

EDITED BY

STEVEN
NADLER

TAD M.
SCHMALTZ

DELPHINE
ANTOINE-MAHUT



≡ The Oxford Handbook of
**DESCARTES AND
CARTESIANISM**

THE OXFORD HANDBOOK OF
DESCARTES
AND
CARTESIANISM

THE OXFORD HANDBOOK OF

DESCARTES
AND
CARTESIANISM

Edited by

STEVEN NADLER, TAD M. SCHMALTZ,

and

DELPHINE ANTOINE-MAHUT

OXFORD
UNIVERSITY PRESS

OXFORD

UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

© the several contributors 2019

The moral rights of the authors have been asserted

First Edition published in 2019

Impression: 1

All rights reserved. No part of this publication may be reproduced, stored in
a retrieval system, or transmitted, in any form or by any means, without the
prior permission in writing of Oxford University Press, or as expressly permitted
by law, by licence or under terms agreed with the appropriate reprographics
rights organization. Enquiries concerning reproduction outside the scope of the
above should be sent to the Rights Department, Oxford University Press, at the
address above

You must not circulate this work in any other form
and you must impose this same condition on any acquirer

Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data

Data available

Library of Congress Control Number: 2018960617

ISBN 978-0-19-879690-9

Printed and bound by

CPI Group (UK) Ltd, Croydon, CR0 4YY

Links to third party websites are provided by Oxford in good faith and
for information only. Oxford disclaims any responsibility for the materials
contained in any third party website referenced in this work.

PREFACE

THE seventeenth century was a Cartesian century. From 1637, when Descartes first published a general presentation of his philosophy, along with particular applications of its scientific principles, to the early 1700s, with the rise of Newtonianism, there was hardly a corner of the Republic of Letters free of Cartesian activity of one sort or another. Its theories and methods were discussed in the academies and salons of the great cities of Europe; natural philosophers, theologians, and civil authorities debated its merits and dangers; and slowly but surely it made inroads in teaching in the college and university faculties.

Of course, not every philosopher of the time was a Cartesian. There were Cartesians, some more “orthodox” than others, but there were also Aristotelians, Platonists, Epicureans, Stoics, atomists, and skeptics. Descartes had his proponents and he had his critics (and sometimes one and the same person was both). French, Dutch, German, Italian, and English thinkers of various religious persuasions—such as Malebranche, La Forge, Cordemoy, Desgabets, Rohault, Arnauld, Geulincx, Clauberg, and Régis—took it upon themselves to defend, extend, modify, and in some cases even improve on Descartes’s ideas. Others, including Hobbes, Pascal, Gassendi, More, and Leibniz—many of whom shared some of Descartes’s basic commitments, such as the rejection of Scholastic metaphysics and a devotion to mechanistic explanations in physics—nonetheless set themselves apart from, and in some cases even opposed, the Cartesian program.

Our goal in this volume is to present the Cartesian century in all its rich variety. The first section is devoted to the many facets of Descartes’s own philosophical writings: his views on central topics of metaphysics, epistemology, physics, physiology, psychology, ethics, and aesthetics, as well as the biographical and intellectual contexts of his work. This section will include parts of Descartes’s philosophy that are only infrequently studied by scholars (for example, his theory of music) or are thought to be almost entirely absent from his thought (such as politics). The chapters in the second section are concerned with contributions made by Descartes’s more or less orthodox partisans, some of whom are not prominent in the literature. Also covered are the various philosophical, scientific, and theological problems that confronted Cartesianism and the diverse ways in which these problems were addressed. The third section covers Descartes’s critics, and its chapters provide insight not only into their various philosophical, theological, or political objections to his philosophy, but also into what they understood Cartesianism itself to be.

We intend the volume to provide the reader—whether a seasoned scholar, a graduate or undergraduate student, or simply someone with a general interest in the history of philosophy—with both a useful and illuminating overview of an essential dimension of what is arguably philosophy’s greatest century, and detailed studies of the particular thinkers and ideas that contributed to its vitality.

Steven Nadler
Tad M. Schmaltz
Delphine Antoine-Mahut

TABLE OF CONTENTS

<i>Contributors</i>	xi
<i>Abbreviations of Works by Descartes</i>	xiii

PART I DESCARTES

1. Philosopher Defying the Philosophers: Descartes's Life and Works	3
HAN VAN RULER	
2. What Descartes Read: His Intellectual Background	25
ROGER ARIEW	
3. Descartes's Correspondence and Correspondents	40
THEO VERBEEK AND ERIK-JAN BOS	
4. Descartes on the Method of Analysis	65
LEX NEWMAN	
5. Descartes's Metaphysics	89
LAWRENCE NOLAN	
6. Mind and Psychology in Descartes	106
GARY HATFIELD	
7. Descartes's Mechanical but not Mechanistic Physics	124
HELEN HATTAB	
8. Descartes's Mathematics	138
SÉBASTIEN MARONNE	
9. Descartes and Medicine	157
GIDEON MANNING	
10. Descartes on Freedom	178
C. P. RAGLAND	

11. Descartes and the Passions	193
DENIS KAMBOUCHNER	
12. Descartes's Philosophical Theology	209
IGOR AGOSTINI	
13. Descartes's Moral Philosophy	226
LAURENCE RENAULT	
14. Descartes, Politics, and "True Human Beings"	240
DELPHINE ANTOINE-MAHUT	
15. The <i>Compendium Musicae</i> and Descartes's Aesthetics	255
FRÉDÉRIC DE BUZON	

PART II THE CARTESIANS

16. Mersenne: Questioning Descartes	271
CLAUDIO BUCCOLINI	
17. Princess Elisabeth of Bohemia as a Cartesian	287
LISA SHAPIRO	
18. Claude Clerselier and the Development of Cartesianism	303
TAD M. SCHMALTZ	
19. Louis de La Forge on Mind, Causality, and Union	319
PHILIPPE DRIEUX	
20. "He Has Created a Schism in Philosophy": The Cartesianism of Géraud de Cordemoy	332
FRED ABLONDI	
21. Antoine Arnauld: Cartesian Philosopher?	344
DENIS MOREAU	
22. The Ambiguities of Malebranche's Cartesianism	358
JEAN-CHRISTOPHE BARDOUT	
23. The Prince of Cartesian Philosophers: Pierre-Sylvain Régis	374
ANTONELLA DEL PRETE	
24. Jacques Rohault and Cartesian Experimentalism	388
MIHNEA DOBRE	

25. Robert Desgabets and the Supplement to Descartes's Philosophy	402
TAD M. SCHMALTZ	
26. The Early Dutch Reception of Cartesianism	417
WIEP VAN BUNGE	
27. The Curious Case of Henricus Regius	434
TAD M. SCHMALTZ	
28. Geulincx and the <i>Quod Nescis</i> Principle: A Conservative Revolution	450
ANDREA SANGIACOMO	
29. Johannes Clauberg and the Search for the <i>Initium Philosophiae</i> : The Recovery of (Cartesian) Metaphysics	465
ALICE RAGNI	
30. What is Cartesianism?: Fontenelle and the Subsequent Construction of Cartesian Philosophy	481
MITIA RIOUX-BEAULNE	
31. Cartesianism in Britain	496
SARAH HUTTON	
32. "Italy Did Not Want to Be Cartesian": And For Good Reason	514
GIULIA BELGIOIOSO	
33. The Creation of Eternal Truths: Issues and Context	531
DAN ARBIB	
34. Cartesianism and Eucharistic Physics	547
JEAN-ROBERT ARMOGATHE	
35. Cartesianism and Feminism	565
MARIE-FRÉDÉRIQUE PELLEGRIN	

PART III THE CRITICS

36. Pascal and Port-Royal	583
HÉLÈNE BOUCHILLOUX	
37. Gassendi as Critic of Descartes	597
ANTONIA LOLORDO	

38. Optics, First Philosophy, and Natural Philosophy in Hobbes and Descartes	610
DOUGLAS JESSEPH	
39. Henry More, Supporter and Opponent of Cartesianism	629
JASPER REID	
40. Cavendish vs. Descartes on Mechanism and Animal Souls	643
HADLEY COONEY	
41. Spinoza, Descartes, and the “Stupid Cartesians”	659
STEVEN NADLER	
42. Simon Foucher and Anti-Cartesian Skepticism	678
MICHAEL W. HICKSON	
43. Locke on Cartesian Bodies and Cartesian Souls	691
PHILIPPE HAMOU	
44. Anne Conway’s Response to Cartesianism	707
CHRISTIA MERCER	
45. Leibniz and Descartes	721
JEAN-PASCAL ANFRAY	
46. A <i>Cartésien Manqué</i> : Pierre Bayle and Cartesianism	738
TODD RYAN	
47. The Condemnations of Cartesian Natural Philosophy Under Louis XIV (1661–91)	755
SOPHIE ROUX	
48. Pierre-Daniel Huet, Skeptic Critic of Cartesianism and Defender of Religion	780
THOMAS M. LENNON	
49. Gabriel Daniel: Descartes Through the Mirror of Fiction	791
JUSTIN E. H. SMITH	
50. Physics and Metaphysics in Descartes and Newton	804
ANDREW JANIAK	
<i>Index of Names</i>	817
<i>Index of Subjects</i>	823

CONTRIBUTORS

Fred Ablondi, Hendrix College

Igor Agostini, University of Salento

Jean-Pascal Anfray, École Normale Supérieure (Paris)

Delphine Antoine-Mahut, École Normale Supérieure de Lyon

Dan Arbib, École Normale Supérieure (Paris)

Roger Ariew, University of South Florida

Jean-Robert Armogathe, École Pratique des Hautes Études—Sorbonne (Paris)

Jean-Christophe Bardout, University of Rennes 1

Giulia Belgioioso, University of Salento

Erik-Jan Bos, Radboud University Nijmegen

Hélène Bouchilloux, University of Lorraine

Claudio Buccolini, National Research Council, Istituto per il Lessico Intellettuale Europeo e Storia delle Idee

Hadley Cooney, University of Wisconsin—Madison

Frédéric de Buzon, University of Strasbourg

Antonella Del Prete, Tuscia University

Mihnea Dobre, University of Bucharest

Philippe Drieux, Rouen University

Philippe Hamou, Paris Nanterre University

Gary Hatfield, University of Pennsylvania

Helen Hattab, University of Houston

Michael W. Hickson, Trent University

Sarah Hutton, University of York

Andrew Janiak, Duke University

- Douglas Jesseph, University of South Florida
- Denis Kambouchner, Pantheon—Sorbonne University (Paris 1)
- Thomas M. Lennon, University of Western Ontario
- Antonia LoLordo, University of Virginia
- Gideon Manning, Claremont Graduate University
- Sébastien Maronne, University of Toulouse
- Christia Mercer, Columbia University, New York
- Denis Moreau, University of Nantes
- Steven Nadler, University of Wisconsin—Madison
- Lex Newman, University of Utah
- Lawrence Nolan, California State University—Long Beach
- Marie-Frédérique Pellegrin, Jean Moulin University Lyon 3
- C. P. Ragland, Saint Louis University
- Alice Ragni, University of Luzern
- Jasper Reid, King's College London
- Laurence Renault, Paris—Sorbonne University/Paris—Sorbonne University Abu Dhabi
- Mitia Rioux-Beaulne, University of Ottawa
- Sophie Roux, École Normale Supérieure (Paris)
- Todd Ryan, Trinity College, Connecticut
- Andrea Sangiacomo, University of Groningen
- Tad M. Schmaltz, University of Michigan—Ann Arbor
- Lisa Shapiro, Simon Fraser University
- Justin E. H. Smith, Paris Diderot University (Paris 7)
- Wiep van Bunge, Erasmus University Rotterdam
- Han van Ruler, Erasmus University Rotterdam
- Theo Verbeek, Utrecht University

ABBREVIATIONS OF WORKS BY DESCARTES

- AT *Oeuvres de Descartes*, edited by Charles Adam and Paul Tannery, 11 vols. Paris: J. Vrin, 1964–71.
- CSM *The Philosophical Writings of Descartes*, translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch, 2 vols. Cambridge: Cambridge University Press, 1984–5.
- CSMK *The Philosophical Writings of Descartes*, vol. 3 (Correspondence), translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny. Cambridge: Cambridge University Press, 1991.
- S *The Correspondence Between Princess Elisabeth of Bohemia and René Descartes*, edited and translated by Lisa Shapiro. Chicago: University of Chicago Press, 2007.
- V *The Passions of the Soul*, edited and translated by Stephen H. Voss. Indianapolis: Hackett Publishing, 1989.

