than theory.

After this exposition it is now time to outline a few general principles regarding what method should be used in order to maximise health. When it comes to the protection from the harmful forces of the passions and from the diseases springing from these, there is no better way than to, which the moral doctrine teaches, strive to balance these forces as much as possible.... One must for all strengthen the spiritual life through temperance, self-control and confidence, that is, through virtues that provide the best protection both from the harmful passions and the diseases springing from these. And since some passions of the soul often worsen the diseases, such as rage, fear, dread, whereas, (which I’ve already remarked,) others, such as hope and confidence, contribute to healing, the physician should try to awaken the latter in his patients, because when the medicines are taken together with the movements of the mind, they operate much better and faster⁵⁶⁵

The passage points to what Corneanu has referred to as *cultura animi* and *medicina cultura animi*, that is, the long tradition within philosophy and medicine of approaching the passions as diseases that can be cured only through the cultiva-

⁵⁶³ Stahl, *Disputationem inauguralem de passionibus*, 10–11. “juvenis noster quidam laborans tertiana, ex una in aliam civitatem, ad mutandum aerem, pedibus tendens, & milites e longinquo observans, perterribus ab illis, sibi metuens, febrim exinde non amplius sensit.” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 33.

⁵⁶⁴ Stahl, *Disputationem inauguralem de passionibus*, 10. “adeo fuit mente commota, & cordolio prostrata, ut vix perlectis literis, in lectulum se projiciens protin[us] syncope, deinde apoplexia correpta & extincta sit.” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 33.

⁵⁶⁵ Stahl, *Disputationem inauguralem de passionibus*, 13. “His ita se habentibus, pauca generalia tum de praeservatione, tum etiam de Cura dicenda veniunt, & quidem praeservationem ab animi passionibus & morbis exinde oriundis, quod attinet, nulla melior datur, quam fr quantum possibile, tranquillitati animae studeamus, quod nos docet doctrina Moralis.... Praeprimis Sobrietate, Lenitate, ac Fortitudine, animum roborare oportet, quae optima tum contra passiones pravas, tum contra morbos ex iis oriundos, sunt antidota. Et cum passiones quaedam Animae, aegrorum morbos multo periculosiores ordinarie reddant, ut sunt Ira, Metus, Terror, &c. quaedam contra multum (ut supra iam notatum est,) ad restitutionem faciant, ut spes, fiducia, hinc Medicus quantum in se est, studeat in patientibus posteriores has excitare, medicamenta enim cum his animi motibus assumta, multo melius ac citius operantur.” See also: Stahl, “Über den mannigfaltigen Einfluß vom Gemüthsbewegungen auf den menschlichen Körper (Halle 1695),” 35–36.

tion of virtues such as prudence, temperance, self-control and the like.⁵⁶⁶ While Stahl had certainly been shaped by this tradition, another possible influence might have been the religious discourse on how to cultivate positive passions such as fear and love of God. Raised as a Pietist, Stahl had most probably absorbed the discourse on pious feelings of fear and love of God long before he met Francke. It is likely that this discourse later exercised an even stronger influence on Stahl as he came to Halle and that its emphasis on virtuous passions inspired and affected the often positive view of the passions in *De passionibus*.

While at first glance the *cultura animi* tradition might seem to have little to do with experience, it in fact revolved around the cultivation of the external and the internal senses. In particular, the philosophical and medical *cultura animi* discourse centred on the culture of the senses as a means of tempering and controlling the passions. In comparison, the religious *cultura animi* discourse prescribed the cultivation of virtuous counter passions such as fear and love of God as the best way to fight harmful passions. Against the background of these partly opposed views of the passions, Stahl's own discourse appears as ambivalent. On the one hand it seems to point to scientific observations and experiments. On the other hand, however, it also gravitates towards religious experience in the sense of an essentially inner and affectual experience. To resolve this apparent paradox, I suggest that Stahl's discourse in fact involved two kinds of subjects: the Stahlian physician and the Stahlian patient.

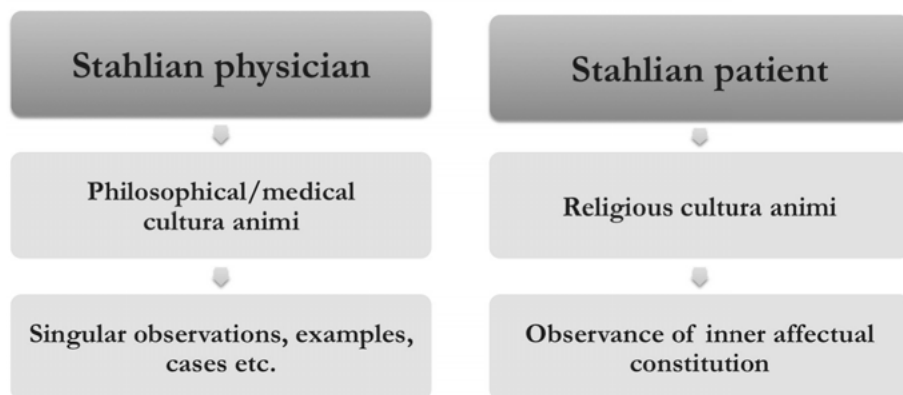


Figure 16. Schematic model of the two subjects of Stahl's discourse.

On the one hand, Stahl's discourse revolved around the subject of the Stahlian physician. Here, to consult experience meant to collect information through the external senses, organise it with the internal senses, and further refine it into knowledge with the help of reason, understanding and the like. On the other hand, the discourse also featured the subject of the Stahlian patient. Rather than

⁵⁶⁶ Corneanu, *Regimens of the Mind*, 46–78.

observing, the Stahlian patient was observant, in the religious sense of the word, of his own inner affectual constitution. The goal here was both to temper and to cultivate the passions. While the Stahlian observance points to the larger early modern discourse on religious experience, it is worth pointing out that even if Stahl acknowledged the positive function of the passions, it was not as pronounced in his own texts as it would become as his teachings were adopted and further elaborated at the Orphanage.

Stahlian medicine at the Orphanage

When the first temporary orphanage was erected in 1696 it lacked a central hospital facility.⁵⁶⁷ Instead, the responsibility for patients was distributed among Hallean families who cared for the sick in their own homes. As a typhus fever broke out in 1699, which in addition to the poor and the sick also targeted officials and university professors, Francke and his circle became convinced of the necessity of including a more comprehensive hospital facility in the new Orphanage.⁵⁶⁸ As Francke turned to the medical faculty at the University of Halle for advice and help with the establishment of a hospital facility Stahl was an obvious confederate.⁵⁶⁹ Yet, despite Stahl's involvement, it was not he himself that would shoulder the role as the *orphanage medicus*. Instead, this commission fell largely to the Richter brothers.

Christian Sigismund Richter and Christian Friedrich Richter studied at the University of Halle in the 1690s.⁵⁷⁰ After having become increasingly involved in the Stahlian medicine Friedrich Richter was offered the position as the new *orphanage medicus* in 1699. Four years later, he was to be accompanied by his brother Christian Sigismund. The recruitment of the Richter brothers secured

⁵⁶⁷ For the Orphanage medicine see: Konert, "Hoffmann oder Stahl? – Medizinische Fakultät und Franckesche Stiftungen in der Gründungsära"; Richard Toellner, "Die Geburt einer sanften Medizin – Die Begegnung von Pietismus und Medizin in den Franckeschen Stiftungen," in *Die Geburt einer sanften Medizin: Die Franckeschen Stiftungen zu Halle als Begegnungsorte von Medizin und Pietismus im frühen 18. Jahrhundert*, ed. Richard Toellner (Halle: Verlag der Franckeschen Stiftungen, 2004); Helm, "Hallesche Medizin zwischen Pietismus und Frühaufklärung"; Arina Völker, "Die medizinischen und pharmazeutischen Einrichtungen der Franckeschen Stiftungen während der halleschen Amtsphase von Georg Ernst Stahl," in *Georg Ernst Stahl (1659–1734)*, ed. Wolfram Kaiser and Arina Völker, Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg 66, 1985; Wolfram Kaiser, Karl-Heinz Krosch, and Werner Piechocki, "Collegium clinicum Halense," in *250 Jahre Collegium Clinicum Halense 1717–1967*, ed. Wolfram Kaiser, Karl-Heinz Krosch, and Werner Piechocki, Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg 3 (Halle, 1967).

⁵⁶⁸ Kaiser, Krosch, and Piechocki, "Collegium clinicum Halense," 13.

⁵⁶⁹ Kaiser, "Pro memoria Georg Ernst Stahl (1659–1734)," 10.

⁵⁷⁰ For biographical overviews see: Völker, "Die medizinischen und pharmazeutischen Einrichtungen der Franckeschen Stiftungen während der halleschen Amtsphase von Georg Ernst Stahl"; Kaiser, Krosch, and Piechocki, "Collegium clinicum Halense"; Kaiser, "Der Lehrkörper der Medizinischen Fakultät in der halleschen Amtszeit von Georg Ernst Stahl."

the Stahlian dominance at the Orphanage, and for the next half a century at least two generations of medical students received parts of their education there. At the same time as the Orphanage medicine reproduced the Stahlian system during these years, it composed a highly progressive enterprise that constantly pushed and expanded its borders. In this part of the section I analyse the gradual fusion between Stahlian and Pietist *cultura animi* at the Orphanage, focusing particularly on the way in which experience centred on the cultivation of intense inner and affectual states of love and fear of God.

In *Der Große Aufsatz* (*The Great Essay*, 1704), a programmatic text for the Orphanage, Francke expressed his liking of a certain new medicine taught at the university.⁵⁷¹ In contrast to the old medicine, which was burdened by “useless questions” and “curiosities” this new medicine taught students truly useful knowledge grounded in a better method and in a more direct and concrete knowledge.⁵⁷² This method, Francke continued, had now been imported to the Orphanage to the great benefit of both those who study medicine and those who are treated by this medicine. There was now, Francke continued, a pedagogical treatise available written in German and entitled *Unterricht von dem Leibe und natürlichen Leben des Menschen* (*Teaching of the Body and the Natural Life of Man*).

The work is not only arranged in such a way that it agrees with reason in the sense that the reader finds it convincing out of his own accord, but that it also at the same time harmonises with the Word of God and the rules of the Christian life. It hereby at the same time edifies godliness and brings to people the kind of truths that have hitherto been completely neglected by the physicians.⁵⁷³

The work that Francke celebrated was Friedrich Richter’s forthcoming *Kurzer und deutlicher Unterricht von dem Leibe und natürlichen Leben des Menschen* (*Short and Distinct Teaching of the Body and the Natural Life of Man*, 1705).⁵⁷⁴ As Jürgen Helm

⁵⁷¹ August Hermann Francke, “Der große Aufsatz,” in *August Herman Franckes Schrift über eine Reform der Erziehungs- und Bildungswesens als Ausgangspunkt einer geistlichen und sozialen Neuordnung der Evangelischen Kirche des 18. Jahrhunderts. Der grosse Aufsatz. Mit einer quellenkundlichen Einführung herausgeben von Otto Podczeck*, ed. Otto Podczeck, vol. 3, Philologisch-historische Klasse 3 (Berlin: Akademie-Verlag, 1962), 125.

⁵⁷² Ibid. “unnützen Fragen”, “curiositaeten”. For the connection between Francke’s pedagogy and medicine see also: Josef N. Neumann, “Die physische Erziehung des Kindes – Zum Verhältnis von Medizin und Pädagogik im Erziehungs- und Bildungskonzept von August Hermann Francke (1663–1727),” in *Aufklärung und Erneuerung: Beiträge zur Geschichte der Universität Halle im ersten Jahrhundert ihres Bestehens (1694-1806)*, ed. Günter Jerouschek and Arno Sames (Hanau: Verlag Werner Dausien, 1994).

⁵⁷³ Francke, “Der große Aufsatz,” 125. “so ist der Vortrag derselben nicht allein dabey so beschaffen, daß er mit der Vernunft dargestalt übereinkomme, daß ein jeder leichtlich die Überzeugung davon bey sich finden kann; sondern, daß er auch zugleich mit Gottes Wort und den Regeln des Christenthums dergestalt harmoniret, daß auch zugleich die Gottseligkeit dadurch gebauet wird, und denen Menschen die jenigen Wahrheiten beygebracht werden, die bißher von denen Medicis gantz negligiret worden”.

⁵⁷⁴ Christian Friedrich Richter, *Kurzer und deutlicher Unterricht von dem Leibe und natürlichen Leben des Menschen* (Halle, 1705).

has remarked the *Unterricht* became somewhat of a Pietist medicinal manifesto.⁵⁷⁵ An interesting detail is that the title initially contained the word “reason”, but that Richter was so annoyed with the word that he eventually changed the title. As Geyer-Kordesch has pointed out “reason” carried strongly rationalist connotations whereas “truth” signalled theology, echoing for instance Johann Arndt’s popular devotional work *Wahre Christentum*.⁵⁷⁶ When Stahl used the word “truth” in the title a few years later it clearly indicated the context in which the text belonged. Likewise, when Wolff published his German philosophy in the second decade of the eighteenth century the choice of the word “Vernunft” in the titles signalled a clear distance from the Pietists.