PART I

DESCARTES

CHAPTER 1

PHILOSOPHER DEFYING THE PHILOSOPHERS

Descartes's Life and Works

HAN VAN RULER

THE winter night dark with icy winds, only a faint glow shines from the smart new houses on Westermarkt, shedding light on a small man, quite well dressed, who steps outside into the cold.* Hail comes down so mercilessly that no one else seems eager to go out at this late hour, but instead of turning up his collar and disappearing into the dark, the man hardly moves. Occasionally, he catches a hailstone, and either diligently observes it, or rubs his gloves, to look back up. So enmeshed is he in his erratic behaviour that the wintry conditions seem not to bother him. As hail turns to snow, his attention to what he catches from the sky merely intensifies, and it is only after the last flakes have fallen that we see him hurrying back inside.

Descartes would be out on the street again the next morning, Monday 5 February 1635 (*Meteors*, AT VI.308). The cold had now become so extreme that little sheets of ice were glistening in the air, tumbling down like snowflakes. Continuing all day, as well as the next, to study alternating precipitations of hail and snow, we may imagine him to have gone back inside now and again, quickly setting himself down to describe every type of stone and flake he had seen or taken with him—or to observe what happens when they melt. We may also presume that, though exhibiting utmost patience and care in his methodical way of going about, Descartes's head was spinning with the foresight of being able to explain all the processes of alternate congelation and liquefaction he conjectured to have led to the formation of these various types of snow. His vivid imagination already having given him the clues, he cannot but see his thoughts confirmed every time he catches another tiny constellation of ice.

* I should like to thank Theo Verbeek and Erik-Jan Bos for their comments on an earlier draft of this chapter.

On a less conscious level, Descartes's eagerness to seize the opportunity and study what was falling down from the clouds this Amsterdam winter must have been driven by more troubled thoughts. With a view to the future, there was still so much to do if he was ever to pursue his plan to present to the public some specimens of his new way of thinking. With a view to the past, every new finding was a painful reminder of earlier enthusiasms and failures, as well as of successes secretly booked that he had still not been self-assured enough to publish. Nor did he ever underestimate the potential repercussions his findings might meet in philosophical circles—the shock possibly outweighing all the recent strife over the movement of the Earth.

For the moment, welcome winter storms blew away such worries and offered exactly the kind of observations our inquisitive snow observer deemed crucial for the tract on meteorology that was to form part of his longer-term project: to formulate a whole new way of looking at nature, and thus to alter the course of what he had come to describe for himself as “the sciences”.

1. BREAKING WITH THE PAST

Two months later, the long winter just beginning to make room for some signs of spring, Descartes's confidence was given a final push by three happy mornings spent in the company of a man in high office, the Lord of Zuilichem, better known today as Constantijn Huygens (1596–1687), young Christiaan's father, and secretary to Frederick Henry, the Prince of Orange and Head of State. As Descartes would explain to a Leiden peer, the mathematician and arabist Jacob van Gool (1596–1667), his talks with Huygens had seemed to provide evidence for a transmigration of souls, so much had the Lord of Zuilichem constantly taken the words out of his mouth as they were discussing Descartes's theory of perception (Descartes to Golius, 16 April 1635, AT I.315–6). The impression had been mutual: remarking that Descartes's ideas struck him as uncommonly persuasive, Huygens offered his support in making them public. Descartes, in turn, invited Huygens to read and correct not only his treatise on optics, but also the treatise on meteorology, as well as a “preface” he was planning to write (Descartes to Huygens, 1 November 1635, AT I.591–2/CSMK 50), thereby finally committing himself to fulfil the daring promise he had been making for some fifteen years now: to make public his theoretical alternative to the body of knowledge he had been schooled in.

Ultimately adding a mathematical work as well, Descartes was able to present to Huygens on 12 June 1637 a first copy of three scientific essays bound together with a short introductory *Discourse* about the method he had followed (Descartes to Huygens, 12 June 1637, AT I.385/CSMK 59–60). This *Discourse on Method* (*Discours de la méthode*) has for centuries been seen as a foundational treatise in the history of modern thought, but it was the three *Essays* accompanying the *Discourse* in its original form which, according to Descartes, illustrated the pre-eminence of his method. One can hardly overestimate the historical significance of these now forgotten tracts: the *Dioptrics*

(*Dioptrique*) offering the first formulation in print of the law of refraction, besides a host of subsequent findings on elliptic and hyperbolic lenses, microscopes, and telescopes; the *Meteors* (*Météores*) presenting the first complete explanation in human history of the captivating and awe-inspiring phenomenon of the rainbow,¹ as well as a broad range of speculations on the weather without the slightest reference to God; finally, the *Geometry* (*Géométrie*) that laid the foundations of analytic geometry, a science without which later seventeenth-century developments in mathematical physics would not have been possible—nor, for that matter, present-day technological gadgets in our pockets and our cars. Descartes certainly made an appearance.

Perhaps even more than his *Principia* of 1644, these *Samples of Philosophy*, as the Dutch and Latin versions of the package of *Discourse* and *Essays* would be entitled,² are likely to have functioned as a source of inspiration for other scientists as much as they evoked in the young Huygens an interest in mathematics, refraction, lens-grinding, the formation of snow crystals, the use of telescopes, etc. As for the introductory *Discourse*, it is easy to underestimate its relevance for the (proto-) scientific treatises that followed. Despite its jovial tone, its overly carefree prognostication of future scientific progress, and its audacious rejection of the philosophical past, the idea in itself of adding an apologetic account of what had brought him to this point is a reminder of Descartes's latent fear of raising controversy, as well as a sign of his own appreciation of the depth of his break with tradition. In addition to this, Descartes's way of explaining his "method" in the context of an autobiographical sketch was also a mark of his apparent conviction that there had been a common thread to all previous stages of his intellectual development. It had been a matter of trial and error in some ways, but he had always kept course, convinced from the start that he was onto something out of the ordinary.

2. NATURES, FORMS, AND QUALITIES

At the start of the fifth part of the *Discours de la méthode*, Descartes looks back on one of his earlier, aborted, projects; the project immediately preceding his work on the *Discourse* and *Essays*. We now know this unfinished work as *Le monde*—i.e. *The World*, or *Treatise on Light*, a text that would remain unpublished throughout the course of Descartes's life. He had been working hard on it all summer and autumn of 1633 in Deventer, trying to get it finished before the end of the year. In November, he suddenly announced he had abandoned the plan (and had "almost decided to burn all [his] papers") upon having heard from Leiden or Amsterdam about the outcome of the Galileo trial (Descartes to Mersenne, End of November 1633, AT I.270–2/CSMK 40–1). The idea

¹ Boyer 1959: 212.

² The *Specimina philosophiae* were first published with L. Elsevier in Amsterdam in 1644, though without the *Geometry*. See Descartes (2007) for a critical edition. The *Proeven der Wijsbegeerte* also appeared in Amsterdam, but with J. Rieuwertsz, in 1659. See Van Otegem 2002 for all bibliographical details on Descartes's works.

that had been at the core of Galileo's condemnation, the question of the Earth's movement around the Sun, was a central aspect of what Descartes himself had intended to present in *The World*, and we may accordingly presume the Church's condemnation of Copernicanism to have been his main reason for deciding to leave his own system of nature unpublished. At the same time, not having been able to connect his ideas on the formation of the solar system to an account of the origin of life, Descartes was also very much aware of the fact that what he had set out to do had still been far from finished.

Four years later, he openly admitted his inability to find a link between physics and biology (AT VI.45–6/CSM I.134), but the *Discourse* offers no further specifics for his decision to present separate specimens of science instead. When he writes that there are “many questions that are being debated among the learned” with whom he has no “wish to quarrel” (*Discours*, AT VI.40/CSM I.131), we may gather there was even more to his resolution to first offer samples than Copernicanism and missing links alone. Descartes's method amounted to something that was squarely at odds with accepted ways of doing natural philosophy, and pronouncing the wish to avoid controversy had meanwhile become his favourite tactic in circumventing *metaphysical* types of debate. When, in the immediate context of mentioning his earlier project of *The World*, Descartes writes he will specifically ignore some of the things “about which they dispute in the Schools” (*Discourse*, AT VI.43/CSM I.132), and, in the *Meteors*, that he has no aim to “break the peace with the philosophers” (AT VI. 239), he is expressing a wish simply to leave unmentioned what, in *The World*, he had still felt free more explicitly to reject: the Aristotelian notions of “(substantial) forms” and “(real) qualities”.

Despite Descartes's personal prudence and enduring discretion, it was these notions of “forms” and “qualities” that were ultimately to define the philosophical battle between Aristotelianism and Cartesianism in seventeenth-century Europe. When, as a teenager, Gottfried Wilhelm Leibniz would stroll the woods of Saxony in the early 1660s, earnestly asking himself whether he would support the ancients or the moderns, he formulated the dilemma in terms of the “natures” and “substantial forms” of things that had gone lost in the modern view on nature³—the very same issue, that is, which the Utrecht Calvinist theologian Gisbertus Voetius (1589–1676) decided to bring up against Descartes in the early 1640s. The question was of momentous importance to early-modern culture as much as to philosophy itself. Not only did Voetius's attack on mechanicism prefigure Leibniz's later way of conceptualizing the clash—it also brought to light a smothering uneasiness with Descartes in the early 1640s that would be Leibniz's main point of concern as well: the fact that the new philosophy yielded causal metaphors totally inappropriate for understanding theological images of divine guardianship.

Descartes, accordingly, had every reason to be careful. Significantly, the first philosophical war fought over his views evolved as a result of the academic pursuits of someone rather less careful than himself. The Utrecht professor of medicine and botany, Henricus Regius (1598–1679), a naturalist in philosophy and a practicing physician of a sanguine

³ For a detailed analysis of how Leibniz “emerged from the Rosental grove”, pondering the notion of “substantial forms” (as well as that of “natures”), see Mercer 2001: 23–59 (quotation from 26–7).

psychological disposition, immediately took to Descartes's views in physiology and natural philosophy. In class, however, he associated these with metaphysical conclusions of his own, such as that man was an *ens per accidens*—an accidental being—in other words, a contingent conglomerate of body and mind.⁴ These were things not only that theologians might become concerned about, but that Utrecht students actually started rioting over, to the effect that the rector of the university was called upon to give a reaction that might “temper students in their reckless desire to discuss certain questions which threatened to draw them away from the study of theology” (Descartes and Schoock 1988: 96).⁵

Rector Gisbertus Voetius obliged by staging two days of university disputations just before Christmas 1641, aimed at restraining what he saw not as the emergence of a new philosophy, but as the recurrence of a metaphysically ineffectual way of thinking. In response to Descartes's intellectual presumption, Voetius argued there is “so much we do not know”; but as the title of his comments indicated, there was also something that should be known and accepted beforehand, namely that there are such things as “natures” and “substantial forms”.⁶ Undisturbed by the question of transubstantiation that would haunt Cartesians and other *novatores* in Catholic Europe throughout the century, Voetius, as a Protestant traditionalist in philosophy, was worried instead that Descartes might bereave science of what was regarded as a genuinely “causal” understanding of nature: the inner, and “substantial” way of seeing things that links every event to the identification of an individual factor of change responsible for its occurrence.⁷

Exemplifying the transition from a metaphysical to a mechanical understanding of nature, the Utrecht Crisis thus involved much more than just Copernicanism, or specific points of theological dogma or scientific methodology—and Descartes was well aware of this. If, as has rightly been said, “[the] elimination of explanations involving ‘real qualities’ was one of the central planks of Descartes’ scientific programme” (Cottingham 1986: 7), Descartes nevertheless mounted an evasive and sometimes deeply ironical strategy when alluding to the position of “the philosophers”, i.e. to the traditional way of explaining natural change. Not that he was in any doubt about the validity of his own position; indeed, Descartes's metaphysical purge had long before taken place, and the text of *The World* is very clear on this point:

If you find it strange that [...] I do not use the qualities [...] as the philosophers do—I shall say to you that these qualities themselves seem to me to need explanation.

(AT XI.25–6/CSM I.89)

⁴ The *ens per accidens*-thesis has been associated with the threat of Averroism, but may also have been considered a “Platonic” form of metaphysical analysis scholastic authors deemed themselves far beyond. See Van Ruler 1995: 187–92 for a discussion.