Throughout the rather voluminous *Unterricht* Richter painted the picture, to Francke’s great approval, of a medicine that was not limited to the physiological processes of the body but that recognised the soul and that saw the strengthening of the soul through pious habits and values as the key to bodily health. In contrast to Stahl’s often technical discussion, Richter appealed directly to the reader. In the preface he stressed the importance of using all one’s bodily and cognitive gifts, including “fantasy, memory, sensuality, vision, hearing, taste, smell and touch” to lead a virtuous life in honour of God.⁵⁷⁷ Yes, even the most bodily acts such as sleeping, eating and drinking were to be performed in the honour of God. This brought Richter to the aim of his book, which was to inform the reader of the “nature and right use of the body.”⁵⁷⁸ This, Richter emphasised, was even more important now that most people seemed not only to lack but also to be unable to “take this knowledge to their hearts.”⁵⁷⁹ At the same time as the key to curing and to bodily health resided in a pious life devoted to God, health itself constituted a precondition for the devotional life. By gaining and maintaining health the reader would be able to devote himself to God in a much more sincere and efficient way. To enable this complete devotional turn to God was the final goal of the treatise.

Discussing aetiology, Richter devoted a larger section to the immaterial causes of disease.⁵⁸⁰ While one might have expected a discussion of foul air, fumes and exhalations, this was not what Richter had in mind. Instead, he emphasised specific *Gemüths-Bewegungen* or passions such as anger (*Zorn*), lust (*Wollust*), greed (*Geitz*), fear (*Furcht*), terror (*Schrecken*), sorrow (*Traurigkeit*) and anxie-

⁵⁷⁵ Jürgen Helm, “Christian Friedrich Richters Kurtzer und deutlicher Unterricht (1705) – Medizinische Programmschrift des Halleschen Pietismus?,” in *Die Geburt einer sanften Medizin: Die Franckeschen Stiftungen zu Halle als Begegnungsstätte von Medizin und Pietismus im frühen 18. Jahrhundert*, ed. Richard Toellner (Halle: Verlag der Franckeschen Stiftungen, 2004).

⁵⁷⁶ Geyer-Kordesch, *Pietismus, Medizin und Aufklärung*, 94–95.

⁵⁷⁷ Richter, *Kurzer und deutlicher Unterricht*, Vorrede. “der Phantasie / Memorie / der Sinnlichkeiten / des Sehens / hörens / Schmeckens / Riechens und Fühlens”.

⁵⁷⁸ Richter, *Kurzer und deutlicher Unterricht*. Vorrede “Beschaffenheit und rechtem Gebrauch des Leibes”.

⁵⁷⁹ Ibid. Vorrede “zu Herten genommen”.

⁵⁸⁰ Ibid., 125–40.

ty (*Bekümmerniß*).⁵⁸¹ Anger caused “extensive movement in the blood” which, in addition to leading to aggressive behaviour also disturbs the gall bladder.⁵⁸² Lust “deprives the human being of the ability to abstain from that which harms him.”⁵⁸³ It also deprived the body of energy, thereby reducing its lifetime. Greed disturbed the balance by causing sleeplessness and stomach problems due to anxiety. Lastly, fear, terror, sorrow and anxiety also affected the blood circulation negatively, either by rushing the blood or by slowing it down too much. Just as Stahl had done, Richter connected different disturbances in the blood and in other bodily fluids and organs to the choleric, the sanguine, the melancholic and the phlegmatic personality types. The choleric, to mention just one example, thus suffered from disturbance in the blood circulation caused by frequent fits of rage. In addition to the analysis of specific passions and their effects on the body, Richter also discussed specific cases such as sin, sensitivity and imagination. Sin, Richter emphasised, lead to sinful actions and connected disturbances of the blood, which in turn “ruin the human nature” and give rise to “confusion and lack of order.”⁵⁸⁴ Due to its subtle nature sin was hard to cure, according to Richter. Another factor related to disease was sensitivity. The more sensitive a person was, Richter argued, the more receptive he would be to diseases. Related to sensitivity was imagination, the effects of which were commonly known. “For instance, when a person who cannot eat cheese has imagined that he has had cheese he suddenly takes his hands to his throat and vomits. Or as someone is told that the plague ravages a certain place he starts to fear and thereby gets the plague sickness himself.”⁵⁸⁵

When it comes to curing diseases, one might expect that Richter would have focused on different medicines and treatments. Yet, in accordance with Stahlian principles Richter focused primarily on nature’s own ability to cure disease. Here nature worked by “correcting” or “improving” the “harmful materia” so that it would be easy to “get it out of the body.”⁵⁸⁶ The problem was only that passions such as intense states of fear and terror often hindered the natural healing process. For this reason it was of utter importance to install in patients a certain “peace of the soul and the passions.”⁵⁸⁷ Since this “peace” rested on the conviction that “one has God as one’s friend”, the medicus was to do his best to “lead people in...observation and examination” regarding their own

⁵⁸¹ Ibid., 131.

⁵⁸² Ibid. “eine grosse Bewegung im Geblüte”.

⁵⁸³ Ibid., 133. “benimmt dem Menschen das Vermögen / dasjenige zu lassen / was ihm schadet”.

⁵⁸⁴ Ibid., 129. “Verderbniß der Natur”, “Irrung und Unordnung”.

⁵⁸⁵ Ibid., 139. “Z. B. wenn einer der keinen Käse essen kan / sich einbildet / er habe Käse bekommen / so pflget er darauff sich hefftig zu würgen und zu brechen: oder als einem erzehlet worden / daß an einem gewissen Ort die Pest grassire / hat derselbe Mensch angefangen sich zu fürchten / und darauff die Pest-Krankheit selber bekommen.”

⁵⁸⁶ Ibid., 147. “corrigiren”, “verbessern”, “schädlichen Materien”, “aus dem Leibe schaffen könne”.

⁵⁸⁷ Ibid., 197–98. “Gemüthsruhe”.

ability to follow and live in accordance to the “rules of God’s words.”⁵⁸⁸ In this way the patient was to evaluate himself and turn to God in “penance prayer” and “cling to the promised mercy with a fearless courage in faith” and “make his heart obedient to him and thus ban all fear and sorrow from the heart.”⁵⁸⁹ This, Richter added, was not to be “taken as superstition, or as a thing that does not belong here, or as something that should be left to the preacher.”⁵⁹⁰ On the contrary what could aid the healing process more than the “love of and community with God.”⁵⁹¹ Just as “fear, doubt, terror and anxiety hinders nature and makes her effects scattered and incomplete” so was faith the best “relief and analgesic.”⁵⁹² In another passage Richter again underlined that the aid of God was not to be taken lightly.

One speaks of such divine support when the physicians use the triumph of God, and this is certainly necessary in all accomplished things. But when one tells the patients how they should behave if they wish to become part of the divine triumph, then it is mostly as if one had told them a fairy tale. And such ideas are often misinterpreted as a sign of stupidity and bad science on the part of the medicus, as if he did not know better and in a more learned fashion how the physician works and how diseases are cured.⁵⁹³

The passage again illustrates that the references to the “aid” and “triumph” of God was far more than a rhetorical ornament. As Richter saw it, God played a pivotal role in the clinical healing process itself. By seeking the aid of God and by cultivating pious feelings of love and faith in God, patients in fact cultivated powerful emotional states strongly associated with healing and cure.

In addition to the *Unterricht*, the Pietist inclination also appears in another influential text.⁵⁹⁴ The *Praxis Stabliana* (*Stablian Practice*, 1728) was edited and commented on by the Stahlian physician Johann Storch but consisted of a mixture of Stahl’s own texts, Storch’s comments and students’ lecture notes that

⁵⁸⁸ Ibid., 198. “man habe Gott zu seinem Freunde”, “den Menschen auff eine solche Betrachtung und Untersuchung führen sollen”, “den Regeln Gottes Worts”.

⁵⁸⁹ Ibid. “bußvertigen Gebet”, “mit unerschrockenem Muth des Glaubens and die verheissene Gnade halten”, “sein Hertz zum Gehorsam gegen ihn bequemen / und sodann alle Furcht und Betrübniß aus dem Hertzen bannen”.

⁵⁹⁰ Ibid. “vor keinen Aberglauben zu halten / weniger für eine Sache / die sich hieher nicht räume / oder welche allein den Predigern zu überlassen wäre.”

⁵⁹¹ Ibid., 200. “die Liebe und Gemeinschaft mit Gott”.

⁵⁹² Ibid. “Furcht / Zweifel / Schrecken und Beängstigung die Natur versagt und in ihren Würkungen irre auch unbeständig machet”, “linderndes und Schmerzstillendes Mittel”.

⁵⁹³ Ibid., 168. “Solchen göttlichen Beystand nennet man bey Gebrauch der Artzneyen den Segen Gottes / und ist dessen Nothwendigkeit zwar bey allen eine ausgemachte Sache: aber wenn man den Patienten davon versaget / wie sie sich verhalten sollen / wenn sie des göttlichen Segens theilhaftig werden wollen / so ist es insgemein eben / als ob man ihnen ein Märchen erzehle / und wird wol öftters gar dahin gemißdeutet / als ob dergleichen Vorstellungen eine große Einfalt und schlechte Wissenschaft des Medici andeuteten / weil er nicht besser und gelehrter von der Art und Weyse / wie die Artzneyen würcketen / und wie die Krankheiten curiret würden / zu raisonniren wüßte.”

⁵⁹⁴ Georg Ernst Stahl, *Praxis Stabliana* (Leipzig, 1728).

had been compiled and translated into German. The result was a monstrous, more than 1300 pages long text that, despite its lack of clear structure, covered most aspects of the Stahlian medicine. In addition to the typical Stahlian analysis of the body-soul interaction, and the related analysis of the effects of passions, the *Praxis Stabliana* gravitated markedly towards piety. After levelling criticism at mechanical medicine in the introduction, the text turns to the fear of God as a virtue necessary for both physicians and patients.⁵⁹⁵ Since disease is a punishment from God, fear increased motivation to lead a life in honour of God. Hence, the physician was to encourage his patients to turn to God and Christ. “A physician shall encourage a patient to call for the help of Christ, and for all, to engage in penance and confession.”⁵⁹⁶ According to the *Praxis Stabliana* the turn to God and the engagement in Christian spiritual exercises aided the healing process in the best possible way. Even if the disease was severe and beyond cure it was important to remember that it was always better to die as a friend of God than as one of his enemies. In the end all that mattered was the soul.

In this part of the section I have argued that Stahl’s texts reveal two different subjects. On the one hand there is the Stahlian physician, relying on the cognitive faculties and on experience in the form of singular observations, examples, cases and history. On the other hand, there is the Stahlian patient, who mobilises will and appetite to master the passions. In this latter case, experience takes the form of an observant turn inwards to the affectual constitution of the soul. What the *Unterricht* together with the *Praxis Stabliana* now illustrate is the way in which the inward turn became more pronounced. In order to cure the soul from the passions, the Stahlian physician, who must now also himself be a Pietist, must lead the patient into self-examination. The goal of this self-examination was to cultivate feelings of pious love and fear of God. By thus restoring the equilibrium of the soul the patient would have the best chance of recovery, regardless of whether the cause of the disease was an infection or a misconception due to temperament and passion.

Alberti and the therapy of the internal senses

Michael Alberti enrolled at the University of Altdorf in 1698.⁵⁹⁷ While initially pursuing a career as a theologian, he soon became interested in medicine. To

⁵⁹⁵ Ibid., 6–7.

⁵⁹⁶ Ibid., 14. “Ein Medicus soll einen Krancken zur Anruffung der Hülffe Christi, und vor allen zur Busse und Beichten vermahnen.”

⁵⁹⁷ For biographical details on Alberti see: Dreyhaupt, *Beschreibung des Saal-Kreyses*, 573–76. For more modern accounts see also: Wolfram Kaiser and Arina Völker, *Michael Alberti (1682–1757)*, *Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg* 4 (Halle, 1982); Hans-Heinz Eulner, “Michael Alberti zum 200. Todestag,” *Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg* 6, no. 3 (1957): 387–90; Steve Naragon, “Alberti, Michael,” ed.

further promote his medical interest he moved to Halle where he found accommodation at Francke's Orphanage. At the Orphanage he became acquainted with Francke, the Richter brothers, and eventually Stahl.⁵⁹⁸ Impressed by the Stahlian medicine Alberti began a prolific production of what would become hundreds of dissertations, of which a significant amount specialised on the body-soul interaction, and particularly on the soul and its effects on the body.⁵⁹⁹ The more specific topics included the therapy of the passions, the moral diseases, imagination and the internal senses more generally. In this last part of the section I analyse Alberti's therapies, which have so far caught no scholarly attention.⁶⁰⁰ I argue that the example of Alberti further supports the thesis of a fusion between various forms of experience and *cultura animi* discourses.