⁵ On the 1641 conflict at Utrecht University, see McGahagan 1976, Descartes and Schoock 1988 and Verbeek 1992.

⁶ Verbeek 1992: 18. Bibliographical details with regard to Voetius's essay ‘On the Natures and Substantial Forms of Things’ may be found in Van Ruler 1995: 9.

⁷ Cf. Van Ruler 1995 and 2014a.

Philosophers in the scholastic tradition not only identified substantial forms as factors responsible for natural change, they also considered “(real) qualities” to act as active principles in their own right. Likewise, if a substantial form was seen as the factor that determined the identity of a thing and was held to be the internal cause of its behaviour, such a form might still make use of real qualities acting as its observable instruments within their own, “accidental” sphere of being. In natural circumstances, the elusive *form* of fire, for instance, would never exercise its virtues without the help of the observable *quality* of heat, which prepared and disposed “heated” parts of matter in such a way that these might become capable of receiving the form of fire themselves.⁸

Later in life, Descartes would mockingly reject the theory of qualities in a terminology echoing his own philosophical interests, and argue that there are no such things as “*real qualities*, which are attached to substances, like so many little souls to their bodies” (Descartes to Mersenne, 26 April 1643, AT III.648/CSMK 216). Even in 1643, however, he only made this remark in the less public context of a letter written to his friend Marin Mersenne (1588–1648), the Parisian friar who acted as the focus point of scientific communication lines in Europe during the second quarter of the seventeenth century. Knowing full well that his philosophical adversaries regarded qualities not just as properties, but as physical actors in their own right, Descartes, rather than to deny their existence outright, had chosen to argue that his physics had no need for such metaphysical entities.

Unbeknownst to the public, he had already played a cat-and-mouse game with the Aristotelians during the early 1630s, when he had argued in *The World* that “[m]ost philosophers maintain that sound is nothing but a certain vibration of air”—playfully proceeding to defy the Aristotelians in the next sentence by stating that “not everyone” would perhaps “wish to believe what the philosophers say”, and therefore inviting the reader to move on to another example, the example of touch (AT XI.5/CSM I.82). Here, Descartes was still openly teasing the philosophers, most of whom did not at all see sound as a vibration of air. Rather, they interpreted Aristotle’s explanation of sound (which spoke of a collision of two solid bodies with air getting stuck in between) as involving the occasion for a quality to arise that was internal to the “sounding” bodies or the medium.⁹ Ring the bell, in other words, and it will scream—or cause the surrounding air to cry out in turn.

The World radically broke with this way of seeing things. Originally inspired by the German Jesuit Christoph Scheiner’s (1537–1650) observation at Frascati, near Rome, on 20 March 1629, of five sun dogs, or *parhelia*, the report of which he had first obtained from his Walloon friend Henri Reneri (1593–1639), Descartes had started to work towards the end of summer on a text that was meant to explain this phenomenon, and to be joined to his views on the rainbow. Soon, he changed plans, opting for a treatise

⁸ Likewise, Franciscus Suarez (1548–1617) argued substantial forms require “the cooperation of an accidental instrument” since they require “accidental dispositions on the part of the matter” (Suarez 1994: 74). See also Van Ruler 2014a.

⁹ See Van Ruler 2011, as well as *De Anima* II 8 for Aristotle’s analysis of the nature of sound.

on *all* natural phenomena instead (Descartes to Mersenne, 8 October and 13 November 1629, AT I.23, 70/CSMK 6, 7). Henri Reneri, some of whose work has been associated with contemporary Baconian trends in philosophy,¹⁰ must have acted as a welcome sounding board for Descartes on questions of natural philosophy, since whilst living in Amsterdam when he had started working on *The World*, Descartes followed Reneri to Deventer in 1632, when the latter had been appointed professor of philosophy there. Working on the *Dioptrics* and *Meteors* during alternating stays in Amsterdam and Deventer between 1633 and 1635, Descartes would, in the spring of 1635, join Reneri in Utrecht as well.

3. THE A PRIORI ROUTE

Yet Descartes was already applying his own way of explaining natural phenomena in other fields before he started working on *The World*. In the summer or early autumn of 1629, he had taken up residence in an upper dwelling on Amsterdam's *Kalverstraat*, or Calf Street.¹¹ Living in the butchers' quarter offered him an easy opportunity to study the animal body with his own eyes and to take body parts home (Descartes to Mersenne, AT II.621), which was crucial for accomplishing his plan to add to his earlier physiological findings in optics a more general theory of physiology—a systematic account of which he would ultimately give a in the *Treatise on Man* (or *Traité de l'homme*), the twin publication to *The World* that he equally decided not to publish upon hearing of the Galileo trial. This book, too, was only published after Descartes's death, first in a Latin edition in Holland (1662) and subsequently in France (1664), where it would cause a sensation. Falling into the hands of Nicholas Malebranche in a bookshop in the Rue St Jacques, the future philosopher had a hard time reading it for sheer hyperventilation.¹² The amazing thing was, as the book's first editor Florens Schuyt (1619–1669) had put it, that Descartes had managed to explain in a mechanical way “all the functions of the human body that are normally attributed to vegetative and sensitive souls.”¹³ Interpreting the body, including its processes of digestion, blood circulation, and breathing, as well as its sensory and motor functions as an automated system, Descartes had been able to offer a convincing argument for what has since become an accepted belief in physiology, viz. that many of our reactions occur through an exchange of information between sensory and motor nerves over which “the soul”, or human consciousness, has no power or influence. Anticipating the notion of involuntary reflexes, in other words, the *Treatise on*

¹⁰ Verbeek 2003 and Buning 2013: 131–5.

¹¹ Information obtained from Vopiscus Fortunatus Plempius (1601–71) by Cohen (1921: 467–8).

¹² Fontenelle (1717: 340–1). On the subsequent reception of the *Treatise on Man*, see Antoine-Mahut and Gaukroger 2016. On the book's reception in the Netherlands, see Schmalz 2016.

¹³ Schuyt 1662: d4v.

Man introduced the unprecedented idea to delete the concept of “mind”, or “soul”, from a naturalistic description of the workings of the body.¹⁴

The history of seventeenth-century science is incomplete without Descartes’s scientific contributions to a variety of fields, but it is just as much incomplete without the appreciation of such colossal intellectual shifts as the animal body being stripped of its souls and the universe as a whole deprived of its forms. Active forms within inanimate nature were a counterpart to active souls in living bodies, and despite the fact that a revolution in scientific thinking was everywhere in the air in Europe around 1620, formal factors of change continued to populate not only the Aristotelian, but the entire pre-Cartesian world.¹⁵ *The World*, by contrast, simply removed the notions of substantial forms and real qualities from its account of nature, arguing instead that all natural processes were reducible to mechanisms at the level of fundamental particles; that the resulting model of matter in motion uniquely met the philosophical requirement of explanatory efficiency; and that such explanations might be summarized in terms of “laws of nature” describing the regular behaviour of parts of matter. Not only did the book present the Sun as one of the fixed stars, and all the other stars as solar objects within their own particular systems, it also settled the norm for cosmological considerations to be conditioned on two types of reductive thinking. The first of these is what one might call a “vertical” reduction, according to which every observable state of a process should be related to the behaviour of the unobservable particles that explain it; the second, a “horizontal” reduction, which chronologically relates every state of a process to its earlier stages, thus ultimately leading back to an initial singularity. Introducing the hypothesis of a primordial Big Bang, Descartes never meant his *World* should replace the biblical account of *Genesis* (*Discours*, AT VI.45/CSM I.133–4), but still detracted from the relevance of holy Scripture for deciding questions of physics, since he argued his own account functioned as a better way of making the clockwork of nature intelligible (*Principles*, AT VIII.A.99–100/CSM I.256)—a fact that, as the story goes, left pious Anna-Maria van Schuurman dumbfounded (AT IV.700–1).

To link all physical processes to a primordial stage of the universe was thus a major element in Descartes’s natural philosophy, and all of his life he remained committed to the development of this idea behind *The World*. Not yet contaminated with a Kantian reading of philosophical terms, he asked Mersenne in 1630 for empirical evidence about the trajectories of comets, on the basis of which he might present his description of the

¹⁴ For a balanced view on the relevance of Descartes’s work for the development of the notion of biological reflexes, see Hatfield 2016. Hatfield (2007: 29) himself previously raised the possibility of a historical line of influence from René Descartes down to nineteenth-century mechanistic psychological thought and Ivan Pavlov. The possibility of such long-term historical impact aside, Descartes’s elimination of the notion of the soul from an explanation of the workings of the body is a fine example of how, as Rozemond (1998: xiv) has argued, “Descartes [...] had far more to say about the physical world than about the mind.”

¹⁵ Even an acclaimed substance-mode ontologist (Hattab 2009) such as David Gorlaeus (1591–1612), on whom see Lüthy 2012, found it impossible to appreciate the idea that natural philosophy might cease to preoccupy itself with uncovering “substantial”, and thus causally responsible, “actors” of change (Van Ruler 2014b).

universe in an a priori manner (AT I.250–1/CSM I.37–8). Rather than having any bearing on rationalist or empiricist methodologies, Descartes's use of the term a priori here touches simply on the possibility of deducing a variety of phenomena from an initial state, and thereby offering a would-be history of the world. The *Treatise on Man* fitted in with this broader project not only in the sense that it substituted hidden qualitative, metaphysical, and spiritual factors of change by mechanical factors, but also because its theory of physiology was ultimately to be included in the grander deduction of all physical phenomena in a single evolutionary “fable” (AT XI.31, 48/CSM I.90, 98).

Explaining the origin of life would remain Descartes's ultimate challenge. Openly admitting that there was still a gap in his cosmological account of physical nature (“I did not yet have sufficient knowledge to speak of [animals, and in particular men] in the same manner”; *Discourse*, AT VI.45/CSM I.134), he never quite figured out how this was to be done, and so *The World* and the *Treatise on Man* would remain two separate projects. His unfinished *Description of the Human Body*, on the other hand (*La description du corps humain*, AT XI.223–90/CSM I.314–24), bears witness to the fact that he never stopped trying, and was still aiming, even in the late 1640s, to fulfil his one-time promise to Mersenne to offer an account of all processes in nature *ab ovo*, as it were.

4. A FRENCHMAN FROM POITOU

Part of Descartes's achievements had been inspired by a mentor he would later denounce. Having come from France to the Netherlands in early 1618 to join the army of Maurice of Orange in the southern border town of Breda, it was as a 22 year-old that he met Isaac Beeckman (1588–1637) there—a meeting on 10 November 1618 that Descartes's first biographer Daniel Lipstorp (1631–84) famously recounted as having been prompted by the public posting of a mathematical problem Beeckman translated for Descartes.¹⁶ The two men immediately became friends, and from Descartes's letters as well as Beeckman's *Journal*, one senses the delight they both experienced at finally having found someone with the same interests and the same creative mind. Descartes is sure to have been especially impressed by the intellectual independence of his self-employed new friend, who would turn 30 in December, and was thus eight years his senior. The oldest of Descartes's remaining letters, dated 24 January 1619, testifies to his strong emotional attachment to Beeckman:

You ought not to think that all I care about is science, I care about you, and not just your intellect [...], but the whole man.

(Descartes to Beeckman, 24 January 1619, AT X, 151/CSMK 1)

¹⁶ Lipstorp 1653: 76–7. The story may well be fictitious, but Descartes and Beeckman did in fact meet that same day. Cf. Beeckman 1939: 237.

As a New Year's gift, Descartes was to offer Beeckman in manuscript form his first piece of writing, the *Synopsis of Music* (or *Compendium musicae*, AT X.89–150), which he had been writing at the latter's request over the previous weeks; and when Beeckman left Breda in January 1619, the two men continued to correspond by letter on questions of music, mathematics, and mechanics.