As part of the general medical interest in the soul, the Stahlians were particularly interested in the way in which imagination and memory affected bodily health and disease. While Stahl and Richter had discussed this topic in various texts, Alberti now made it into one of his principal concerns. In a dissertation titled *De sensuum internorum usu in oeconomia vitali* (*On the Use of the Internal Senses in the Lifegiving Order*, 1726), he took an overall view, analysing the role of the internal senses in the living organism.⁶⁰¹ In sharp contrast to the mechanical medicine, which he criticised tirelessly, the aim of the dissertation was "to trace the diseases of the soul and to cure them correctly...thereby showing eminently how important the internal senses are when it comes to generating and curing various diseases."⁶⁰² Being familiar with the earlier history of the internal senses Alberti referred to both the stoics and to Avicenna, the latter who had promoted the classical medieval model of the five internal senses. In relation to such earlier models Alberti distinguished *sensus communis* (common sense), *phantasia* (fantasy) and *memoria* (memory).⁶⁰³ With that said, the larger part of the treatise provided examples and cases demonstrating the way in which fantasy and memory affected health and disease. A large number of diseases, Alberti, argued, had their origin in imagination.

Intensive thinking and anxious imagination of diseases cause more rapid and grave invasions and frequent despair. Hence, sick persons who are alone often experience their suf-

Heiner Klemme and Manfred Kuehn, *Dictionary of Eighteenth-Century German Philosophers* (London: Continuum, 2010).

⁵⁹⁸ Kaiser and Völker, *Michael Alberti (1682–1757)*, 13–14.

⁵⁹⁹ While these were recurring topics in Alberti's production, I will analyse a selection of dissertations that focused explicitly on the body-soul interaction, and the effects of the soul on the body.

⁶⁰⁰ To my knowledge there is today only one other extensive study of Alberti. While the authors of this study approach Alberti from the perspective of University history, thus focusing on his academic career, I am primarily interested in his medical theory and practice. See: Kaiser and Völker, *Michael Alberti (1682–1757)*.

⁶⁰¹ Michael Alberti, *Dissertatio inauguralis medica, de sensuum internorum usu in oeconomia vitali* (Halle, 1726).

⁶⁰² Ibid., 11. "ad animi morbos recte indagandos & legitime curandos...in quibus eminenter inclarescit, quantum interni sensus valeant ad varios morbos generandos & curandos."

⁶⁰³ Ibid., 14.

fering as more difficult whereas those who enjoy friendly conversations and are asked to take part in other things experience a weakening of the diseases.⁶⁰⁴

In another example Alberti described how physicians, priests and pallbearers, who worked close to contagious diseases, tended to be protected by God. If they were convinced that they would be infected, however, they were certain to perish. Much like imagination, memory played an important role for health and disease.

When emetics and purifying medicines, which are either taken with aversion or illness, or are given in an ominous way, are administered to some people, it often happens that they recall an earlier process in memory where imagination plays a role, and immediately they feel the earlier horror and perceive unhealthy change.⁶⁰⁵

In addition to the dissertation on the internal senses, Alberti analysed imagination in a number of dissertations written throughout the 1720s, focusing on various issues such as the use and abuse of imagination in medicine, imaginary illness and what he referred to as the therapy of imagination. In *De valetudinariis imaginariis sive de hominibus ex imaginatione aegrotantibus* (*On the Imaginary Sick or on People Who Get Sick From Imagination* 1721) he analysed in some detail the phenomenon of imaginary illness.⁶⁰⁶ Imaginary ill were “those people who are altogether sensitive, and they are recognised through intensive impressions, thoughts and imagination, and they show signs of different diseases.”⁶⁰⁷ These people, who caused the physician much trouble, “are observed to worry a lot about their lives and health” and often “they fear anxiously horrible diseases.”⁶⁰⁸ As a consequence of all worries and anxiety they often ended up in a condition of mental illness. Such imaginary mental illness could often be successfully treated through social activities, where the person’s attention was drawn to beautiful things such as songs, music, poems etc. To support his claim Alberti mobilised a number of literary examples. One such example, brought

⁶⁰⁴ Ibid., 24. “firma cogitatio & anxia repraesentatio morborum citiores invasiones & graviores ac frequentiores exasperationes invitant; inde contingit, ut aegroti in solitudine versantes semper afflictiones suas acerbius sentiant, qui vicissim sub amica conversatione & compellatione ad alias intentiones, attentiones & cogitationes ducti, morborum suorum lenitionem experiuntur.”

⁶⁰⁵ Ibid., 31. “quando quibusdam hominibus emetica & cathartica propinantur pharmaca, quae vel cum aversione & nausea ingeruntur; vel finistre operantur: inde posthac aliquoties accidit, ut quando eiusmodi subjecta talem processum in memoriam revocant (ubi imaginationis etiam vis coincidit) subito illa pristinum experiantur horrorem & morbosae alterationis affectum sentiant.”

⁶⁰⁶ Michael Alberti, *Dissertatio inauguralis medica, de valetudinariis imaginariis, von Menschen die aus Einbildung kranck werden* (Halle, 1721); Michael Alberti, *Dissertatio inauguralis medica, de therapia imaginaria, von Menschen die aus Einbildung Gesund werden* (Halle, 1728).

⁶⁰⁷ Alberti, *Dissertatio inauguralis medica, de valetudinariis imaginariis, von Menschen die aus Einbildung kranck werden*, 7. “sunt itaque nobis valetudinarii imaginarii, homines admodum sensibiles, ex firma atque tenaci impressionis, cogitationis & imaginationis vi, in nonnullas aegrotationis species incidentes”.

⁶⁰⁸ Ibid., 13. “de vita & sanitate sua sollociti esse observantur”, “horridos morbos anxie exhorrescant”.

from Pliny's *Historia naturalis*, tells the story of how a man was cured from severe diarrhoea after having been invited to a baptism ceremony by his father-in-law.⁶⁰⁹ Apparently, the invitation caused such joy that he was instantly cured. Another recalls Apulejus' comment on Homer's *Odyssey*, in which it is described how songs heal wounds. A third, more extensive example tells the story of a hypochondriac who did not want to attend his son's wedding because of severe sickness.

When his son's wedding drew near he not only hated all of those who would participate, but got weaker from imagination, perspired anxiously and was completely fettered to the bed. But his relatives and servants invited him in all possible ways to the wedding and basically dragged him there. Soon he forgot about his illness and participated joyfully together with the other friends and guests. On the whole he was the last one to leave the wedding. After the wedding this recovery continued for a couple of days because of the temperateness of imagination but the hypochondriac then anew indulged in loneliness and speculation and he was then back to his disastrous state again and continued to get sick through his imagination.⁶¹⁰

From these examples Alberti drew three conclusions: 1) imagination produced schemas for how to interpret and recognise diseases, 2) imagination reinforced and worsened existing diseases, and 3) imagination hastened death.⁶¹¹ As Alberti saw it, the danger of imagination lay in its tendency to produce and reinforce negative passions such as fear and anxiety.

Earlier in this section I drew attention to the way in which the Stahlian discourse took form at the intersection between philosophical/medical and religious *cultura animi* discourses. Although both of these discourses shared the view of the passions as potentially dangerous forces that were preferably controlled by the superior and inferior cognitive faculties, the religious *cultura animi* stressed the cultivation of Christian virtuous passions such as fear and love of God. While the inclination towards this latter culture of Christian passion was present in Stahl's own writing it became central in the *Unterricht* and the *Praxis Stabliana*. In relation to the Orphanage's inclination towards religious *cultura animi*, Alberti first seems to adopt a more classic philosophical and medical position, emphasising the importance of tempering and controlling the passions. However, at a closer look, it turns out that the passions often played a decisive role in the healing process. That view is particularly manifest in *De*

⁶⁰⁹ Ibid., 14.

⁶¹⁰ Ibid., 18. "ast cum aliquando nuptiae filii sui appropinquassent, non modo ipse hominum consortium extreme adversabatur, sed ex imaginatione magis languescebat, anxie sudabat, & lecto totus defixus erat; hujus propinqui vero atque domestici eundem omni studio ad nuptias invitabant, imo plane protrahebant, qui mox aegrotationis suae obliviscebatur, atque contento animo inter reliquos amicos atque convivas versabatur, & ultimus ferme erat, qui nuptiarum solennia deferrebat: haec emendatio morbi per imaginationis temperiem continuaverat per aliquot dies: transactis vero nuptiis cum hic hypochondriacus denuo solitudini & speculationi suae indulgeret, iterum pristinam calamitatem expertus est, & ex imaginatione aegrotare continuavit."

⁶¹¹ Ibid., 19–21.

therapia imaginaria (*On the Therapy of Imagination*, 1728). In this dissertation Alberti analysed the many ways in which imagination cured diseases and strengthened the body by channelling virtuous passions.

Meanwhile we shall consider this and commend it in this order, that it is not unusual that it is the imagination that helps medicine to work in the body and constitutes a medicine for it. From this it follows that the physicians sometimes can and should alleviate failing health through physical and material things, sometimes by using moral and ideational auxiliaries. Although this latter is a moral medicine, a rational and cunning physician should not be ignorant of it.⁶¹²

By appealing to moral edification the physician was, furthermore, to “persuade” his patients, and “touch their emotions like...a rhetorician.... Although diseases according to testimony cannot be cured through eloquence, this therapy nonetheless requires an eloquent physician.”⁶¹³ More specifically, the therapy of imagination cured diseases through “words, songs, poems, character, curse and apology.”⁶¹⁴ Earlier in this dissertation I drew attention to the way in which religious and rhetorical discourses both ascribed a positive role to intense passionate states. The passages above exemplify not only the similarity but also the way in which these discourses overlapped and fused.

The discussions of moral medicine and emotions echoed the earlier dissertation *De therapia morborum morali* (*On the moral therapy of diseases*, 1714).⁶¹⁵ In this text Alberti argued that since many diseases either originated in passions or were reinforced by passion, the physician was to first of all practice moral therapy. By moral therapy Alberti meant a therapy centred on moral edification.⁶¹⁶ For this therapy to work it required firstly that the physician was a virtuous person, and secondly, that he possessed knowledge of the moral diseases.⁶¹⁷ More specifically, he had to possess detailed knowledge of the four tempera-

⁶¹² Alberti, *Dissertatio inauguralis medica, de therapia imaginaria, von Menschen die aus Einbildung Gesund werden*, 6. “illud interim hoc ordine considerare & commendare lubet, quomodo non raro ipsa Imaginatio artem medicam sublevare & medicinam corporis constituere soleat: inde contingit, ut medici aliquando per physica & materialia, quandoque vero per moralia & idealia adminicula labefactatae sanitati subvenire possint debeantque & quamvis eiusmodi ideales curationes nonnunquam minus felices successus atque consecutiones fortiantur... & licet haec magis moralis sit medicina, tamen illius minime ignarrus esse debet rationalis & peritus artifex”.

⁶¹³ Ibid., 17. “est itaque in hac medendi methodo officium medici, ut bene persuadere possit & instar rethoris & [forum?] doctoris affectus movere, quamvis quidem alias juxta [?] confessionem morbi non eloquentia curentur, tamen haec therapia requirit medicum eloquentem & bene persuadentem & [?] persuasio eo sese extendit”.

⁶¹⁴ Ibid., 18. “verba, cantus, carmina, characters, imprecationes & deprecationes”. The references to rhetorics echo *De phantasia usu, usu et abusu in medicina* (*On the Use and Abuse of Fantasy in Medicine*, 1722), in which Alberti explicitly elaborated on fantasy in relation to book six of Quintilian’s *Institutio Oratoria*. See: Michael Alberti, *Dissertatio inauguralis medica, de phantasiae usu, usu et abusu in medicina* (Halle, 1722), 2.

⁶¹⁵ Michael Alberti, *Dissertatio medica practica de therapia morborum morali* (Halle, 1714).

⁶¹⁶ Ibid., 8–9.

⁶¹⁷ Ibid., 11.

ments: how they gave rise to disease and how the physician could temper the mind and establish a healthy equilibrium in his patients. Later on, in *De religione medici*, (*On the religion of the physician*, 1722) Alberti connected moral therapy to religion.⁶¹⁸ Drawing on a wide spectrum of authorities, stretching from Hippocrates to Luther, Alberti emphasised that religion and faith in God came first then came medicine. “There is such a strong connection between God, religion and the physician, that without God and religion there can be no complete medicine. Therefore, even the heathen physicians [Hippocrates] call for gods and the cult of the gods.”⁶¹⁹ To become a good physician it was therefore important to be a good Christian. “But above all we proclaim the true, sincere, honest and earnest promotion of pietism.”⁶²⁰ Studying to become physicians, students were therefore obliged to cultivate and exercise a pious disposition.