Beeckman's views were to have a lasting impact on Descartes. A Calvinist Zelander of Flemish origin and a self-made engineer, Beeckman often travelled as a tradesman for his father. A career ahead of him as vice-principal of grammar schools in Utrecht and Rotterdam, and as school principal in Dordrecht, he would continue to make astronomical observations, to develop his views on questions of physics, to study lens-grinding, and to offer all sorts of technical advice both to private persons and authorities.¹⁷ He had studied theology and medicine, but was very much inclined to rely on his own wits and always put his own experience first. Knowing everything about water pumps and windmills, he had already developed his own mechanistic model for explaining questions of physics well before he met Descartes, including ideas on air pressure, the corpuscular nature of light, magnetism, and inertia. Impressed with Descartes's work in music, Beeckman significantly suggested to Descartes to add a physical interpretation of sound, according to which pitch is determined by the frequency of strokes (*ictus*) of air hitting the ear (AT X.61–2, 110).¹⁸ The two men also discussed questions of method, but by the time Descartes was on the point of leaving the Netherlands for Denmark and Germany, Beeckman was urging him to develop what he had recognized as Descartes's special talent: his mathematical skills.

The young genius would turn into an ungrateful pupil. Many years later, in December 1629, it may have been Descartes's impatience with the slow pace of his own work that made him initially suspicious of ideas being exchanged between Beeckman and Mersenne. When he conjectured that Beeckman was claiming for himself the honour of having introduced to him an idea on the nature of sound, Descartes seems unilaterally to have made an end to their friendship, only to insult and belittle his old friend in an abusive letter again a year later (Descartes to Beeckman, 17 October 1630, AT I.156–170/CSMK 26–8).¹⁹ Miraculously, the two men would resume their contact, but it is presumably because of what happened in 1629 and 1630 that Beeckman's biographer would portray René Descartes in 1996 as a “bragging, suspicious, quick-tempered, unreasonable, insincere, self-centered” and “lying” paranoid (Van Berkel 1996: 1). It is, moreover, quite possible that Descartes borrowed even some of the most general principles of his physics from his Dutch friend.²⁰ In the autumn of 1630, Descartes may have been provoked by a

¹⁷ On Beeckman, see Van Berkel 2003 and 2013.

¹⁸ Beeckman 1939: 269, Cohen 1984: 166, Shea 1993: 81–3.

¹⁹ For a fierce accusation of disingenuousness on the part of Descartes, see Shea 1993: 83–6. Note, however, that although Beeckman had originally spurred Descartes to offer a physical interpretation of sound (see note 18), the latter would uphold a wave theory of the propagation of sound contradicting Beeckman's conception of a displacement of air (Cohen 1984: 200–1; Shea 1993: 82–3).

²⁰ Summing up the details, Arthur (2007: 27) concluded that “a significant part of what subsequently became known as Cartesian natural philosophy was plagiarized from Beeckman”.

resentful letter from Beeckman himself that has since been lost, but even if this was the case, his obsession with questions of intellectual priority vis-à-vis his one-time tutor amounts to a painful and embarrassing example of psychological self-deception in Descartes.

Nor was there any reason for seeing Beeckman as his rival. Constantly keeping in touch with Parisian as well as international philosophical circles through his exchange of letters with Mersenne, Descartes, on the whole, seems to have relished playing the role of a solitary oracle to be consulted on any subject in his faraway outskirts. Yet the philosophical perspective on things he had been in the process of developing ever since his first initiation with Beeckman went far beyond any of the piecemeal problem-solving he was in the habit of discussing with others.

5. ANOTHER COUNTRY

Descartes may have returned to the Netherlands in 1628 first and foremost to meet Adriaan Metius (1571–1635), the Franeker professor of mathematics and brother of Jacob Metius (1571–1628), whom Descartes believed to have invented the telescope (*Diotprics*, AT VI.82). He may likewise have wished to meet Golius or other academics when he enrolled at Leiden University in 1630, or simply have been curious to gauge what reception his ideas could be expected to encounter in these new university surroundings. Except for the countryside at Santpoort and Egmond, Descartes only resided in Dutch cities where new universities or “Illustrious Schools” aspiring to university status had recently been founded, or were in the process of opening their doors: Franeker (University in 1585); Amsterdam (Atheneum Illustre in 1632); Deventer (Atheneum Illustre in 1630); Utrecht (Illustrious School in 1634; University in 1636); Leiden (University in 1575). Thriving Amsterdam may also have served as a metropolitan environment in which he might silently retreat, and Leiden certainly served as a place for preparing the publication of his books, but in these and the other cities, personal contacts with academics prone to new ways of thinking seem initially to have attracted Descartes.

His frustration must have been all the greater when he was ultimately drawn into academic controversy in his new homeland. Descartes would advise Regius in 1642 to keep clear from thorny theological issues, but nevertheless urged him to reply to Voetius’s arguments in an openly mechanistic way, which Regius did. He chose to launch a personal attack against Voetius himself, first in his 1642 *Letter to Dinet* (AT VII.563–603) and then, after he had read parts of a Utrecht counterattack that was currently in press, in his *Letter to the Very Renowned Gentleman Gisbertus Voetius* (AT VIII.B.1–198). This extensive pamphlet, which appeared with Elsevier in Amsterdam in the spring of 1643, and would soon be translated and widely read in Dutch, portrayed his opponent as a pseudo-scientist, whose childish manner of dialectical reasoning was essentially an anthology of mistaken quotations and inaccurate accusations, driven by the malicious

intention to set up his academic and ecclesiastical audiences against their fellow Christians—and against secular authorities in particular.²¹

Secular authorities within the City of Utrecht had not always been too pleased with Gijsbert Voet, but neither were they necessarily pleased with the public defamation of the star professor of their young university, who was also the main preacher in the local Reformed Church. There were factional differences within the Utrecht magistracy, and when the balance ultimately swung to Voetius's advantage, Descartes, much to his own surprise, was accused of libel on 13 September 1643.²² Official procedures were announced, and for fear of being arrested, Descartes immediately turned to the French ambassador, who successfully pleaded with Frederick Henry to intervene (Brasset to Descartes, 10 November 1643, AT IV.652–4). Utrecht then decided to let it be, but Descartes now shifted his attention to Groningen, initiating a lawsuit against Voetius's junior accomplice Martin Schoock (1614–69) in return. After this case had been passed on to the Voetius-unfriendly University of Groningen Senate, Descartes would eventually win this case in April 1645, but pamphlet wars meanwhile continued for years, with Descartes re-entering the Utrecht stage as late as 1648 with a last, unfruitful, attempt to obtain an official rehabilitation from the Utrecht government.²³

The country that had promised him peace, thus brought him disappointment. Not only were there fights and trials in Utrecht and Groningen; from 1646 onwards, there would also be a Leiden Crisis on Cartesianism, which would leave Descartes similarly disappointed with Dutch city and university governors he had thought to win over in the name of truth.²⁴ Even before considering his eventual move to Sweden, Descartes at times doubted whether he should stay in Holland at all. Informing Huygens on 8 December 1647 of the possibility he might obtain an allowance of £3,000 from the King of France, he pondered:

it would be unreasonable of me if I would not rather be in a country where I was born and where people bear witness to the fact that they have a certain respect for me, than to stay in another, where for 19 years I have not been able to obtain any kind of citizenship, and where, to escape oppression, I am every time forced to resort to Our Ambassador. (Descartes to Huygens, AT V.654)

Descartes, in the end, never returned to Paris, nor to the Touraine and Poitou countryside of his youth and family background. He did, moreover, experience good times in Holland as well, especially in the Kennemerland countryside, where he enjoyed something of a family life of his own during his first period (1637–9) in Santpoort and surroundings, and would run his dog Scratchy (*M. Grat*) (AT V.133) in the Egmond dunes during the next (1643–9).²⁵ In between, he published his *Meditations* and prepared for

²¹ Verbeek 1992: 23–9; Van Ruler 1999. ²² E.-J. Bos 1996: 14–21.

²³ Verbeek (1992: 29–33), E.J. Bos (1996: 21–35). ²⁴ Verbeek 1992: 34–51.

²⁵ Gaukroger (1995: 332) even spoke of an “Indian summer” in relation to the 1637–9 period. See also note 29. Biographical details on Descartes may be found in Gaukroger 1995 and Clarke 2006. For an elegant fusion of Descartes's life and philosophical views, see also Verbeek 1996.

the publication of his *Principles of Philosophy* in and around Leiden, an interval that had brought utter dismay for a different reason, when, on 7 September 1640, his only daughter Fransientje died at the age of 5. Six years earlier, Descartes had developed a passion for Heleen Jans, his landlord's housemaid at Amsterdam's Westermarkt, where Fransientje was conceived on Sunday, 15 October 1634, just before the cold winter of 1635.²⁶ Half a decade later, Descartes is thought to have left Leiden in the middle of August 1640 in a hurry, in order to join his ailing little daughter in Amersfoort, but she was not to be saved. He was still mourning her death when, in January 1641, he wrote to his friend Alphonse Pollot (or Alfonso Pollotti, c.1602–68) that he had recently suffered the loss of two very dear ones (Descartes to Pollot, mid-January 1641, AT III.278/CSMK 167).²⁷

Fransientje had been baptized a member of the Dutch Reformed Church, but her father always kept to his Catholic faith, making Catholic friends even in Holland. In Leiden, he counted on Cornelis van Hogelande (1590–1662), a Catholic pharmacist who would take care of a trunk full of Descartes's papers when the latter set out for Sweden in 1649.²⁸ In the countryside north of Haarlem, Descartes kept in close contact with local Catholic priests, while he may at some time have sat before Catholic-born Frans Hals in the city of Haarlem itself.²⁹ At the same time, Descartes's Catholicism should not be overstated. In the 1640s, he would befriend Princess Elisabeth of the Palatinate (1618–80), whose mother held court at The Hague as heir to a family famous for its role in Europe's Protestant cause—and Descartes had many Protestant friends besides. We owe a lively, first-hand description of the philosopher to the Leiden minister and anti-Voetian theologian Abraham Heidanus (1597–1678), who, towards the end of his life, recalled

[Descartes's] unfeigned gaiety, his good will to respond directly to everything that was asked of him, [and this] with such a clarity of argument, [that it was] as if Philosophy itself spoke through his mouth, without defaming anyone, but judging honestly about all things. (Heidanus 1676: 30)

Heidanus read a Protestant way of thinking into Descartes's theory of knowledge, but in point of fact Descartes's philosophy had no particularly Catholic, nor a Protestant side, to it. Indeed, Descartes aligned with Arminians and Jesuits as easily as he did with Oratorians and Gomarists, as long as he could put to use their theological forms of analysis in order to explain his own position in epistemology.³⁰

²⁶ At least according to Adrien Baillet (1649–1706), whose biographical account of Descartes in two volumes of 1691, though laden with moral opinion, was based on lots of first-hand information no longer available (Baillet 1691: II.89–90).

²⁷ On the interpretation of this letter, see E.-J. Bos (2018).

²⁸ Van Hogelande often also acted as Descartes's Leiden Mersenne. See Van Ruler 2003.

²⁹ A charming portrait of Descartes, with a special focus on the Kennemerland, may be found in Nadler 2013.

³⁰ Kaposi 2004, Van Ruler 2016: 256–64.

As critics, moreover, Protestants and Catholics might equally irritate Descartes. In the early 1640s, they did so to such an extent that he decided the best way to react would be to present his quasi-evolutionary physics in a treatise on the entire subject of philosophy:

Perhaps these scholastic wars will result in my *World* being brought into the world. It would be out already, I think, were it not that I want to teach it to speak Latin first. I shall call it *Summa Philosophiae* to make it [enter more easily into the conversation of] scholastics, who are now persecuting it and trying to smother it before its birth. The ministers are as hostile as the Jesuits.

(Descartes to Mersenne, January 1642, AT III.523/CSMK 209–10)

With a scholastic title and a scholastic structure, Descartes was out to penetrate scholastic territory. But even if his 1644 *Principles* were a last attempt to lure scholastics, he made no more effort to address them. Instead, he dedicated his *Summa* to the woman who had recently become his best friend in philosophy and mathematics: Princess Elisabeth of Bohemia. Two years into their friendship, Elisabeth turned sick with signs of depression, and Descartes suggested that the Princess read Seneca's *On the Happy Life* as a means of distracting her thoughts (Descartes to Elisabeth, 21 July 1645, AT IV.252–3/CSMK 256). Soon, however, he got impatient with the Roman Stoic, and characteristically set himself the task to do better. The end result, as is well known, was Descartes's last publication, *The Passions of the Soul* (1649).