Hence, the ascetic studies [*collegia ascetica*] provide the physicians with their authority. This certainly requires not only contemplative exercises in piety or pure contemplation or ostentatious exercise in reason, but one urges, postulates and instructs piety through actual exercises, through which all this is taught in effect, use and administration.⁶²¹

Much like Francke’s *Kurzer und einfältiger Unterricht*, Alberti here draws the lines for how to shape students into pious physicians who, in contrast to the mechanical physicians, acknowledged the importance of a pious attitude marked by “respect and fear” of God.⁶²² To effectively cure disease it was crucial to both cultivate a pious attitude as a physician and to direct the patient towards God.

Alberti’s discussion of the moral and religious aspects of medicine and the medical therapy illustrates that he, much like Richter, ascribed the Pietist *cultura animi* a crucial role in medicine. Ideally, the physician should not only be pious himself but should also cure his patients by directing them to God. By thus turning to God the patients would mobilise their own souls to fight disease. In some cases the purpose of this counter-attack was to temper and control the passions, in other cases it simply worked by replacing negative feelings of fear of death and anxiety with virtuous feelings of fear and love of God.

Overall, Alberti occupied a similar position to Richter, sometimes emphasising temperance and control of the passions, sometimes stressing the culture of virtuous counter-passions such as fear and love of God. The stress on the cul-

⁶¹⁸ Michael Alberti, *Dissertatio medica inauguralis de religione medici* (Halle, 1722).

⁶¹⁹ Ibid., 12. “tanta enim est inter Deum, Religionem & Medicum connexio, ut sine Deo & Religione nullus exactus Medicus esse queat; propterea etiam ipsi Ethnici Medici ad Deos & Deorum cultus provocarunt.”

⁶²⁰ Ibid., 19. “ante omnia vero huc referimus veram, sinceram, seriam & probatam pietatem”.

⁶²¹ Ibid. “inde Collegia ascetica medicorum suam auctoritatem inveniunt...huc vero requiritur exercitatio in pietate non nuda contemplatio aut vana exercitatio rationis, sed effectiva exercitatio, qua omne id in effectum, usum & administrationem vertitur, quod pietas praecipit, postulat & urget.”

⁶²² Ibid., 20. “timore, reverentia”.

ture of these counter-passions says something about experience. It shows that the Orphanage brand of Stahlian medicine gravitated towards experience in the religious sense of observance. Rather than observing things in nature, the patient was to turn their gaze inwards and observe his own inner emotional constitution.

In this section I have analysed the meaning and function of experience in Stahlian medicine, arguing that it took form in intimate connection to both the philosophical/medical and the religious *cultura animi* discourses. In the following section I shift focus from the Stahlians to the medicine of Hoffmann and his followers. In sharp contrast to the previous cases, this medicine shifts us away from the *cultura animi* tradition to the kind of objectifying gaze that has been connected to the modern ideal of an objective value-free science. This, in turn, raises larger questions regarding the connection between the *cultura animi* tradition, experience and modern objectivity.

From mechanical physiology to experimental psychology

In 1684 Friedrich Hoffmann paid a three-month long visit to Robert Boyle in Oxford.⁶²³ During his stay the 24-year-old Hoffmann deepened his knowledge in the famous new experimental philosophy both practically and theoretically. Of all the different topics on the agenda he was particularly impressed by Boyle's brand of corpuscle physics. Once established as the first professor of medicine at the University of Halle almost a decade later, Hoffmann would draw on Boyle and others to develop his own theory of the body as a hydraulic machine, circulating blood and nerve-liquids through veins, vessels and nerves. To explain generation and other complexities that could not so easily be explained in terms of mechanics, Hoffmann referred to subtle spirits or "aetherial fluid."⁶²⁴

While the first generation of Hoffmann's students made few attempts to expand the borders of Hoffmann's mechanical physiology, a second generation of physicians entered the scene in the 1740s. Drawing on both Hoffmann's physiology, and on the more general enthusiasm for measurability, they took on the challenge of revealing the laws of movement that thoughts, volitions and emo-

⁶²³ Schulze, "Vita Friderici Hoffmanni," 20. For Hoffmann's visit at Boyle see also: Roths Schuh, "Studien zu Friedrich Hoffmann (1660–1742): Erster Teil: Hoffmann und die Medizingeschichte. Das Hoffmannsche System und das Aetherprinzip."

⁶²⁴ See: Müller, *Iatromechanische Theorie und ärztliche Praxis im Vergleich zur galenistischen Medizin*; Roths Schuh, "Studien zu Friedrich Hoffmann (1660–1742): Erster Teil: Hoffmann und die Medizingeschichte. Das Hoffmannsche System und das Aetherprinzip"; King, "Stahl and Hoffmann: A Study in Eighteenth Century Animism."

tions obeyed.⁶²⁵ The idea that the soul could be measured and experimented on was intimately connected to the idea that it obeyed the laws of movement. In the mid-eighteenth century this idea resulted in an attempt to launch experimental psychology as a new scientific discipline.

What was the meaning and function of experience in Hoffmann's mechanical physiology? How did Hoffmann's understanding of experience differ from that of Stahl and the Stahlians? How should one understand the projects of measuring and experimenting on the soul? Are we dealing with yet another form of Halleian *cultura animi*, or with a new kind of project that moves away from the *cultura animi* towards the modern ideal of a value-free objective science? These are the questions that I seek to answer in this last section of the chapter.

Hoffmann's mechanical physiology

In the short but programmatic *Fundamenta medicinae*, Hoffmann placed his medicine in the context of the new natural philosophy.

Without natural philosophy the whole science of healing is maimed and weak, and is not suitable to explain any disease or wisely direct any cure. The natural philosopher peers into the recesses of nature, examines the hidden structures, proportions and mixtures, and from these he draws conclusions most fruitful for medicine.⁶²⁶

For Hoffmann, who had first been trained at Jena and then instructed by Boyle, the new natural and experimental philosophy provided the ideal on which medicine was to be modelled. When it came to the more specific nature of the medical science, Hoffmann emphasised, much like Stahl, the two pillars of experience and reason.⁶²⁷ Regarding the more specific nature of experience in medicine Hoffmann brought forth both singular observations and histories. "In physics experience can best be sought from mathematics and mechanics, chemistry, and anatomy; in medical practice experience derives most abundantly

⁶²⁵ Regarding such general enthusiasm for measurability see: Tore Frängsmyr, J. L. Heilbron, and Robin E. Rider, eds., *The Quantifying Spirit in the 18th Century*, Uppsala Studies in History of Science 7 (Berkeley: University of California Press, 1990).

⁶²⁶ Hoffmann, *Fundamenta Medicinae*, 1; Hoffmann, *Fundamenta medicinae*. "Tota medendi scientia sine rerum naturalium philosophia trunca ac debilis est, nec ullius morbi explicationi vel prudenti directioni curationis apta existit. Physicus in interiora naturae introspectit, abditas corporum structuras, temperies, mixtiones scrutatur, ex quibus illationes suas in medicinam facit felicissime. Non autem hic intelligimus scientiam ex meris speculationibus natam, solidiori experientia ceu prima veritatis parente destitutam: sed talem urgemus, quae methodo simplici, plana, mathematica conclusiones suas demonstrare ac firmare satagit."

⁶²⁷ Hoffmann, *Fundamenta Medicinae*, 5; Hoffmann, *Fundamenta medicinae*, 2. "Duo in Medicina fulcra sunt experientia, quae prima veritatis parens, & ratio, quae clavis scientiae Medicae est. Experientia ordine praecedat & ratio sequitur. Hinc rationes in rebus Medicis experientia non conditae nihil valent."

from the observations of diseases, and from more accurate histories and cures.”⁶²⁸ Hoffmann’s understanding of experience reflects, as I showed in the first section of the chapter, the larger category of early modern medical experience as singular observations and experiments, and as examples and cases collected in *Observationes*, *Curationes* and *Historiae*.

Hoffmann stressed that medical science relied on “a simple clear mathematical method”, that is, on demonstrations.⁶²⁹ Much like the Wolffian method, the role of experience in these demonstrations was to provide indubitable empirical propositions, which in turn rested on the accumulation of singular observations. Used in the right way demonstrations revealed the laws of nature seen as gigantic mechanic machinery. In the *Fundamenta medicinae* he stressed “Mechanics alone, wedded to anatomy and chemistry, has so far led natural and medical science from a low position to an exalted one.”⁶³⁰ And a few pages later: “Medicine is the art of properly utilising physico-mechanical principles, in order to conserve the health of man or restore it if lost.”⁶³¹ According to Hoffmann, all nature, including the human body, was mechanical and subject to the principles of matter and motion. “Our body is like a machine or automaton whose organs, varying in shape and size, are disposed and constructed in a particular order and position. These organs must be moved and animated by the fluid parts of our body.”⁶³² The first moving principle in the body was the heart. The heart circulated the blood, which Hoffmann regarded as the most important bodily fluid, through arteries and veins. After the blood, the lymph was deemed the second most important bodily fluid. The lymph circulated through the body through its own fixed lymphatic vessels. In third place came the living spirits (*spiritus animales*). “This very fine fluid, too fine to be seen, which is contained in the nerves, is nothing but very fine matter, endowed with a limited mechanical power suitable for bringing about ideational and ordered motions in the body. Hence it can properly be called spirit.”⁶³³ The living spirits moved through the

⁶²⁸ Hoffmann, *Fundamenta Medicinae*, 5; Hoffmann, *Fundamenta medicinae*, 2. “In physicis experientia optime peti potest ex mathesi Mechanica, Chymia, Anatomia: In praxi Medica ex observationibus morborum Historiis & Curationibus accuratioribus, experientia fluit uberrima.”

⁶²⁹ Hoffmann, *Fundamenta Medicinae*, 1; Hoffmann, *Fundamenta medicinae*. “methodo simplici, plana, mathematica”.

⁶³⁰ Hoffmann, *Fundamenta Medicinae*, 1; Hoffmann, *Fundamenta medicinae*. “Sola mechanica, anatomiae & chymiae nupta, ab humili ad altum hactenus duxit ipsam scientiam rerum naturalium & medicarum.”

⁶³¹ Hoffmann, *Fundamenta Medicinae*, 5; Hoffmann, *Fundamenta medicinae*, 1. “Medicina est ars, bene utendi principiis physico-Mechanicis, ad sanitatem hominis conservandam & amissam restituendam.”

⁶³² Hoffmann, *Fundamenta Medicinae*, 11; Hoffmann, *Fundamenta medicinae*, 11. “Corpus nostrum est instar machinae seu automatis, quod ex variis organis ratione figurae & magnitudinis certo ordine ac situ dispositis ac constructis gaudet, quae moveri & animari a partibus fluidis corporis nostri debent.”

⁶³³ Hoffmann, *Fundamenta Medicinae*, 22; Hoffmann, *Fundamenta medicinae*, 31. “Fluidum itaque subtilissimum, quod visum fugit in nervis contentum, est nil nisi subtilissima materia, potentia

nerves and lay behind complex phenomena such as sensations and perceptions. “The animal spirits not only move the body but also provide perception, and no sensation can take place without motion.”⁶³⁴ As I will show later on in this chapter, it was this assumption that led the second generation of Halleian physicians to assume that perceptions and sensations could be subjected to quantification and measurement. Although Hoffmann explained “mental” phenomena such as sensations and perceptions in terms of the movement of the fine matter that the animal spirits constituted, he nevertheless assumed the existence of an immortal, immaterial and rational soul. God, he thought, had endowed the human being with a rational soul, whose function it is “to move the spirits and to direct them to produce particular motions.”⁶³⁵ In the end it was thus through the soul that the animal spirits were moved.

According to Hoffmann, if medicine was to be a part of the new natural philosophy, then the physician should be a natural philosopher.

Whoever has been properly instructed in such science [mechanics] can, in a most successful fashion, ferret out the causes of hidden matters; resolve the doubts of physicians, their controversies and opinions; find powerful remedies even in incurable diseases.... I admit, judiciously and openly, that no physician is rational unless he is accomplished in natural philosophy and has a precise knowledge of natural principles.⁶³⁶

In Hoffmann’s medicine the personhood of the *medicus* fuses with that of the natural philosopher. The *medicus* followed the principles of natural philosophy and especially mechanics, and by thus adapting his mind he was able to “eliminate controversies and disputes occurring in medical science, resolve doubts, successfully discern the origin of sects and the causes of error.”⁶³⁷ The *medicus*, Hoffmann continued, read medical *historiae* and *observationes* but preferred those writings that “cultivate more deeply and precisely the study of nature, calling for aid on various experiments drawn from mechanics, anatomy, and chemistry.”⁶³⁸ By stressing reason and experience, the use of mathematical and exper-

mechanica determinata instructa, quae ideales & ordinatos motus in corpore edere apta est, hinc recte dici potest spiritus.”

⁶³⁴ Hoffmann, *Fundamenta Medicinae*, 25; Hoffmann, *Fundamenta medicinae*, 35–36. “Spiritus animales non movent solum corpus, sed & sentiunt, quae sensatio tamen sine motu fieri nequit.”

⁶³⁵ Hoffmann, *Fundamenta Medicinae*, 13; Hoffmann, *Fundamenta medicinae*, 15. “movere spiritus, & ad certum motum edendum eosdem determinare.”

⁶³⁶ Hoffmann, *Fundamenta Medicinae*, 1–2; Hoffmann, *Fundamenta medicinae*. “tali scientia qui rite instructus est, rerum abstrusarum causas eruere, dubias Medicorum controversias ac sententias dissolvere, remedia valentia vel in deploratis morbis invenire quam felicissime potest.... Cordate itaque & aperte fateor, nullum vere rationalem medicum esse, nisi qui physicus sit perfectus, & principiorum naturalium exactam cognitionem habeat.”

⁶³⁷ Hoffmann, *Fundamenta Medicinae*, 2; Hoffmann, *Fundamenta medicinae*. “controversias ac litigia in medica scientia occurrentia tollere, dubia solvere, sectarum originem & errorum causas perspicere feliciter poterit.”

⁶³⁸ Hoffmann, *Fundamenta Medicinae*, 3; Hoffmann, *Fundamenta medicinae*. “qui altius & subtilius excolunt ipsam naturam & ejus studium, in subsidium vocatis experimentis variis ex mechanica, anatomia & chymia desumptis.”

imental methods and the allegiance to mechanical principles, Hoffmann painted the picture of the *medicus* as a skilled natural philosopher. By exercising his vocation the *medicus* “imitates nature and its parent, God, and is properly called the servant of nature.”⁶³⁹ In another passage Hoffmann took this claim several steps further by referring to Hippocrates’ claim that since the physician seeks to found medicine in the principles of nature he “is to be considered a philosopher equal to God.”⁶⁴⁰

In the previous section I argued that Stahl’s discourse advanced two subjects connected to two forms of experience. On the one hand, it advanced the subject of the Stahlian physician as a thorough scientific observer and a representative for the early modern culture of observation, or of the larger category of early modern scientific experience. On the other hand, it advanced the subject of the Stahlian patient, a subject disposed to self-examination of the inner constitution and particularly to the cultivation of pious feelings of love and fear of God. This second subject reflects the larger category of religious experience as essentially inner and affectual. In relation to these two subjects, and the two forms of experience that they express, Hoffmann’s discourse left no room for the pious patient. Gone was the subject who took charge of the healing process by turning the gaze inwards, engaging in self-examination and self-edification. Left was the physician; the rigorous observer who made singular observations, shaping these into examples, cases, and in the long run into empirical propositions usable in medical demonstrations. While the physician was thus the only active subject, the patient becomes a mere object, a body of mechanics that in the case of disease was wholly dependent on the observing and intervening physician.

Measuring the soul

This part of the section examines the new generation of Halleian physicians. Having been trained in Hoffmann’s mechanical medicine but also drawing on Stahlian and Wolffian analyses of the soul, these physicians took on the challenge of quantifying and measuring the mind and its faculties. In sharp contrast to the Stahlian self-transformative *cultura animi* they approached the soul with the disciplined and tempered mind of the mathematician and the experimental philosopher, thereby making it into one among many objects of scientific inquiry.

⁶³⁹ Hoffmann, *Fundamenta Medicinae*, 2; Hoffmann, *Fundamenta medicinae*. “imitatur naturam, & ipsius parentem DEUM, hinc merito naturae audit minister.”

⁶⁴⁰ Hoffmann, *Fundamenta Medicinae*, 5; Hoffmann, *Fundamenta medicinae*, 1. “Vera Medicae artis fundamenta ex principiis Naturae petenda sunt; hinc Medicus Philosophus juxta Hippocr. Deo aequalis habetur.”

The most prominent of this new generation of physicians was Johann Gottlob Krüger.⁶⁴¹ Having studied mathematics, philosophy and medicine at the University of Halle, Krüger became a *magister artium* in 1737. After further studies under Hoffmann he became a doctor of medicine in 1742.⁶⁴² In the following year he advanced to the position of professor, and the year after he began a famous lecture series in physiology that attracted a large group of students. During this time he also worked with the *Grundriß eines neuen Lehrgebäudes der Arzneygelahrtheit* (*Outline of a New Fundament for the Medical Science*, 1745) and the three-volume treatise the *Naturlebre* (*Natural Philosophy*, 1740–1749). While the *Grundriß* constituted a manifesto for mechanical medicine, the *Naturlebre* described the human physiology in mechanical terms. In the preface to the first volume of the *Naturlebre* Krüger declares that the old natural philosophy had now been replaced by a new natural philosophy based on reason and experience.

Only for about 50 years has natural philosophy taken another form. One does not accept any physical doctrine that is not based on reason and experience as the two firm pillars of all human knowledge. One does not venture to approve of that which one has not been able to prove through thoroughly made experiments and observations.... Experiences are the real touchstones of the rational conclusions, and the most certain means to avoid-

⁶⁴¹ Krüger's circle also included Johann August Unzer (1727–1799) and Ernst Anton Nicolai (1722–1802). While this might seem to be a very small circle one must take into account that these three were university teachers who taught and influenced a considerable group of students and young physicians.

⁶⁴² For biographical details see: Thomas Sturm, "Krüger, Johann Gottlob (1715–59)," ed. Heiner Klemme and Manfred Kuehn, *Dictionary of Eighteenth-Century German Philosophers* (London: Continuum, 2010); Hans-Peter Nowitzki, *Der wohltemperierte Mensch: Aufklärungsanthropologien im Widerstreit*, Quellen und Forschungen zur Literatur- und Kulturgeschichte 25 (Berlin: De Gruyter, 2003), 33–36.

The few existing works on Krüger focus primarily on the anthropological context. See: Ibid.; Carsten Zelle, "Experiment, Experience and Observation in Eighteenth-Century Anthropology and Psychology – the Examples of Krüger's Experimentalseelenlehre and Moritz' Erfahrungsseelenkunde," *Orbis Litterarum* 56 (2001): 93–105; Carsten Zelle, "Experimentalseelenlehre und Erfahrungsseelenkunde. Zur Unterscheidung von Erfahrung, Beobachtung und Experiment bei Johann Gottlob Krüger und Karl Philipp Moritz," in *Vernünftige Ärzte: Hallesche Psychomediziner und die Anfänge der Anthropologie in der deutschsprachigen Frühaufklärung*, ed. Carsten Zelle, Hallesche Beiträge zur europäischen Aufklärung 19 (Tübingen: Niemeyer, 2001); Carsten Zelle, "Sinnlichkeit und Therapie. Zur Gleichursprünglichkeit von Ästhetik und Anthropologie um 1750," in *Vernünftige Ärzte: Hallesche Beiträge zur europäischen Aufklärung*, ed. Carsten Zelle (Tübingen: Max Niemeyer, 2001); Wolfram Mauser, "Johann Gottlob Krüger. Der Weltweise als Arzt – zur Anthropologie der Frühaufklärung in Deutschland," in *Vernünftige Ärzte: Hallesche Psychomediziner und die Anfänge der Anthropologie in der deutschsprachigen Frühaufklärung*, ed. Carsten Zelle, Hallesche Beiträge zur europäischen Aufklärung 19 (Tübingen: Niemeyer, 2001).

Zelle's articles, in particular, on experience in eighteenth-century anthropology come close to my own analysis. While I agree with Zelle's overall analysis of Krüger, my own reading pays more attention to the context of early modern scientific experience.

In addition to the anthropological interest in Krüger, a few scholars situate him in the context of eighteenth-century mathematics and measurability. See: Sturm, "Is There a Problem with Mathematical Psychology in the Eighteenth Century? A Fresh Look at Kant's Old Argument"; Ramul, "The Problem of Measurement."

ing errors. I have therefore conducted most experiments by myself, and I replicate them every six months in my seminar in physics.⁶⁴³

As a discourse, Krüger's *Naturlehre* was structured by frequent references to, and descriptions of, experiments and observations. For Krüger, as for Wolff and Hoffmann before him, the role of experience was to provide singular observations, most often by conducting experiments. If these experiences were well composed and performed they would reveal new facts of nature, which, in turn, could be used to demonstrate further truths.

To use scientific experience in the early and mid-eighteenth-century Halle was, as we have seen, often a matter of refining singular observations into indubitable propositions usable in scientific demonstrations. That this was the basic function of scientific experience was something that Stahl, Hoffmann, Wolff and Krüger all took for granted. What they did not take for granted, however, was how to use experience in order to acquire knowledge of and cure the soul from its diseases. Whereas the Stahlians here tended towards religious discourses on experience and to the religious culture of virtuous affects such as fear and love of God, Hoffmann and Krüger approached the soul in terms of nerves and nerve-liquids. In the second part of the *Naturlehre* Krüger discussed this topic in some detail. No one who understands medicine, he argued, can doubt that perceptions are transmitted through the nerves.⁶⁴⁴ That this is the case has been rigorously established through experience. Physicians have shown that damaged nerves give rise to severe pain. Furthermore, experiments have established that muscle movement ceases as soon as certain nerves are cut off or blocked.⁶⁴⁵ Following Hoffmann, Krüger concluded that the brain is a hydraulic machine in which a subtle liquid matter is secreted from the blood and circulates in the nerves. It is from the movement of this liquid matter, which he referred to as nerve-liquid (*Nervensaft*) or life-spirits (*Lebensgeister*) that all perceptions derive.⁶⁴⁶

There was, Krüger pointed out, an abundance of theories regarding the more exact nature of the life-spirits.⁶⁴⁷ Whereas some of these proclaimed that life-spirits were nothing but nutritional liquids, others maintained that they were

⁶⁴³ Johann Gottlob Krüger, *Naturlehre nebst Kupfern und vollständigem Register, mit einer Vorrede von der wahren Weltweisheit begleitet von Herrn Friedrich Hoffmann* (Halle: Carl Herrmann Hemmerde, 1740). "Nur seit etwann 50. Jahren hat die Naturlehre eine andere Gestalt bekommen. Man will keinen physicalischen Lehrbegriff mehr gelten lassen, der nicht auf Vernunft und Erfahrung, als die festesten Grundsäulen aller menschlichen Erkenntniß, gebauet ist. Man getrauet sich daher nichts zu behaupten, was man nicht durch richtige Vernunftschlüsse, oder sorgfältig angestellte Experimente und Observationen beweisen kan.... Erfahrungen sind die richtigsten Proben der gemachten Vernunftschlüsse, und das sicherste Mittel, niemahls einen Fehltritt zu thun. Daher habe ich die meisten Experimente selbst angestellt, und pflege sie alle halbe Jahr in meinen Collegiis physicis zu wiederholen."

⁶⁴⁴ Krüger, *Naturlehre II*, 538.

⁶⁴⁵ *Ibid.*, 540.

⁶⁴⁶ *Ibid.*, 542.

⁶⁴⁷ *Ibid.*, 546.

purely immaterial substances. Krüger's own position was that of the sober experimental philosopher. It was crucial, Krüger emphasised, to distinguish between knowledge and fiction, a distinction that for Krüger corresponded to that of metaphysics and experimental philosophy. Metaphysics, no matter how sophisticated it might be, was not of his concern.⁶⁴⁸

But my dear readers, of all this I understand nothing, no matter how clear it might be. I ascribe this to my continual occupation with natural philosophy, and I believe that my reason has gotten so used to the rough and physical that it indeed is able to apprehend a physical but never a metaphysical division.⁶⁴⁹

What mattered to Krüger was the physical world, the world that could be touched, observed and experimented on. Any theory of the relation between body and soul, it seemed, should be founded on hard empirical evidence rather than on metaphysical speculations. Having thus criticised metaphysics, Krüger returned to the physiology of the nerves. Acknowledging that the appetites influence bodily states he argued that affects such as anger and sadness set the nerve-liquid in motion. Because, is it not the case that anger influences the body?

The inner part of the body, for instance, contracts intensely at instances of anger. The power of the heart becomes stronger and drives the blood with great force towards the outer parts. The veins begin to swell and the blood-filled soft vessels of the skin cause a red facial colour.⁶⁵⁰

From this and other examples Krüger concluded that affects cause disease and even sudden death.

The one who considers this will also see how it is possible that the affects, when they are too intense, can be not only the causes of uncountable diseases but also of a sudden death. Not one [of the affects] is exempted from this, not even pleasure, even though it, to a certain degree, is crucial for healthiness.⁶⁵¹

⁶⁴⁸ For an analysis of metaphysics in seventeenth century Prussia see: William Clark, "The Death of Metaphysics in Enlightened Prussia," in *The Sciences in Enlightened Europe*, ed. William Clark, Jan Golinski, and Simon Schaffer (Chicago: University of Chicago Press, 1999).

⁶⁴⁹ Ibid., 547–48. "Aber, meine lieben Leser, ich begreiffe von diesen allen nichts, so deutlich es auch vielleicht seyn mag. Ich schreibe dieses meiner beständigen Beschäftigung mit der Naturlehre zu, und glaube, daß sich mein Verstand dadurch so grob und körperlich gewöhnt hat, daß er sich zwar eine physische, niemals aber eine metaphysische Theilung vorzustellen vermag."