Two of Descartes's three major publications after the *Discourse on Method* thus evolved more or less coincidentally, even if both were monumental works. The *Principles of Philosophy* would offer several generations of readers a first impression of the promising new attitude to knowledge, and a first encounter with what a science book might look like. *The Passions of the Soul*, though naturally lacking in neurophysiological sophistication, introduced such an unprecedented conception of the origin of human emotions and the functioning of the human brain, that it may count not only as an innovative approach to morality and behavioural therapy, but also as the historical archetype of neuroscience.³¹

³¹ A notable illustration of this is given by the many similarities that may be drawn between Descartes's *Meditations* and *Passions* and the book the Portuguese-American neuroscientist Antonio Damasio would publish in 1994 under the unfortunate title *Descartes's Error*. One of the main motives in Damasio's work is the view that feelings are images of a physical state of affairs. This emphasis on the physiological basis for the association of ideas and on the absence of the will in the description of mental events, as well as the idea of the animal organism's ability to respond to environmental factors and social and ethical conventions by an internal system of dislikes and preferences, are in fact repetitions of what Descartes had already argued in 1649—except that, in the context of innate reaction patterns, Damasio (1994: 131–2) refers to the example of the eagle that frightens the baby chick, whereas Descartes borrowed from Antoine Arnauld (1612–92) the example of the wolf in the eyes of the sheep (AT VII.230/CSM II.161). For a fine assessment of Descartes's theory of morality, see Verbeek 2012.

6. EPISTEMOLOGICAL FITNESS

The third masterpiece of the 1640s, Descartes's *Meditations on First Philosophy* of 1641, even though it drew heavily on earlier theological and moral philosophical views,³² addressed a topic that had never before been emphasized in an equally consequential manner: the fact that human consciousness presents itself as an “inner world” of experience wholly different from the “outside world” of natural objects.

Contrary to the *Principles* and *The Passions of the Soul*, the *Meditations* had long been in the making. Telling us in the *Discourse* it had been metaphysical thoughts (“perhaps too metaphysical and uncommon for everyone’s taste”; AT VI.31/CSM I.126) that had kept him occupied during the first phase of his extended stay in the Netherlands from 1628 onwards, Descartes testifies he began doing metaphysics at a time when optical interests must have been most prominently on his mind. The coincidence may serve to explain to what extent, at least in Descartes, the study of the human mind was the natural result of an interest in optics, just as Robert Hooke (1635–1703) and later commentators would claim.³³ Yet Descartes assures us that to develop a foundational body of “metaphysics” or “philosophy” had been part of a much earlier plan. He had already been convinced in 1619 that he would at some point have to try “first of all” to “establish some certain principles in philosophy”, but had ultimately embarked on “philosophy” only towards the end of the 1620s, because he had felt he should “not try accomplish [this]” until he had “reached a more mature age than twenty-three” (AT VI.21–2/CSM I.122), which he had been in November 1619.

That same month, the night following St Martin’s Eve in particular—exactly a year after he had met Isaac Beeckman—marked the occurrence of Descartes’s famous dreams.³⁴ Documenting a supposedly single most important turning point in his life, the dreams occurred to Descartes himself as visionary signs succeeding a day of unusual *enthousiasme* on which he had made great philosophical progress (AT X.181), and which is usually thought to have taken place during the period he spent in a stove-heated room in wintry Germany (*Discourse*, AT VI.11/CSM I.116). Though not explaining his discoveries, the dreams certainly mark Descartes’s resolution to act on them, and to dedicate his life to the downfall of existing sciences and the construction of new ones.

He must primarily have been working on mathematics at the time, the science in which he would eventually point the way towards the future. In 1619, he was, as yet, nowhere near the level of competence in mathematics he would attain in the course of

³² See Van Ruler 2016: 256–70.

³³ Even only a generation or so after Descartes, Robert Hooke was to conclude that “Des [Cartes’s] philosophy favours [i.e. gains] much of his opticks” (Hooke 1705: 9). (I thank Lukas Wolf for the reference.) A recent argument for the relevance of optics to Descartes’s mature philosophy may be found in Ben-Yami 2015.

³⁴ As dreams will be, these have been variously interpreted; Descartes himself read them in terms of conscious motivations, whereas a recent analysis by J. R. Cole, for instance, has suggested the combined hypotheses of a mental struggle with his father’s expectations, and an early outburst of suppressed anger against Beeckman for not taking him entirely seriously in his philosophical ambitions (Cole 1992).

the 1630s.³⁵ Still, even what he had found in 1619 had been remarkable enough, as there is every reason to believe Descartes's first steps in mathematics instantly made clear to him that geometry might gain from a novel application of algebraic techniques. What had struck him was that proportional relations might both be numerically expressed in terms of algebraic equations, and be used as a descriptive basis for geometrical construction, thus providing a common ground for the exact constructions of geometry as well as the exact operations in arithmetic, even if there was no direct relation between the continuous type of quantity represented by lines and curves and the discrete type of quantity represented by numbers.

How, exactly, Descartes initially envisaged his mathematical findings to be of relevance to all other fields of human knowledge will perhaps forever remain unresolved, since the impenetrable text we now know as the *Regulae*, or *Rules for the Direction of the Mind*, on which Descartes is thought to have worked during most of the 1620s, was ultimately left unfinished.³⁶ It announced, as has been well said, so many different ideas “competing for attention in Descartes's still inchoate plans for a renewal of knowledge”, that it amounted to an “ambitious project [...] impossible to realize” from the start (Clarke 2006: 86).³⁷

Despite this, Descartes's own autobiographical reconstruction of 1637 mentions no breaks in his intellectual development other than his decision not to publish *Le monde*, and leaves the impression that there was some basic insight he had first had in 1619 or 1620 and still considered to be relevant to the way in which he had subsequently developed his new methodological outlook on “the sciences”. The obvious candidate for an elementary insight that would remain with Descartes throughout the 1630s and the 1640s is the idea that his rejection of Aristotelian ontological categories came along with the view that there are inborn sets of intuitively clear notions serving the intellect as

³⁵ Shea 1993, H. J. M. Bos 2001, Sasaki 2003. His primary interest being in geometrical construction (for which he used algebra as a form of “analysis”—i.e. as an aid for finding solutions to geometrical problems), Descartes never fully developed the science of analytic geometry himself. He has accordingly been portrayed as someone who stayed “closer to the older way of thinking” as a mathematician (Sepper 2000: 246).

³⁶ Reconstructions of the genesis of the *Rules* may be found in Weber 1964 and Schuster 1980. Descartes quitted working on the *Regulae*, probably because he had come to realise his own apparent blindness to the fact that algebraic expressions of proportional relations were not, as he had expected, easily reducible to a basic set of intuitively clear geometrical imaginations (Schuster: 1980: 77–9; Gaukroger 1995: 172–81; Shea 1993: 139–43). Henk Bos has suggested Descartes may have been thinking of illustrating a clear and distinct figurative representation of division by the use of a gnomon figure, which, however, is inconclusive when it comes to root extraction (H. J. M. Bos 2009).

³⁷ The standard assumption, accordingly, is that Descartes gave up all he had been trying out during his early years, and moved to Holland a second time in 1628 to start all over again. John Schuster, for instance, argues that the failure to incorporate his corpuscular-mechanical model of physics in a universal mathematics, besides “latent epistemological problems”, made Descartes shift his attention, as of 1628, to “corpuscular-mechanism” and “constructive metaphysics” instead (Schuster 1980: 73–80; quotations from 76 and 80). Daniel Garber, on the other hand, argues the idea of a “method” in Descartes is itself only a fossil of the 1620s, retrospectively explaining the solution of specific problems such as finding the anaclastic and explaining the rainbow, but quite irrelevant to the projects Descartes would later undertake as a philosophical “system builder” (Garber 2001: 47–51; quotation from 49).

clues for the solution of problems. The sixth of his *Rules*, likewise, tells us the main “secret” of his method is that

[it] instructs us that all things can be arranged serially in various groups, not in so far as they can be referred to some ontological genus (such as the categories into which philosophers divide things), but in so far as some things can be known on the basis of others. (*Rules*, AT X.381/CSM I.21)

Philosophers had always been looking for the wrong things on which to build their explanations. They had ineptly taken account only of observable things, their properties and classifications, and had provided these with a metaphysical status. Descartes now proposes to replace this attention to the categorization of things with a new philosophical concern: to search for the intuitively clear aspects on the basis of which dissimilar things may be linked and understood, just as the notion of proportionality had provided a common ground for linking dissimilar things in mathematics.³⁸

Le monde would immediately resume the *Regulae's* attack on the use of Aristotelian categories, not only by focusing on the “difference between our sensations and the things that produce them” (AT XI.3/CSM I.81), but also by recommending that all references to things and properties be exchanged for imaginative models based on the “motion” of “parts”. Aristotelian ontological conceptions might well apply to common sense, but Descartes's advice was no longer to concentrate on forms and qualities in science. Rather, to understand a phenomenon such as combustion, one should “take away the ‘fire’, take away the ‘heat’, and keep the wood from ‘burning’” (AT XI.7/CSM I.83).

A now forgotten work that has only recently been dated more or less conclusively as having been written during the period 1633–5,³⁹ the unfinished “Galilean” dialogue, *Search after Truth* (*La recherche de la vérité par la lumière naturelle*), argues there are things “one learns only by experiencing them” (AT X.525). Significantly, it is not sense experience Descartes is considering here. Rather, it is the mental experience of *certainty*, elucidated by the fact that whereas one may doubt anything about the outside world, one knows very well what it is to *doubt*, or to *think*, as well as what it is to *be*, without there being any need to find out what “doubting”, “thinking” or “being” might mean. Apparently, our minds are naturally adapted, or so Descartes argues, to receiving exactly the right kind of information necessary for being convinced by these experiences themselves.

³⁸ With good reason, Jean-Luc Marion accordingly identified Aristotle (or at least, as the book's blurb presents it: “the Aristotelian *corpus*”) as the hidden interlocutor in Descartes' *Rules*. For Marion, however, this in itself was a reason for disparagement, as he deemed Descartes's alternative philosophy to offer a colourless ontology for not pronouncing itself in metaphysical terms (Marion 1981: 186). Dennis L. Sepper, by contrast, offers a more constructive analysis of what is at stake in Rule 6: “rather than seek the essence and the attributes of a thing, [Descartes's art or method] fosters noting what is given [...] and identifying axes or aspects under which the given can be viewed” (Sepper 1996: 174).

³⁹ Lojaco 2009.

The topic is suggestive of the subject matter of the *Meditations*, as well as of the general theme of epistemological fitness that Descartes had first set out to elaborate in his *Rules*, and would continue to develop in all of his later works. Prefiguring present-day findings in child psychology,⁴⁰ he would maintain, in *The Passions of the Soul*, that one of the most significant aspects with respect to the wonder we experience about external objects is whether or not we attribute to them a free will (AT XI.374/CSM I.350). This is a psychological view neatly mirroring Descartes's general conception of science, which consistently linked human knowledge to the innate capacity to understand both ourselves and physical nature, as well as the effects of the interaction occurring between the realms of the mental and the physical. Science, for Descartes, though it contravened sense experience, nevertheless confirmed man's conceptual fitness to understand reality, even if only within the boundaries of the instinctive ideas we are mentally equipped with.

Extrapolating our intuitive construction kit-model of matter in such a way as to regard it as paradigmatic for the explanation of all physical phenomena, Descartes's system of the world would prove to be only an intermediate phase in the history of physics. Even in his groundbreaking explanation of the rainbow, Descartes would highlight his own mistaken interpretation of the origin of colours as the very part of his theory in which "reasoning and experience" were so seamlessly combined that no other explanation could be possible (*Meteors*, AT VI.334). The fact that reason and experience are not perfectly aligned in this way would make Descartes a misguided physicist, but an all the more interesting philosopher, whose questions with regard to the reliability of our species-bound impressions of reality will continue to inspire any future attempt to establish our epistemological situation as conscious beings.

7. STOCKHOLM

Tired of fighting the philosophers, Descartes would end his life in Sweden, lured to the court of another female royal intellectual, Queen Christina, by Pierre Chanut (1601–62), another French ambassador, with whom Descartes shared an interest in barometrical experiments.⁴¹ He may have regretted ever having left his beloved Egmond for a "land of bears, rocks and ice" (Descartes to Brasset, 23 April 1649, AT V.349/CSMK 375), a land where "during the winter men's thoughts are frozen [...] like the water", as he put it in the last known letter he sent on 15 January 1650, the letter in which he also disclosed not to be "in his element" at the Swedish court (Descartes to Brégy, AT V.467/CSMK 383–4). A fit of pneumonia in early February 1650 would prove that he was out of place, but also prevent him from ever returning.