⁶⁵⁰ Ibid., 563. "So ziehen sich, zum Exempel, bei dem Zorne sonderlich die inneren Theile des Leibes heftig zusammen. Die Kraft des Hertzens wird vermehrt, und treibt das Blut mit einer grössern Gewalt nach den äussern Theilen. Die Adern fangen an aufzuschwellen, und die mit Blute erfüllten zarten Gefässe der Haut verursachen eine Röthe in dem Gesichte."

⁶⁵¹ Ibid., 567–68. "Wer dieses bedenckt, der sieht wie es möglich ist, daß die Affecten, wann sie allzuheftig sind, nicht nur Ursachen unzähliger Krankheiten, sondern auch eines plötzlichen Todes seyn können. Kein einziger ist hiervon ausgenommen, auch nicht einmal die Freude, die doch in einem gemäßigten Grade der Gesundheit so vorteilhaft ist".

While Krüger's analysis of the affects echoes Stahl's medicine, the conclusions that he drew pointed in a rather different direction, namely towards the measurability of the soul. Drawing on the Italian physician Gjuro Baglivi's, who made experiments on animals, Krüger argued that the elasticity of the nerve-membrane (*Nervenhaut*) played a crucial role in perception (*Empfindung*).⁶⁵² When you cut off a nerve, the skin-like cover would contract and expose the interior of the nerve. The elasticity that caused the contraction witnessed a certain elasticity of the nerve-membrane that, in turn, indicated a tension and a movement potential. When an object was perceived, the perception was transmitted through a vibrating movement in the nerve-membrane. The strength of the vibration corresponded proportionally to the intensity of the perceptions. Having laid out the physiology of perception Krüger provided the following formula.

It is that one perception = S, the second = s, the impact that one body causes = V, the second = v. The nerve-tension in the first case = T, in the second = t: so is S: s = VT: vt (§.315.). When now T = t: then S: s = V:v. This means that the vivid part of the perceptions is related to the powers of the bodily impact from which it is produced, when the nerve-tensions are equally strong. It is further that V = v: then S: s = T: t. The perceptions are thus related to the tensions of the nerve-skin when the effect of the body, which [moves?] the sense organs, is equally strong.⁶⁵³

This rather dense passage describes what has been referred to as Krüger's law of perception.⁶⁵⁴ According to this law perceptions correspond to proportional nerve movements; the more intense the nerve moments, the more intense the perceptions.

To summarise so far, Krüger clearly made an effort to level his *Naturlebre* in terms of the new natural and experimental philosophy. Drawing on Hoffmann and Wolff's assumptions that the soul obeys the laws of movement and that it therefore can be subjected to measurement, he added a concrete formula for how nerve movement gives rise to perception. In sharp contrast the *cultura animi* tradition, the law of perception presupposed that the soul obeys pretty much the same laws as any other natural object. To explore and control the soul was therefore a matter of putting it on the dissection table rather than cultivating it through spiritual exercises.

⁶⁵² Ibid., 572–73.

⁶⁵³ Ibid., 589. "Es sey die eine Empfindung = S, die andere = s, die Gewalt des einen Körpers der sie hervorbringt = V, des andern = v. Die Spannung des Nervens im ersten Falle = T, im anderen = t: so ist S: s = VT: vt (§.315.). Wenn nur T = t: so verhält sich S: s = V: v. Das ist die lebhaftigkeiten der Empfindungen verhalten sich, wie die Kräfte des Körper, von welchen sie hervorgebracht worden wenn die Spannungen der Nerven gleich groß sind. Seiget fern dass V = v: so ist S: s = T: t. Derowegen verhalten sich die Empfindungen wie die Spannungen der Nervenhäute wenn die Wirkungen der Körper, welche die Gliedmassen der Sinne [bevegen?], gleich groß sind."

⁶⁵⁴ For a more detailed discussion of this law see: Nowitzki, *Der wohltemperierte Mensch*, 57–74.

Four years after the publication of the second volume of Krüger's *Naturlehre*, Johann August Unzer elaborated further on the measurability of the soul.⁶⁵⁵ Unzer studied medicine under Krüger from the early 1740s and received a doctorate in 1748. In 1746 he published *Neue Lehre von den Gemütsbewegungen* (*New Teaching of the Movements of the Soul*, 1746).⁶⁵⁶ Unzer's title *Neue Lehre* was no coincidence. While Stahlian physicians had been interested in the *Gemütsbewegungen* for decades, the first separate treatise, *Theoretische Lehre von den Gemütsbewegungen* (*Theoretical Teaching of the Movements of the Soul*, 1744), was actually written by the Wolffian philosopher Georg Friedrich Meier.⁶⁵⁷ Studying at Halle from 1735 Meier came into contact with the Wolffian philosophy through the Baumgarten brothers. When publishing the *Theoretische Lehre von den Gemütsbewegungen* in 1744, it was a thoroughly Wolffian metaphysical piece. It is against this background that Unzer's *Neue Lehre* should be seen. Not only did Unzer declare his allegiance to Krüger and to medical science, but he also structured the book as an experimentally oriented, non-metaphysical treatise.

It cannot be denied, Unzer argued, that the vibrating movement of the nerves and the nerve-liquid play an important role in perception.⁶⁵⁸ Following Krüger, he divided the nerves into nerves of movement and nerves of perception. Likewise, he argued that nerves and perception were proportionally related in such a way that they could be subjected to mathematical laws formulated in terms of the relations between velocity /Geschwindigkeit (C), mass/Masse (M) and movement/Bewegung (B). The alterations of the body proportionally followed the alteration of perception.

Having adopted Krüger's theoretical apparatus, Unzer made temperament and affects the focal point of his investigation.

When we consider something for a long time as either something good or something bad it becomes more and more vivid. And when the vividness has acquired a certain level of intensity, then one says that one is in affect. An affect is thus an enduring and highly vivid conception of something good or bad.⁶⁵⁹

⁶⁵⁵ For biographical details see: Holger Böning, "Unzer, Johann August (1727–1799)," ed. Heiner Klemme and Manfred Kuehn, *Dictionary of Eighteenth-Century German Philosophers* (London: Continuum, 2010).

⁶⁵⁶ Unzer, *Neue Lehre von den Gemütsbewegungen, mit einer Vorrede vom Gelde begleitet von Herrn Johann Gottlob Krüger*. Another related text that will not be analysed more in detail here is: Johann August Unzer, *Gedanken von dem Einfluße des Körpers in die Seele und der Seele in ihren Körper* (Halle, 1746).

⁶⁵⁷ Georg Friedrich Meier, *Theoretische Lehre von den gemütsbewegungen überhaupt* (Halle: Carl Herrmann Hemmerde, 1744).

⁶⁵⁸ Unzer, *Neue Lehre von den Gemütsbewegungen, mit einer Vorrede vom Gelde begleitet von Herrn Johann Gottlob Krüger*, 23.

⁶⁵⁹ *Ibid.*, 28. "Wenn wir uns eine Sache lange entweder als etwas Gutes oder als was Böses vorstellen, so wird sie uns immer lebhafter. Und wenn die Lebhaftigkeit einen recht hohen Grad erreicht, so heißt es, man sei im Affect. Es ist demnach ein Affect eine lange daurende und sehr lebhaftige Vorstellung eines Guten oder Bösen."

According to Unzer, affects had their roots in perception, and thus corresponded to the movement of nerve-liquids in the brain. Since affects were especially complex and intense perceptions, the corresponding movement of nerve-liquid was also very powerful. The nerves of perception differed in terms of their thickness and tension – some were thin and tense and others were thick and loose. Depending on their quality the movement in the nerves varied in swiftness and intensity. Different temperaments corresponded to the different nerves. The nerve movement of a choleric was thus both swifter and more intense than that of a melancholic. Having laid out the theoretical framework, the bulk of Unzer's study was devoted to the connection between different temperaments and affects and different types of nerves. As suggested above, Krüger gave a scientific answer to the body-soul problem by phrasing it in terms of physiology, physics and mathematics. In a similar way, Unzer provided a scientifically substantiated physiology of affects, passions and temperaments, subject matters that hitherto had been the domain of Wolffians, Pietists and Stahlianians.

While Krüger and Unzer shared the view that the affects played crucial roles in the processes of health and disease, as well as the assumption regarding a connection between affects and vividness, their analysis could hardly have been more different from that of the Pietist theologians and the Stahlian physicians. In sharp contrast to the systematic cultivation of affects that the two latter groups advocated, Krüger and Unzer approached the soul as just another object of scientific observation and experimentation. Put on the dissection table, the laws of movement determining the vividness of the affects were to be revealed through observations of nerves, nerve membrane and nerve-liquids, and through experiments on the way in which these liquids corresponded to various states of arousal.

Experimental psychology

Having spent most of the 1740s lecturing on and composing the *Naturlehre*, Krüger turned to medical science as a whole. In 1750, while still active at the medical faculty at Halle, Krüger published the *Diät oder Lebensordnung* (*Diet or Order of Life*, 1750).⁶⁶⁰ In this treatise he outlined a medical science capable of providing an overall theory of the good and healthy life. The following year Krüger left Halle for a professorship in medicine and philosophy at the University of Helmstedt.⁶⁶¹ At this time, Krüger had become the leader of a small group of philosophical physicians. In his introductory speech at Helmstedt he laid out the educational route towards a profession as a physician, particularly stressing the importance of seeing the whole human being. The speech was printed as *Zuschrift an seine Zuhörer von der Ordnung in welcher man die Arzneyge-*

⁶⁶⁰ Johann Gottlob Krüger, *Diät oder Lebensordnung* (Halle: Carl Herrmann Hemmerde, 1751).

⁶⁶¹ Sturm, "Krüger, Johann Gottlob (1715–59)."

laßarbeit erlernen müsse (*Reply to His Audience Regarding the Order in Which One Shall Learn the Medical Science*, 1752).⁶⁶² In the very opening passage Krüger emphasises order, science and perfection. “Order is the soul of study. It is this, which through correct thinking, has given birth to science. It is this that fuels life into it [science], that makes it grow and that brings it to perfection.”⁶⁶³ In order to perfect science students had to first learn how to perfect their own thinking. For this reason they were to start by studying mathematics and metaphysics (*Vernunftlehre*). Regarding metaphysics, however, the medical student was to focus on empirical psychology, because it provided a pivotal piece in the puzzle of the whole human being. While exploring empirical psychology, the student was to be wary about rational psychology and the other parts of metaphysics. Many were those physicians who had been misled by delving too deep into metaphysics.⁶⁶⁴ Once the foundation had been laid, something that was to be done during the first semester, the remaining five semesters were to be devoted to the study of natural philosophy, followed by the different branches of medicine to which physiology, pathology, pharmacy, therapy (*Diät*) and surgery belonged. In terms of methods and practices, these latter disciplines stood firmly within the realm of experimental philosophy, relying primarily on meticulously made observations and experiments. Krüger’s pitch for experimental philosophy ran all through his writings, and perhaps the most radical example of this was the *Versuch einer Experimental-Seelenlehre* (*Attempt at an Experimental Psychology*, 1756).⁶⁶⁵ In this text Krüger outlined experimental psychology. In the next part of the section I analyse the *Experimental-Seelenlehre*, focusing on the meaning and function of experience.

In the preface to the *Experimental-Seelenlehre*, Krüger emphasised that “my aim is here no other than to show the philosophers, who are no physicians, the good that medicine might do for them within psychology.”⁶⁶⁶ Krüger’s aim echoes his earlier critical remarks on metaphysics. According to him, entangled in the abstract world of metaphysics, the philosophy of the soul, which had little to do with the real physical world, brought little use and value to humanity. Fortunately this was now about to change as a new brand of experimental and mechanical medicine entered the scene. By showing how this medicine could be applied to the soul Krüger hoped to capture philosophers’ interest and lead them towards a new kind of experimental psychology. Marking this psy-

⁶⁶² Johann Gottlob Krüger, *Zuschrift an seine Zuhörer von der Ordnung in welcher man die Artzneygelaßarbeit erlernen müsse* (Halle: Carl Herrmann Hemmerde, 1752).

⁶⁶³ Ibid., 3. “Ordnung ist die Seele von dem Studieren. Diese ist es, welche durch richtiges Dencken die Wissenschaften gebohren hat, sie ist es, die sie belebet, die ihren Wachsthum befördert, und sie zur Vollkommenheit bringt”.

⁶⁶⁴ Ibid., 14.

⁶⁶⁵ Krüger, *Versuch einer Experimental-Seelenlehre*.

⁶⁶⁶ Ibid. “Mein Zweck ist hierbey kein anderer gewesen, als den Philosophen, welche keine Aertzte sind, den Nutzen zu zeigen, welchen ihnen die Artzneygelaßtheit in der Seelenlehre verschaffen kann”.

chology was an uncompromising scientific attitude and a readiness to subordinate oneself to whatever might be revealed. As Krüger stated in the preface, it was his ambition to “describe the human soul as it is and not as it should be.”⁶⁶⁷ In relation to the *cultura animi* tradition, Krüger’s formula appears as almost antithetical. In sharp contrast to the aspiration to cultivate and perfect the soul cognitively and morally, Krüger’s position takes us away from the *cultura animi* towards the kind of disinterested attitude that has been connected to the modern ideal of a value-free science.

Having stated the aim of the book in the preface Krüger turned to the introduction where he opened with the already quoted reflection on the possibility of experiments within psychology.

One would maybe take it for a mere joke if I would say that I have taken on the task of showing how one can know the soul through experiments. Experiment, one would say, can only be conducted on bodies. Would one really bring the soul under the air-pump, observing its gestalt through the magnifying glass, measuring its powers? This thought is so obvious that I think it would occur to most people who would face these pages.⁶⁶⁸

Krüger emphasised that there were two principal objects of empirical knowledge: things outside and things inside the soul. While the things outside the soul are known through external experience received through the external senses, the things inside the soul are known through internal experience obtained through the internal senses. When it comes to internal experience, Krüger emphasised that philosophers had traditionally relied on self-observations. However, self-observations were one thing and psychological experiments quite another. As Krüger saw it, the problem was not whether the soul could be an object of empirical knowledge or not, but that it was immaterial and therefore did not allow for the kind of techniques – witnessing, note-taking, replication etc. – on which experiments depended. Krüger’s solution to this dilemma was simple: the intimate connection between body and soul showed that it must be possible to obtain knowledge of the soul by making experiments on the body. After all, does the body not mirror the soul? Is it not the case that, for instance, the anger of a man is unmistakably expressed in his bodily state? Thus arguing Krüger left the path of the internal senses in favour of that of the external senses.⁶⁶⁹

Having turned his back on self-observations – the internal route to empirical knowledge of the soul – Krüger discussed the possibilities of the external sens-

⁶⁶⁷ Ibid. “die menschliche Seele so zu schildern wie sie ist, nicht aber wie sie seyn sollte”.

⁶⁶⁸ Ibid., 1. “Man wird es vielleicht für einen bloßen Schertz halten, wenn ich sage, daß ich mir vorgesetzt habe, zu zeigen, wie man die Seele durch Experimente solle kennen lernen. Experimente, wird man sprechen, laßen sich nur mit Körpern anstellen. Wird man aber wohl die Geister unter die Luftpumpe bringen, ihre Gestalten durch Vergrößerungsgläser erblicken, und ihre Kräfte abwägen können? Dieser Gedanke hat so viel scheinbares, daß ich glaube, er werde den meisten einfallen, welchen diese Blätter zu Gesichte kommen.”

⁶⁶⁹ Ibid., 16–22.

es. Here, the principal methods were observations of bodies and experiments. Krüger, who was familiar with the basic distinction between observations and experiments, argued that the hidden truths of the soul should be revealed through experiments.

What can be more important in such matters [the many concealed qualities of the soul] than conducting experiments on the soul, and putting it in states in which it is normally not. These kinds of endeavours would result in a new psychological discipline, which would belong to empirical psychology and which could be called experimental psychology.⁶⁷⁰

In this crucial passage Krüger staked out the principles for an experimental psychology built on the same grounds as other experimental sciences. By way of further justifying experimental psychology he discussed in some detail the body-soul interaction. In particular, he mobilised support for experimental psychology by exemplifying how the soul could be known through observations of the body and how the body could be manipulated in order to produce observable effects in the soul. Krüger concluded:

I thus presuppose about what is founded in experience not only that mutations of the body can be known through mutations of the soul but also that the mutations of the soul can be known from the mutations of the body. From this I conclude that one can produce changes in the soul, that would not have occurred in the normal course of nature, by producing extraordinary changes in the body, and this means nothing less than that it is possible to conduct experiments on the soul.⁶⁷¹

From the body-soul parallelism it followed that the soul could be studied through the body. This opened up the possibility of producing changes in the soul by manipulating the body, something, which, in turn, allowed for an experimental psychology.

So far Krüger's focus had been on the possibilities of experimental psychology. But what was the more practical character of Krüger's psychological experiments? After having established the theoretical possibility, elaborating on the more specific nature of psychological experiments still remained. In doing this

⁶⁷⁰ Ibid., 17. "Was kann nun bei so gestalten Sachen nothwendiger sein, als Experimente mit der Seele anzustellen, und sie in Umstände zu versetzen, darein sie gewöhnlicher Weiße nicht zu gerathen pflget. Bemühungen von dieser Art würden einen neuen Theil der Seelenlehre hervorbringen, welcher zu der empirischen gehörte, und die Experimentalseelenlehre genennet werden könnte."

⁶⁷¹ Ibid., 18. "Ich setze also als in der Erfahrung gegründet zum Voraus, daß nicht nur aus den veränderungen der Seele, veränderungen des Leibes, sondern auch aus Veränderungen des Leibes, Veränderungen der Seele erkannt werden können. Hieraus ziehe ich die Folge, daß man durch ausserordentliche Veränderungen die man mit dem Leibe vornimmt, Veränderungen in der Seele zuwege bringen könne, die sich sonst nach dem gewöhnlichen Lauffe der Natur bey ihr nicht gezeigt haben würden; und dieses heißt nichts anders, als daß es möglich sey, Experimente mit der Seele zu machen."

Krüger encountered an ethical dilemma. It was the voices of humanity itself that cried out, he claimed.

What! They exclaim: cruel barbarian and beast you who deny nature and excel even the Mexicans in inhumanity. You want to open rational human heads in order to discover the seat of their reason, you want to cut into pieces their brains to experience where the memory has its seat, you want to pierce the flesh and the periosteum so that they can tell you if they feel anything in these parts, you want to tear the heart out of their bodies and pierce it with needles and ask them if they feel anything.⁶⁷²

The quote gives a taste of the harsh nature of Krüger's psychological experiments. In contrast to Hagen's experiments, where listening to stories and learning of vocabularies were used to test attention and emotions, those of Krüger often involved the infliction of physical pain, mutilation and even death. More than anything else, Krüger's experiments had the character of surgical operations.

Due to the cruel nature of psychological experiments they could not be conducted on normal human beings. This left Krüger with three substitutes: Psychological experiments could be conducted 1) by experimenting on criminals, 2) by experimenting on animals and 3) by examining medical cases. Of these three options the first was immediately dismissed on the same grounds as experiments on normal human beings.

Yet I confess the truth, and admit, that my heart would be far too sensitive to conduct such experiments; so I am also equally assured that, through such experiments, if undertaken with appropriate wisdom, psychology would benefit greatly through medicine.⁶⁷³

With the experiments on humans out of the picture Krüger opened up for the possibility of experimenting on animals, something that he commented on only in brief. Instead, he took recourse in medical cases collected in medical histories.

The sisterly connection, which exists between medical science and philosophy, will provide us with a means to get an experimental psychology without staining our hands with blood. Thus, except that one can conduct many experiments on animals, the observations of the medical science, made in all times, provide circumstances where the soul,

⁶⁷² Ibid., 18–19. "Wie? Ruft sie: grausamer Barbare und Unmensch der du die Natur verleugnest, und die Mexicaner selbst an Unmenschlichkeit übertriffst. Du willst vernünftiger Menschen Köpfe eröffnen, um den Sitz ihrer Vernunft zu entdecken, du willst ihr Gehirne zerschneiden, um zu erfahren, wo ihr Gedächtniß seinen Sitz habe, du willst sie in die Flechten und Beinhäute stechen, damit sie dir sagen können, ob diese Theile Empfindlichkeit haben: du willst ihnen das Hertz aus dem Leibe reifen, solches mit Nadeln stechen, und sie fragen, ob sie etwas fühlen."

⁶⁷³ Ibid., 20. "Doch ich gestehe die Wahrheit, und bekenne, daß mein Hertz dergleichen Experimente zu unternehmen, viel zu empfindlich wäre; so gewiß ich auch versichert bin, daß dadurch, wenn sie mit gehöriger Klugheit angestellt würden, der Seelenlehre durch die Artzneygelahrtheit ein großer Vortheil zuwachsen würde."

through extraordinary changes of the body, is placed in such extraordinary and rare states that they quite reasonably can be regarded as experiments conducted on the soul.⁶⁷⁴

Krüger's remarks on medical cases can be interpreted in at least two principally different ways. They can either be seen as a failure to present any "real" experiments or they can be seen as one among many different kinds of possible experiments. Of these two possibilities the first is implicit in Zelle's remark that "Krüger abandons 'experiment' in favour of 'observation' and thus upgrades descriptions of medical cases."⁶⁷⁵ If one assumes that Krüger related exclusively to the kind of experiments of the British tradition, then the references to medical cases certainly appear as an abandonment of "real" experiments. If, however, one instead sees experiments as a heterogeneous category gathered around the definition of experiments as observations involving interventions, then many extraordinary cases certainly qualify. Thus seen, one can even make the case that Krüger actually expanded the meaning of experiment by suggesting that one should reveal new facts of the soul by using the extensive genre of the *historia morbi* (disease history).

To summarise, in this section I have analysed Krüger's attempt to launch an experimental psychology. The *Versuch* further exemplifies the tendency to naturalise the human soul, turning it into one among many objects of empirical study. When it comes to the more specific nature of psychological experiments, however, Krüger neither followed the physiological path that he had endorsed earlier nor the experimental path of Hagen, that is, of constructing experimental situations such as the one where memory was measured by measuring boys' ability to memorise a list of words. Instead, he saw the possibility to acquire experimental knowledge, in the sense of knowledge of the hidden causes of nature, in the vast bank of medical examples and cases. Rather than seeing this as a failure to come up with any "real" experiments, Krüger's discourse bears witness to the many different notions of experience and experiment. Of these different notions he adopted medical cases and examples as the cornerstones on which experimental psychology should be built. The key here was to use these examples to reveal new hitherto concealed truths of the soul.

This tendency to treat the soul as one among many natural objects raises important questions regarding the overall project of experimental psychology. Should it be seen as an attempt to control the passions through the tools of

⁶⁷⁴ Ibid. "Die schwesterliche Verbindung, welche zwischen der Artzneygelahrtheit und Weltweisheit ist, wird uns ein Mittel and die Hand geben, eine Experimentalseelenlehre, ohne unsere Hände mit Menschenblute zu besudeln, zu erhalten. Denn, ausserdem, daß man viele Versuche mit Thieren anstellen kann, so geben uns die Wahrnemungen der Artzneygelehrten aller Zeiten solche Begebenheiten an die Hand, da die Seele durch eine ausserordentliche Veränderung des Leibes in einen ausserordentlichen und ungewöhnlichen Zustand gerathen ist, daß man solche billig als Experimente die mit der Seele angestellt worden sind, betrachten kann."

⁶⁷⁵ Zelle, "Experiment, Experience and Observation in Eighteenth-Century Anthropology and Psychology – the Examples of Krüger's Experimentalseelenlehre and Moritz' Erfahrungsseelenkunde," 100–101.

science, and thus as a part of the *cultura animi* tradition, or does it in fact move away from the *cultura animi*, towards the modern ideal of an objective, value-free science? These are the questions to which I will now turn.

Cultura animi and objectivity

The new natural and experimental philosophy has long been associated with the emergence of modern objectivity.⁶⁷⁶ In recent decades, however, the linear and often anachronistic accounts of this development have been replaced by more nuanced historical analyses.⁶⁷⁷ According to these analyses early modern natural philosophy spearheaded an ideal of disinterestedness, meaning that the natural philosopher ideally was to adopt a disinterested attitude to his object of study. Yet, as Shapin, and Daston and Galison have argued, this disinterested attitude itself took the form of an epistemic virtue.⁶⁷⁸ As such it was integral to the experimental philosopher as a socially recognisable type. To successfully produce scientific knowledge was thus equally a matter of adopting a disinterested attitude towards the experimental situation and object of study, and of communicating such an attitude to the scientific community.

In Shapin and Shaffer's analysis, the objective attitude of disinterestedness constitutes both an epistemic and at the same time social precondition for scientific knowledge. While they tend to see the cultivation of a virtuous disposition as a part of the overall project of understanding, explaining and controlling nature, Corneanu turns the order upside down.⁶⁷⁹ Applying the Hadotian reading to the early modern case she argues that scientific knowledge was in fact subordinated to the overall goal of the *cultura animi*, that is, of tempering the mind. This apparently small variance in interpretation in fact reveals a larger disagreement regarding the nature of the early modern philosophical project. On the one hand, the social constructivist analysis of knowledge production and epistemic virtues provides the prelude to a larger story of modern objectivity. On the other, Corneanu's analysis of early modern science as *cultura animi* provides the final chapter in the story of how philosophy and science up until the early modern age had been an essentially self-therapeutic project aimed at cognitive and moral self-perfection.