⁴⁰ Bloom 2004.

⁴¹ See Åkerman 1991: 46–7 for an assessment of Descartes's ulterior reasons for accompanying Chanut.

In a curious account of the post-mortem dealings with his body, Russell Shorto has recently turned Descartes's corpse into a metaphor for several centuries of subsequent scientific development in cosmology, geology, and biology, as well as for present-day cultural and political dilemma's related to the historical emergence of the Cartesian mind.⁴² Shorto's outsider image is rather more sympathetic to Descartes than the picture one habitually finds of the philosopher and his afterlife in philosophical circles. Indeed, even beyond the days of scholasticism, relations between Descartes and those who go by the name of *philosophes* have continued to be cumbersome. Charging him with somehow having been responsible for our belief in a "transparent soul" or "human subject", philosophical history has prototypically offered a picture of Descartes's life and works that is hugely dissimilar to what our protagonist himself would have accepted as his legacy.

Happily, there are small tokens honouring Descartes's personal motivations as well. Long before Shorto took his body on its metaphorical journey through European intellectual history, it found a physical burial place just outside Stockholm's *Adolf Fredriks kyrka*. It is in the interior of this church that, since 1781, one may find a monument suitably saluting what Descartes himself would no doubt have considered the foremost fruit of his findings. It figures an angel, the ultimate symbol of a separate mind, unveiling to us the world in the form of a globe, which it does by lifting the heavy curtain that had formerly kept it hidden from view.

REFERENCES

- Åkerman, Susanna (1991), *Queen Christina of Sweden and her Circle: The Transformation of a Seventeenth-Century Philosophical Libertine*. Leiden: Brill.
- Antoine-Mahut, Delphine, and Stephen Gaukroger, eds. (2016), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer.
- Arthur, Richard (2007), "Beeckman, Descartes and the Force of Motion", *Journal of the History of Philosophy* 45: 1–28.
- Baillet, Adrien (1691), *La Vie de M. Descartes*, 2 vols. Paris: D. Horthemels.
- Beeckman, Isaac (1939), *Journal tenu par Isaac Beeckman de 1604 à 1634. Tome 1: 1604–1619*, ed. C. de Waard. The Hague: Martinus Nijhoff.
- Ben-Yami, Hanoch (2015), *Descartes' Philosophical Revolution: A Reassessment*. Basingstoke and New York: Palgrave Macmillan.
- Bloom, Paul (2004), *Descartes' Baby: How the Science of Child Development Explains What Makes us Human*. New York: Basic Books.
- Bos, Erik-Jan (1996), "Inleiding", in René Descartes, *Verantwoordingh van Renatus Descartes aen d'achtbare overigheid van Utrecht; Een onbekende Descartes-tekst*. Amsterdam: Amsterdam University Press, 1–72.
- Bos, Erik-Jan (2018), "Deux signatures de Descartes dans des registres de baptêmes; et la date de la mort de sa sœur Jeanne", *Bulletin cartésien XLIV, Archives de Philosophie* 81: 171–223.
- Bos, Henk J. M. (2001), *Redefining Geometrical Exactness: Descartes' Transformation of the Early Modern Concept of Construction*. New York: Springer.

⁴² Shorto 2008.

- Bos, Henk J. M. (2009), "Descartes' Attempt, in the *Regulae*, to Base the Certainty of Algebra on Mental Vision—A Conjectural Reconstruction", in Clark Glymour, Wei Wang, and Dag Westerstahl (eds.), *Logic, Methodology and Philosophy of Science: Proceedings of the Thirteenth International Congress*. London: College Publications, 354–73.
- Boyer, Carl B. (1959), *The Rainbow from Myth to Mathematics*. New York and London: Thomas Yoseloff.
- Buning, Robin (2013), *Henricus Reneri (1593–1639): Descartes' kwartiermaker in aristotelisch territorium*. Utrecht: Utrecht University.
- Clarke, Desmond M. (2006), *Descartes: A Biography*. Cambridge: Cambridge University Press.
- Cohen, Gustave (1921), *Écrivains français en Hollande dans la première moitié du xvii^e siècle*. The Hague: Martinus Nijhoff and Paris: Édouard Champion.
- Cohen, H. F. (1984), *Quantifying Music: The Science of Music at the First Stage of the Scientific Revolution, 1580–1650*. Dordrecht: D. Reidel.
- Cole, John R. (1992), *The Olympian Dreams and Youthful Rebellion of René Descartes*. Urbana and Chicago: University of Illinois Press.
- Cottingham, John (1986), *Descartes*. Oxford: Basil Blackwell.
- Damasio, Antonio (1994), *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Grosset-Putnam.
- Descartes, René (2007), *Specimina Philosophiae: Introduction and Critical Edition*, ed. Corinna L. Vermeulen. Utrecht: Zeno.
- Descartes, René, and Martin Schoock (1988), *La querelle d'Utrecht*, ed. Theo Verbeek. Paris: Les impressions nouvelles.
- Fontenelle, Bernard de (1717), "Éloge du Père Malebranche", in *Histoire du Renouveau de l'Académie Royale des Sciences en 1699 et les Éloges Historiques de tous les Académiciens mort depuis ce Renouveau*. Paris: M. Brunet, 337–400.
- Garber, Daniel (2001), *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science*. Cambridge: Cambridge University Press.
- Gaukroger, Stephen (1995), *Descartes: An Intellectual Biography*. Oxford: Clarendon Press.
- Hatfield, Gary (2007), "The Passions of the Soul and Descartes's Machine Psychology", *Studies in History and Philosophy of Science* 38: 1–35.
- Hatfield, Gary (2016), "L'Homme in Psychology and Neuroscience", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer, 269–85.
- Hattab, Helen (2009), *Descartes on Forms and Mechanisms*. Cambridge: Cambridge University Press.
- Heidanus, Abraham (1676), *Consideratien, over Eenige saecken onlanghs voorgevallen in de Universiteyt binnen Leyden*. Amsterdam: J. van Someren.
- Hooke, Robert (1705), "A General Scheme, or Idea of the Present State of Natural Philosophy and how its Defects may be Remedied", in *The Posthumous Works of Robert Hooke, Containing his Cutlerian Lectures and Other Discourses, Read at the Meetings of the Illustrious Royal Society*, ed. Richard Waller. London: Smith and Walford, 1–70.
- Kaposi, Dorottya (2004), "Indifférence et liberté humaine chez Descartes", *Revue de métaphysique et morale* 41: 73–99.
- Lipstrop, Daniel (1653), "Appendix", in *Specimina Philosophiae Cartesianae*. Leiden: J. and D. Elsevier, 69–93.
- Lojacono, Ettore (2009), "Hypothèses de datation", in René Descartes, *La recherche de la vérité par la lumière naturelle*. Paris: PUF, 161–201.

- Lüthy, Christoph (2012), *David Gorlaeus (1591–1612): An Enigmatic Figure in the History of Philosophy and Science*. Amsterdam: Amsterdam University Press.
- McGahagan, Thomas Arthur (1976), *Cartesianism in the Netherlands, 1639–1667: The New Science and the Calvinist Counter-Reformation*. Ann Arbor and London: University Microfilms International.
- Marion, Jean-Luc (1981), *Sur l'ontologie grise de Descartes*. Paris: Vrin.
- Mercer, Christia (2001), *Leibniz's Metaphysics: Its Origins and Development*. Cambridge: Cambridge University Press.
- Nadler, Steven (2013), *The Philosopher, the Priest, and the Painter: A Portrait of Descartes*. Princeton and Oxford: Princeton University Press.
- Rozemond, Marleen (1998), *Descartes's Dualism*. Cambridge, MA and London: Harvard University Press.
- Sasaki, Chikara (2003), *Descartes's Mathematical Thought*. Dordrecht, Boston, and London: Kluwer.
- Schmaltz, Tad (2016), "The Early Dutch Reception of *L'Homme*", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer, 71–90.
- Schuster, John A. (1980), "Descartes; Mathesis Universalis: 1619–28", in Stephen Gaukroger (ed.), *Descartes: Philosophy, Mathematics and Physics*. Brighton: The Harvester Press, 41–96.
- Schuyt, Florentius (1662), "Ad Lectorem", in René Descartes, *De Homine: Figuris et Latinitate donatus a Florentio Schuyt*. Leiden: P. Leffen and F. Moyaerd, a2–e2.
- Sepper, Dennis L. (1996), *Descartes's Imagination: Proportion, Images, and the Activity of Thinking*. Berkeley, Los Angeles, and London: University of California Press.
- Sepper, Dennis L. (2000), "Figuring Things Out: Figurative Problem-Solving in the Early Descartes", in Stephen Gaukroger, John Schuster, and John Sutton (eds.), *Descartes's Natural Philosophy*. London and New York: Routledge, 228–48.
- Shea, William R. (1993), *The Magic of Numbers and Motion: The Scientific Career of René Descartes*. New York: Science History Publications.
- Shorto, Russell (2008), *Descartes' Bones: A Skeletal History of the Conflict between Faith and Reason*. New York: Doubleday.
- Suarez, Franciscus (1994), *On Efficient Causality: Metaphysical Disputations 17, 18, and 19*, ed. Alfred J. Freddoso. New Haven and London: Yale University Press.
- Van Berkel, Klaas (1996), "De schijnbewegingen van een melancholicus", *NRC Handelsblad*, 9 May 1996, Bijlage Wetenschap en Onderwijs, 1.
- Van Berkel, Klaas (2003), "Beeckman, Isaac (1588–1637)", in Wiep Van Bunge, Henri Krop, Bart Leeuwenburgh, Han van Ruler, Paul Schuurman, and Michiel Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 68–74.
- Van Berkel, Klaas (2013), *Isaac Beeckman on Matter and Motion: Mechanical Philosophy in the Making*. Baltimore: Johns Hopkins University Press.
- Van Otegem, Matthijs (2002), *A Bibliography of the Works of Descartes (1637–1704)*, 2 vols. Utrecht: Zeno.
- Van Ruler, Han (1995), *The Crisis of Causality: Voetius and Descartes on God, Nature and Change*. Leiden: E. J. Brill.
- Van Ruler, H. (1999), "Waren er muilezels op de zesde dag? Descartes, Voetius en de zeventiende-eeuwse methodenstrijd", in Florike Egmond, Eric Jorink en Rienk Vermij (eds.), *Kometen, monsters en muilezels: Het veranderende natuurbeeld en de natuurwetenschap in de zeventiende eeuw*. Haarlem: Arcadia, 120–32.

- Van Ruler, H. (2003), “Hogelande, Cornelis van (1590–1662)”, in W. Van Bunge, H. Krop, B. Leeuwenburgh, H. van Ruler, P. Schuurman, and M. Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 435–8.
- Van Ruler, H. (2011), *Mensen, dingen, moderniteit: Over metafysische projecties en het antwoord op de vraag “Waarom toch altijd die Descartes?”* Rotterdam: Erasmus Universiteit.
- Van Ruler, H. (2014a), “The Internal Force of Proper Causes: Some Thoughts on the Logic of Forms and Substances in Suarez and Spinoza”, in Stefano Caroti and Mariafranca Spallanzani (eds.), *Individuazione, individualità, identità personale: Le ragioni del singolo*. Firenze: Le Lettere, 23–45.
- Van Ruler, H. (2014b), “Substantiële entiteiten zonder vorm: Gorlaeus’ worsteling met Aristoteles”, *It Beaken: Tydskrift fan de Fryske Akademy* 76: 197–228.
- Van Ruler, H. (2016), “La découverte du domain mental: Descartes et la naturalisation de la conscience”, *Noctua—la tradizione filosofica dall’antico al moderno*, 3: 239–94. Retrieved from <http://hdl.handle.net/1765/101676> [accessed September 2018].
- Verbeek, T. (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy (1637–1650)*. Carbondale and Edwardsville: Southern Illinois University Press.
- Verbeek, T. (1996), *De Wereld van Descartes: Essays over Descartes en zijn tijdgenoten*. Amsterdam: Amsterdam University Press.
- Verbeek, T. (2003), “Renieri, Henricus”, in W. van Bunge, H. Krop, B. Leeuwenburgh, H. van Ruler, P. Schuurman, and M. Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 824–6.
- Verbeek, T. (2012), “Generosity”, in Sabrina Ebbersmeyer (ed.), *Emotional Minds*. Berlin and Boston: Gruyter, 19–30.
- Weber, J.-P. (1964), *La constitution du texte des Regulae*. Paris: Sedes.