Throughout this dissertation I have aligned with Corneanu's perspective, thus analysing experience of the soul as an integral part of the early modern

⁶⁷⁶ Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago, IL: University of Chicago Press, 1996); Alexandre Koyré, *From the Closed World to the Infinite Universe*, Publications of the Institute of the History of Medicine, the Johns Hopkins University 7 (Baltimore London: Johns Hopkins University Press, 1957).

⁶⁷⁷ Harrison, *The Fall of Man and the Foundations of Science*; Daston and Galison, *Objectivity*; Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*; Shapin, *A Social History of Truth*; Shapin and Schaffer, *Leviathan and the Air-Pump*.

⁶⁷⁸ Shapin, *A Social History of Truth*; Daston and Galison, *Objectivity*.

⁶⁷⁹ Corneanu, *Regimens of the Mind*. For a reading based on similar assumptions see: Jones, *The Good Life in the Scientific Revolution*.

cultura animi. While the cases of Wolff, Francke, Baumgarten and Stahl illustrate the way in which experience took form as an integral part of various local forms of *cultura animi*, the cases of Hoffmann, Krüger and Unzer are more ambivalent. Here we find few references to cognitive and moral perfection, or the kind of exercises of the self that marked all the previous examples. Instead, we find epistemic virtues such as discipline, control and disinterestedness, that is, exactly the kind of epistemic virtues that have been connected to modern objectivity. In the case of Krüger and Unzer this becomes even more striking given the fact that they tapped into the very heart of the *cultura animi*, that is the soul and the passions.

How should one understand this completely different approach to the soul and to the passions in relation to the two overall readings of early modern philosophy and science? By way of answering this question I suggest that the cases of Hoffmann, Krüger and Unzer in fact indicate that we are not only dealing with different readings, but with different historical lines of development. My point here is that there is a real historical difference that calls for analysis. Although it lies beyond the scope of this dissertation to delve deeper into such an analysis I suggest that early and mid-eighteenth century Halle was one, probably one of many, places where the older *cultura animi* tradition co-existed and flourished alongside the kind of project that we would today call science. If this hypothesis is correct, eighteenth-century Halle provides key information regarding the process that turned philosophy and science from an essentially moral project to an enterprise where knowledge depended on the ability to abstain from subjective emotions and values.

Conclusions

In this chapter I chart the meaning and function of experience in the medicine of Stahl, Hoffmann and some of their followers. In the first section I analyse the overall role of experience in Stahl and Hoffmann's medicine. The main argument is that medical experience both reflects and differs from early modern scientific or experimental experience. It reflects scientific experience in the sense that it is composed of singular observations. Yet, it differs from it by including not only *observatio* and *experimentum*, but also *exemplum*, *historia* and *casus*.

In the second section I analyse the meaning and function of experience in Stahlian medicine. In addition to underscoring the role of scientific observations and experience, I claim that the Stahlian discourse also relied on religious experience. While this was a salient feature of Stahl's own medicine, it reached a new level through the new brand of Orphanage medicine. In order to cure the soul from the passions, the Stahlian physician, who should also himself be a

Pietist, was to lead the patient into self-examination. The goal of this self-examination was to cultivate Christian virtues such as love and fear of God. By thus highlighting the connection between medical and religious *cultura animi* and experience, the case of Stahlian medicine further supports the call for a more inclusive history of the overlaps and cross-fertilization between religious and scientific discourses on experience.

In the third section I focus on Hoffmann, and on the second generation of physiologists and their attempt to measure the human soul and to launch an experimental psychology. In sharp contrast to the Stahlian culture of the soul, Hoffmann and his followers put the soul on the dissection table, making it into one among many objects of scientific observation and experimentation. This, in turn, raises interesting questions regarding the relation between *cultura animi* and modern objectivity. On the one hand, early modern philosophy and science appear as late examples of the long tradition of *cultura animi*. Against this background experience appears as intimately connected to philosophy and science as culture of the soul. On the other hand, Hoffmann and his followers can also be seen as early actors in the larger story of the emergence of modern objectivity. Rather than making these two narratives a mere matter of scholarly interpretation, I suggest that early and mid eighteenth-century Halle in fact constituted one of many breaking points between ancient and modern philosophy, science and experience.

6. Conclusion

This dissertation provides a complementary history of early modern scientific experience by focusing on the case of the Prussian university town Halle in the period from the late seventeenth until the mid-eighteenth century. Here, philosophers, theologians and physicians such as Christian Wolff, Hermann Francke, Alexander Baumgarten, Georg Ernst Stahl, Friedrich Hoffmann and others elaborated on categories such as *inner senses*, *inner experience*, *living experience*, *psychological experiments* and *psychometrics*. In the study I argue that these categories take us from observations of external things to the internal organisation of experience and to completely internal objects of experience such as the soul and its own operations. Instead of seeing this internal side of scientific experience as mere theory and epistemology, I argue that it constituted an integral and central part of the early modern *cultura animi* tradition, that is, the tradition of approaching the soul as something in need of cultivation, education, discipline and cure. Throughout this dissertation the *cultura animi* tradition provides the analytical key for the reconstruction of scientific experience and particularly categories such as inner senses, inner experience and living experience.

What was early modern scientific experience?

According to many historians of philosophy early modern scientific experience referred to the perception of the world via the external senses. As such it was pivotal to the rationalism-empiricism debate, which in turn, constituted the core of the early modern epistemological project. This view relies on the assumption that early modern philosophy was first of all an epistemological project. Similarly, historians of science have explored the long-term transformation of scientific experience as well as the way in which natural philosophers gathered to observe how new facts were forced out of nature in so-called experimental situations. Given the underlying assumption that early modern science was about understanding, explaining and controlling nature, it makes sense to focus on observations of natural objects made through the external senses. In this study I approach early modern science from the rather different perspective of the *cultura animi* tradition. The *cultura animi* tradition featured a broad spectrum of discourses that both analysed the faculties of the soul and provided practical

exercises for how to cultivate, educate, train, govern, discipline and cure the mind from the passions. By adopting and applying the *cultura animi* reading, I show how hitherto overlooked categories such as inner experience, inner senses and living experience were in fact central to, and well integrated in, early modern discourses on scientific experience.

In the first empirical chapter I analyse the meaning and function of scientific experience in Christian Wolff's philosophy. The analysis starts with an alternative reading of Descartes, Leibniz, Tschirnhaus and Wolff's discourses on clear and distinct ideas, concepts and definitions. Rather than seeing clearness and distinctness as epistemological criteria, I analyse them as spiritual exercises forged for the purpose of perfecting the mind both cognitively and morally. It is in this context, I further argue, that we should understand the role of experience in Wolff's philosophy. To use experience in science was for Wolff a matter of engaging in an internal operation of the mind through which perceptions and concepts were methodologically refined into empirical propositions that could be used in scientific demonstrations. Given that scientific experience required such internal operation, it did not take a big step to consider completely internal objects of experience such as the soul and its faculties, or to, as Wolff did, launch empirical psychology. Rather than being an abstract theory of knowledge or a modern scientific discipline, empirical psychology, including the discussions of how to measure the soul and use experiments in psychology, took form as a further elaboration of the cognitive and moral culture of the soul. When it comes to Wolff as an experimental philosopher, I show that he in fact made the experiment an integral but subordinated part of the demonstrative method. What this means is that experiments were useful only insofar as they could be refined into empirical propositions usable in scientific demonstrations. The experimental experience was, in other words, subjected to the same operation of the mind as any other experience.

In the second empirical chapter I analyse the theologian Hermann Francke's discourse on living experience. The analysis starts not in scientific but in what scholars have referred to as religious experience. Drawing on recent scholarly studies, I begin by showing that early modern religious experience was essentially inner, affectual and connected to spiritual exercises such as prayer and meditation. I then analyse the category of the living, and in particular Francke's notions of living experience, knowledge and faith as specific manifestations of this kind of experience. Living experience, I argue, involved a turn towards the inner and particularly to the cultivation of specific virtuous affects of fear and love of God. In the early eighteenth century the cultivation of living experience reached a new level at the large-scale Halleian institution known as the Orphanage. At this site Francke systematically shaped pious Christians through what he himself referred to as *cultura animi*. Whereas Wolff focused on cultivating the soul through science alone, Francke explicitly argued that the *cultura animi* required both religious and scientific exercises. Often these exercises revolved around various ways of observing and acquiring living experience and

knowledge. This, in turn, raises questions regarding the relation between religious and scientific experience. By way of following up these questions, I argue that Francke's notion of the living, took form not only in relation to the theological discourse on the living God but also in relation to the rhetorical discourse on how to form vivid images, and to the philosophical discourse on vividness and vivid observations. Thus seen, the example of Francke illustrates the overlap between religious and scientific discourses on experience, thereby providing a good argument for why it is necessary to expand the analysis of scientific experience to include forms of experience that at first glance might seem to have very little to do with science.

The third empirical study charts Alexander Baumgarten and the aesthetic experience. When Baumgarten came to Halle in the 1720s he was educated at the Orphanage while at the same time studying Wolffian philosophy. Drawing on both he launched aesthetics not as an epistemological project or as a science in the modern sense of the word, but as an exercise-driven project aimed at cognitive and moral perfection. Rather than focusing on the perfection of the higher cognitive faculties, however, Baumgarten was primarily interested in the perfection of the sensual part of the soul and of sensual knowledge. By taking this stance he turned upside down the very epistemic order on which Wolff and many other early modern philosophers relied. While these philosophers dismissed clear and confused perceptions, concepts etc. on the grounds that they did not lead to scientific and philosophical knowledge, Baumgarten saw them as the key to a new kind of sensual or aesthetic knowledge. What characterised this knowledge was exactly the kind of fullness or extensiveness that philosophers typically disregarded as abundant and useless. As Baumgarten saw it, however, the extensively clear and confused representation was exactly what allowed the aesthetician to compose beautiful poems that captured the world in all its richness. Since aesthetic knowledge wasn't subjected to logical truth, the aesthetician was free to use the whole range of his inner faculties without worrying that imaginary, fantastic or fictive representations were less clear and true than other representations. In addition to analysing aesthetic experience I also elaborate further the relation between scientific and religious experience by showing that Baumgarten's notions of extensive clearness and vividness took form in relation to both, and more particularly in relation to theological, rhetorical, epistemological and pedagogical discourses on living experience, vivid images, vividness and vivid observations. By drawing attention to the impact of both religious and scientific discourses on experience, I again call for a more inclusive analysis that takes into account a broader spectrum of traditions, genres, discourses and practices.

The fourth empirical study examines experience in Stahlian medicine. In sharp contrast to traditional readings of Georg Ernst Stahl as an early contributor to the mechanism-animism debate, I analyse his medicine as yet another example of Hallean *cultura animi*. Educated at the faculty of medicine at Jena, Stahl embraced the new scientific medicine, with its emphasis on observations

and experiments, at the same time as he became increasingly involved at the Orphanage. At this site he was encouraged to further develop his idea of the living organism as the complex interaction between body and soul, and particularly the analysis of the impact of affects and passions on bodily health and disease. As Stahl's students took over the responsibility for the hospital facilities at the Orphanage the focus on the theory and therapy of affects and passions became all the more pronounced and oriented towards religious exercises. In order to cure the soul from the passions, the Stahlian physician, who should also himself be a Pietist, should lead patients into self-examination. The goal of this self-examination was to cultivate Christian virtues such as fear and love of God. By thus analysing the Stahlian medicine, I argue that we here see yet another instance of overlap and fusion between religious and scientific discourses on experience.

In the second half of the fourth chapter I shift focus to Friedrich Hoffmann's medicine, and to the second generation of physiologists and their attempt to measure the human soul and to launch an experimental psychology. In sharp contrast to the previous cases, which all took form within the context of the early modern *cultura animi* tradition, Hoffmann and his followers had little confidence in self-therapeutic cultures and regimens of the mind. Instead, they put the soul on the dissection table, making it one among many objects of scientific observation and experimentation. The case of Hoffmann and his followers raises questions regarding the relation between *cultura animi* and modern objectivity, which in turn reflects two opposed readings of early modern philosophy and science. According to the first reading, supported by most historians of philosophy and science, early modern science was about cultivating a disinterested attitude by controlling and suppressing passions and affects. As such it forms the prelude to a larger story of modern objectivity. According to the second reading, early modern science provides the final chapter in the story of how philosophy and science up until the early modern age had been an essentially self-therapeutic project aimed at cognitive and moral self-perfection. While I have argued clearly for the *cultura animi* reading, which I believe reveals hitherto overlooked but very important aspects of early modern scientific experience, the case of Halle seems to point beyond the mere choice of perspective towards the very roots of the conflicting interpretations. In fact, it suggests that some early moderns elaborated on the long *cultura animi* tradition, whereas others spearheaded virtues such as control and disinterestedness, virtues that played a vital role in the process leading towards modern objectivity. If this hypothesis is correct, early and mid-eighteenth century Halle appears as a point of convergence between old and new, and as a key to the process of turning philosophy and science from an essentially moral project to an enterprise dependent on the ability to abstain from subjective emotions and values.

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