CHAPTER 2

WHAT DESCARTES READ

His Intellectual Background

ROGER ARIEW

1. DESCARTES AND BOOKS

ON Christmas day in 1639, in a long letter responding to three letters from Marin Mersenne, Descartes answers criticisms in Mersenne's third letter as follows: he thanks Mersenne for his advice regarding his essay on metaphysics, meaning, regarding a draft of the *Meditations*; he rejects some arguments of Ramon Lull, to which Mersenne must have referred, as "only sophisms of which I take no account"; and he sketches a tactic for responding to some mathematical objections relayed by Mersenne, saying "I will try to resolve them without setting them out, that is, I will lay the foundations, from which those who will know them will be able to derive their solution, without teaching them to those who do not know them." He then states, in a seemingly disconnected manner: "Moreover, I am not as deprived of books as you think I am, and I still have here a *Summa* of St. Thomas and a Bible I brought from France" (AT II.629–30). These responses satisfy our image of Descartes, the haughty, dismissive, and defensive loner, the "avid traveller"¹ who exiled himself to the Netherlands, who never resided anywhere very long, and who saw travel itself as a replacement for study in schools and through books—of which he read few and owned even fewer. How accurate is this image of Descartes, at least as it concerns books and his intellectual background?

Now, there are numerous occasions in which Descartes is discussing a topic, but claims he cannot delve deeper into it, lacking the resources to do so. For example, in an early letter to Beeckman, he relates an encounter with a "learned man" with whom he talked about Lull's *Ars parva*. He adds: "I would gladly examine the issue if I had the book; but since you have it, please examine it yourself at your leisure, and write to me about whether you find this art so ingenious" (AT X.165). On another occasion, Descartes,

¹ "peregrinandi cupidus", as Isaac Beeckman said (AT I.30).

writing to the mathematician Jan Stampioen, refers to Pappus's problem, which he "was specifically made aware of about two months ago by Mr. Golius, professor at Leyden". He indicates he will phrase the problem in the same terms he devised for Golius, because it seems to him the terms Pappus used "are more obscure, and I do not have the book" (AT I.278). Descartes also tells another mathematician: "I even had to borrow a book of Euclid to learn something with respect to an issue proposed to me" (AT I.472). It is not just that Descartes does not seem to have many books at his disposal; he also claims, as a rule, that he does not wish to read books. In a letter to Mersenne discussing a manuscript detailing a plan for a universal book catalogue, he says he imagines "that it will not just serve those who want to read many books", but adds: "and you know I do not number myself among them" (AT I.221). On another occasion, he similarly tells Mersenne: "As you know, I do not have books, and if I did have any, I would complain about the time it would take me to read them" (AT I.251). Descartes once told Mersenne that he learns without books: "I will then also look at *Philolaus*, but for now I am studying without a book" (AT II.571).

Still, it does look as if Descartes has much more than a Bible and a *Summa* of St. Thomas on hand.² A year earlier he related to Huygens: "I visit my books so rarely that, although I only have a half dozen, nevertheless one of your books hid among the others for more than six months without being seen by me" (AT II.456). So this time the count was at least half a dozen books; in fact, throughout the period, one can see various correspondents sending books to Descartes.³ Moreover, he frequently gives his opinions of the books he receives, and sometimes composes and forwards lengthy reading notes about them: Jan Comenius's *Pansophiae Prodromus*, Herbert of Cherbury's *De veritate*, Sebastian Basso's *Philosophiae naturalis adversus Aristotelem*, and François Viète's *De emendatione aequationum*, to name a few (respectively, *To Mersenne*, 1639 *Judicium de Opere Pansophico*, AT II.651–2; *To Mersenne*, 16 October 1639, AT II.596–9 and AT II.658; *To Huygens*, 28 March 1636, AT I.602–3; *To Mersenne*, end of December 1637, AT I.478–81).

One set of Descartes's reading notes is worthy of somewhat more mention. Descartes wrote a long letter containing his "observations of Galileo's book", that is, the *Discorsi . . . Due Nuove Scienze* of 1638 (see AT II.379–402). He prefaced the letter with a now notorious criticism of Galileo:

Generally speaking, I find that he philosophizes much more ably than is usual, in that, so far as he can, he abandons the errors of the Schools and tries to use mathematical methods in the investigation of physical questions. On that score, I am completely at one with him, for I hold that there is no other way to discover the truth. But he continually digresses, and does not take time to explain matters fully.

² One way of making sense of Descartes's assertion is to think of it as an allusion: it was reported that, at the Council of Trent, a Bible and St. Thomas's *Summa Theologiae* were placed on the altar to assist the Council in its deliberations. Thus the assertion might be a way of saying "at least I have the essentials".

³ One can easily count more than a dozen books: see, for example, *To Mersenne*, 8 October 1629, AT I.25; *To Mersenne*, 1631, AT I.219–21; *To Mersenne*, 3 May 1632; *To Mersenne*, November–December 1632, AT I.263; *To Morin*, September/October 1634, AT I.313; *To Golius*, 19 May 1635, AT I.318; *To ****, 30 August 1637, AT I.394; *To Huygens*, 28 March 1636, AT I.602; *To Mersenne*, 13 July 1638, AT II.247; *To Mersenne*, 30 April 1639, AT II.530; *To Mersenne*, 27 August 1639, AT II.570.

This, in my view, is a mistake: it shows that he has not investigated matters in an orderly way, and has merely sought explanations of some particular effects, without going into the primary causes in nature; hence his building lacks a foundation. Now the closer his style of philosophizing gets to the truth, the easier it is to recognize his faults, just as it is easier to tell when those who sometimes take the right road go astray than it is to point out aberrations in the case of those who never begin to follow it. (AT II, 380; see also AT II.433, 443)

Descartes is often taken to task for not appreciating Galileo. Such critiques usually miss the large element of contingency and misunderstanding in the relations between the two thinkers. In fact, Descartes had previously said something similar with respect to Galileo's *Dialogo... due massimi sistemi del mondo* of 1632. There on the whole he begrudgingly praised Galileo for following the right path and not accepting received opinions: "I find that he philosophizes well enough on motion, though there is very little he has to say about it I find entirely true. As far as I could see, he goes wrong more often when following received opinion than when going beyond it, with the exception of his discussion of the ebb and flow of the tides, where I find his reasoning rather forced" (AT I.304). There is a consistency to Descartes's criticism, which he expands to all philosophers, including Galileo, who he says are trying to explain particular phenomena without delving into the primary causes of nature: "I can only say that neither Galileo nor any other can determine anything clear and demonstrative regarding this [a body's motion being slowed by air], without knowing first what weight is and what are the true principles of physics" (AT I.392).

Descartes was in the position to make his initial assessment of Galileo's natural philosophy only because, as he divulged in the same letter, "Beeckman came here on Saturday evening and lent me the book by Galileo. But he took it away with him to Dordrecht this morning; so I have only had it in my hands for thirty hours. I was able to leaf through the whole book" (AT I.304). We assume that Descartes had access to Galileo's works and that he would know about as much concerning Galileo as we do. But Descartes's correspondence imparts a different impression. Before his observations of 11 October 1638, Descartes refused to comment about Galileo's *Discorsi* simply because he had not seen the work: "Your last letter just contains observations on Galileo's book, to which I cannot reply, because I have not yet seen it; but as soon as it is available for sale, I will look at it, if only to be able to send you my copy with my annotations, if that would be worth doing, or at least to send you my observations" (AT II.194). It took a few more months before Descartes was able to read the book (see AT II.336). Later, responding to an accusation that he had borrowed some of Galileo's ideas, Descartes said: "First of all, concerning Galileo, let me say that I have never met him, and have had no communications with him, and consequently I could not have borrowed anything from him. Moreover, I see nothing in his books that gives me cause to be envious, and hardly anything I would wish to acknowledge as my own. The best part is what he has to say on music" (AT II.388–9; see also AT III.87).⁴

⁴ Descartes also had to defend himself against the allegation that he claimed credit for Galileo's "discovery" of the telescope; see AT II.26.

So far the episode demonstrates the difficulty in getting hold of books. But we can see yet another element of muddle and miscommunication in Descartes's statement that what is best about Galileo has to do with what he says about music. Either Descartes thinks so poorly of Galileo's works that he can assert the best part about Galileo is the very little he says about music, or Descartes confused Galileo with his father Vincenzo (1520–91), a noted musical theorist. The latter possibility might account for Descartes's puzzlement about Galileo's great longevity; he states in another letter: "You write about Galileo as if he were still alive and I thought that he was long dead" (AT III.74). We clearly should not underestimate the opacity of these intellectual contexts; it may be difficult to find books one wants to read and to understand fully what one is reading, whether or not one wants to read many books.

There is one more important series of letters that demonstrates the difficulty specifying the appropriate intellectual context for Descartes. It concerns his relations with Augustine. As is well known, the *cogito* can be found before Descartes, that is, before his *Discourse* and *Meditations*, notably, in several of Augustine's works—as, for example, in *The City of God*, *On Free Will*, and *On the Trinity* (*De Civitate Dei* XI, 26; *De Libero Arbitrio* II, 7; *De Trinitate* X, 16 and XV, 12). After he published the *Discourse* in 1637 containing the *cogito*, a number of people informed Descartes of this fact, including his frequent correspondents, Mersenne, Arnauld, and Mesland (see *To Mersenne*, 25 May 1637, AT I.376; 15 November 1638, II.435; and December 1640, III.261. For Arnauld, see *Objections IV*, AT VII.197–8, and 3 June 1648, AT V.186. See also *To Mesland*, 2 May 1644, AT IV.113); Descartes responded to another of his correspondents, the Dutch protestant minister Andreas Colvius, as follows:

You have obliged me by bringing to my attention the passage of St. Augustine which bears some relation to my "I think, therefore I am." I went to read it today at the library of this city, and I find that he makes use of it to prove the certainty of our being, and then to show that there is in us a some image of the Trinity, in that we exist, we know that we exist, and we love this being and this knowledge in us. Instead, I use it to make it known that this *I* who is thinking is *an immaterial substance*, and has nothing corporeal in it. These are two very different things. It is something so simple and natural in itself to infer that one exists from the fact that one is doubting that it might have come from anybody's pen. But I am still glad to have come together with St. Augustine, if only to shut the mouths of the little minds who have tried to quibble with that principle. (14 November 1640, AT III.247–8)

So, the question arises: how to make sense of what Descartes says to Colvius? Is Descartes really to be understood as not knowing that Augustine made use of a *cogito* until Colvius pointed it out to him?

The exchanges between Mersenne and Descartes about the *cogito* can provide some clues. As usual, we do not have Mersenne's side of the letters, but must reconstruct what he said through Descartes's replies. On 25 May 1637, Descartes said to Mersenne: "I haven't sent you anything about . . . the passage from Saint Augustine, because it does not seem to me that he makes the same use of it that I do" (AT I.376). Mersenne must

have referred to a work of Augustine containing the *cogito* and Descartes, having general knowledge about it, gives the gist of what will be his answer to Colvius, but puts off formally responding to Mersenne. On 15 November 1638, Descartes wrote to Mersenne: “I have searched for the letter in which you cited the passage of Saint Augustine, but I have not yet found it. I also have not yet been able to get the Works of this Saint, to see, in them, what you are asking about” (AT II.435). This is a continuation of the thread from the previous letter; Descartes does not deny knowing something about Augustine’s views, but acknowledges that he still hasn’t read over his works and checked the views expressed there against his own. It also seems that Mersenne is asking for the reference to Augustine from Descartes, which makes it fairly clear that Augustine’s works were not readily accessible.⁵ Finally, in December 1640, just a month after his letter to Colvius, Descartes writes to Mersenne: “You had previously alerted me about a passage from Saint Augustine concerning my ‘I think therefore I am’, about which you had, it seems to me, asked me again once more; it is in the 11th book of *On the City of God*, chap. 26” (AT III.261). We can conclude from these three fragments to Mersenne that Descartes, in the letter to Colvius, would not be denying that he is aware of Augustine’s *cogito*, but simply that he does not have the texts before him to check carefully so that he can speak about the matter with authority. Once he does, his prior judgment (in his first letter to Mersenne) is confirmed.

Descartes’s knowledge of his predecessors and contemporaries is not like ours. He cannot just pull a book off the shelf or download a file from a computer. In a sense, almost anything contemporary or prior to him is part of his context and, at the same time, few specific things can be affirmed with certainty as constituting his context. We can assume that Descartes has read and considered much of the works of his predecessors and contemporaries, but we cannot assume that he knows it in great detail, or that he has access to it in the way we do. With these provisos in mind I examine more specifically what Descartes himself reveals directly or indirectly to be the intellectual settings of his primary works: the *Discourse on Method*, *Meditations*, and *Principles of Philosophy*.⁶

2. DISCOURSE ON METHOD

In the aftermath of Galileo’s condemnation for upholding the motion of the earth, Descartes decided he would not publish *The World*, containing the condemned proposition or anything else that might be controversial, but continued to work on his scientific treatises; his friends urged him to reconsider his decision. Ultimately, he determined

⁵ They seem not to have been readily available even to Mersenne, who resided in the center of Paris at the Minim’s convent.

⁶ I am limiting my discussion to the *Discourse* and will not discuss the *Essays* published along with it. I also do not intend to delve into the intellectual context of the *Passions of the Soul* and will set aside unpublished works such as the *Rules*, *The World*, and *Search for Truth*.

“that it was easy for me to choose some matters that, without being subject to much controversy nor obliging me to declare more of my principles than I desire, would nevertheless allow me to show quite clearly what I can or cannot do in the sciences” (AT VI.75). Thus, in October 1635, Descartes decided to publish the *Dioptrics*, adding the *Meteors* to the project in November, and resolving to set off the two treatises with a short preface. The project took greater shape in March 1636 when Descartes reported that he would include some other works as well; as he said, he wished to publish anonymously “four Treatises all in French, and the general title will be: *The Project of a Universal Science that can Elevate our Nature to its Highest Degree of Perfection. Then the Dioptrics, Meteors, and Geometry, in which the most curious Matters that the Author could have chosen to serve as proof of the universal Science he proposes are explained in such a way that even those who have never studied can understand them*”. At this time, he was representing the introductory materials as: “In this *Project* I reveal a part of my Method, I undertake to demonstrate the existence of God and of the soul separated from the body, and I add to it several other things I believe will not be unpleasant to the reader” (AT I.339). Clearly, the plan grew from there. Eventually, Descartes published the work as *Discourse on the Method for Conducting One’s Reason Well and for Seeking the Truth in the Sciences*, in six parts, together with *Dioptrics*, *Meteors*, and *Geometry*. He stressed that he did not call the work *Treatise on Method*, but *Discourse on Method*, because this would mean the same as *Preface* or *Notice (Avis) on Method*; as he said, he “had no plan to teach the method but only to talk about it”. Descartes added that he refers to the treatises that followed as *Samples (Essais) of this Method* because “the things they contain could not be discovered without the method and one can know its merit through them”. He also indicated that he “inserted some things of metaphysics, physics, and medicine” in *Discourse*, parts 4–6, “to show that the method extends to all kinds of subjects” (AT I.349).

Two clues about the context of the *Discourse* can be gleaned immediately from the title of the project. ‘*Discours*’, which Descartes uses instead of ‘*Traité*’, is an unusual word for setting out a “project of a universal science” or detailing a method. One does not frequently find ‘*discours*’ associated with method or science in the titles of books before Descartes.⁷ The word he deploys connotes a familiar and informal talk, but its meaning shifts a bit through the century, from “treating a subject sparingly”⁸ and giving “a simple recounting and narration of something”, to more generally being “an assemblage of sentences to express what one thinks”.⁹ Another word he uses, ‘*Essai*’, is arguably more interesting. Its primary meaning is the same as our term ‘*assay*’, that is, a test of something: the strength of a drug, the safety of some food, or the purity of a metal.¹⁰ But the word

⁷ There is not much more than Bernard Palissy’s *Discours admirables, de la nature des eaux et fontaines*, V. A. D. L. C.’s *Discours des causes et effets admirables des tremblemens de terre*, and Alexandre de La Tourrette’s *Bref Discours des admirables Vertus de L’Or-Potable*.

⁸ Echoing Descartes’s letter to Mersenne of March 1637 (AT I.349, cited above), Baillet characterizes the *Discours* as “une ébauche d’une juste Dialectique, dont il s’est contenté de donner quelques traits” (Baillet 1691: 282).

⁹ See *discours* in *Le Thresor de la langue francoyse* (1606) and *Dictionnaire de l’Académie française* (1694).

¹⁰ See *essai* in *Dictionnaire de l’Académie française* (1762).

also gains new meaning as the title of any kind of work in which, “by modesty or otherwise, the author does not propose to go deeply into the subjects treated”; the *Dictionnaire de l’Académie française* even specifies the source of this usage as originating from the *Essays* of Montaigne.¹¹

Descartes alludes to Montaigne from the very first sentence of the *Discourse*. He asserts: “Good sense is the best distributed thing in the world.” Montaigne had said: “It is commonly said that the fairest division nature has given us is that of sense”, and continued: “for there is no one who is not content with what she has allotted to him”.¹² Montaigne’s witticism is repeated by Descartes: “for everyone thinks himself to be so well endowed with it that even those who are the most difficult to please in everything else do not normally desire more of it than they have” (AT VI.1–2). In the first three parts of the *Discourse*, Descartes borrows liberally from Montaigne and his fellow-traveler Pierre Charron,¹³ repeating some commonplaces from Renaissance humanism, stressing skeptical, anti-Scholastic, and neo-Stoic themes.

Descartes, the philosopher who so famously excommunicates the past to start anew from stable foundations, is also the gentlemanly skeptic who gives advice about the advantages of history; in Part I of the *Discourse*, he asserts:

reading good books is like having a conversation with the most distinguished people of past ages—indeed, a rehearsed conversation in which these authors reveal to us only the best of their thoughts... Conversing with those of past centuries is much the same as traveling. It is good to know something of the customs of various peoples, so that we may judge our own more soundly and not think that everything contrary to our own ways is ridiculous and irrational, as those who have seen nothing of the world ordinarily do.¹⁴

This analogy between reading and traveling is borrowed from the concept of erudition and history acclaimed by Montaigne and Charron, among others. For example, Charron, whose *La Sagesse* Descartes is known to have owned and read, writes:

The ways of profiting through speech and exemplar are dual, since they are exercised and derived from excellent people, whether alive, in the course of meeting them and conferring with them physically and externally, or dead, as a result of reading their books... The former can be accomplished by... traveling and visiting foreign lands... The latter commerce with the dead, using books, is much more secure, more our own, more regular, and costs the least.¹⁵

¹¹ See *essai* in *Dictionnaire de l’Académie française* (1798).

¹² Montaigne II.17 (1962: 641). For an extended argument that there is no proof that Descartes had read Montaigne, see Baudry 2015. The author, however, provides extensive evidence of the parallel passages between the two authors. Clearly, such a thesis depends upon what one thinks would be “proof” for such a proposition.

¹³ See Gilson 1925.

¹⁴ Descartes also writes about some of the disadvantages of history; see AT VI.5–6.

¹⁵ Charron 1983: 696. In contrast, Descartes’s elaborations about the disadvantages of history are part of his own general critique of humanist methods (*Search for Truth*, AT X.502).

An aspect of Renaissance thought espoused by Descartes in Part II of the *Discourse* is its critique of logic.¹⁶ According to some humanists, formal logic—that is, syllogism—is useless; it may even be harmful. Montaigne reports that logic has no practical use, that its inventors must have been playing a game.¹⁷ In the *Discourse*, Descartes also complains that syllogisms are useless: “they serve rather to explain to someone else the things one already knows, or even [...] to speak without judgment on matters of which one is ignorant, rather than to learn them” (AT VI.17). Further, he worries that logic in general might be harmful: “although it contains, in effect, very true and good precepts, nevertheless there are so many others, mixed up with them, which are either harmful or superfluous, that it is almost as hard to separate the one from the other as to draw a Diana or a Minerva from a block of marble” (AT VI.17–18).

But some of the greatest similarities between Descartes and Montaigne and Charron can be found in Descartes’s “provisional code of morals”, from part III of the *Discourse*. Descartes’s first rule from the code is “to obey the laws and customs of my country, constantly holding on to the religion in which, by God’s grace, I had been instructed from my childhood” (AT VI.23). He accepts the *status quo* in ethics, politics, and religion, bracketing such issues until he has rebuilt his philosophy; as he says: “When I had thus assured myself of these maxims and put them to one side along with the truths of the faith... I judged that, as for the rest of my opinions, I could freely undertake to rid myself of them” (AT VI.28). His second rule reinforces his initial decision; he decides to be “as firm and resolute in my actions as I could, and to follow the most doubtful opinions, once I had decided on them, with no less constancy than if they had been very well assured” (AT VI.24).

His third rule, however, looks to be somewhat different than the first two; Descartes states: “My third maxim was always to try to conquer myself rather than fortune, and to change my desires rather than the order of the world” (AT VI.25). He indicates the origin of his third rule when he provides its justification. According to Descartes, he needs to accustom himself to believe that there is nothing completely in his power other than his thoughts; this would prevent him “from desiring anything but what I was to acquire, and thus to make me contented” (AT VI.25). He recognizes that in order to habituate himself to look at everything from this point of view he also needs to spend time on exercises—that is, to make frequent meditations. He confesses that it is principally in this “that the secret of those philosophers consists, who in earlier times were able to free themselves from fortune’s domination and who, despite sorrows and poverty, could rival their gods in happiness. For occupying themselves ceaselessly with considering the limits prescribed to them by nature, they so perfectly persuaded themselves that nothing was in their power but their thoughts” (AT VI.26). It does not take much imagination to recognize that the “philosophers” to whom

¹⁶ Descartes had previously formulated such a critique in the *Rules* 2 and 10 (AT X.365 and 406).

¹⁷ Montaigne, II, 12 (1962: 466; see also 488). For similar such arguments, see Ramus, 1555: 138–9, and Sanchez 1581: 7–11.

Descartes is referring are the Stoics and that Descartes is acknowledging the genesis of his third rule as stemming from their teachings on morality. There was, in fact, a renaissance in Stoic philosophy at the end of the sixteenth, beginning of the seventeenth century; this resulted in the publication of a number of their works, including French translations of Epictetus's *Enchiridion* (*Manual*). Descartes was well aware of these writings; later on he will freely discuss Seneca's *Epistles* in his correspondence with Princess Elizabeth.

The 1594 French translation of Epictetus's *Enchiridion* by Guillaume Du Vair was accompanied by a preface, *La Philosophie morale des Stoïques*, which Du Vair expanded and issued separately in 1600 and then again in his collected *Oeuvres*. There, one finds all the elements of Descartes's third maxim and some aspects of his second. Du Vair argues that "the good of man consists in his use of right reason, that is, in virtue, which is nothing other than the firm disposition of our will to follow what is honest and suitable" (Du Vair 1641: 256). He disputes with those who contend that the good of man consists in health or wealth, since these are only means to an end and not the ultimate end for man. Our will alone is directed toward our good: "the well-regulated will wills only what it can; it will therefore prevent itself from willing what is not in our power, like having health, wealth, and honors . . . It is a divine and inviolable law, promulgated from the beginning of the world, that if we want to have some good, we must give it to ourselves. Nature has put the storehouse [of goods] in our mind; let us bring our will into our control and take from the storehouse whatever we would will" (Du Vair 1641: 257–8). Du Vair concludes that "the good of man and the perfection of his nature consists in the right disposition of the will to use things that present themselves through reason" (Du Vair 1641: 261) and he presages Descartes's maxim by asserting that to attain our good would require us to "so regulate our desire that it can follow only what is according to nature, and not what is contrary to it. Beyond our power are our bodies, our riches, our reputations, and, in a word, everything that does not depend on our will" (Du Vair 1641: 261–2).

Thus, as Descartes indicated, his third maxim is of Stoic origin; his second maxim may be so as well. His first maxim, however, like so many of the other attitudes and poses of the *Discourse*, is indebted to the works of Montaigne and Charron. According to Montaigne: "The wise person should withdraw his soul inward, away from the crowd, and allow it the freedom and power to judge things freely; but as for externals, he should wholly follow the received fashions and forms . . . For it is the rule of rules, and the general law of laws, that each person should observe those of the place he is in" (Montaigne I.23 1962: 125). And Charron echoes: "according to all wise persons, the rule of rules and the general law of laws is to follow and observe the laws and customs of the country one is in" (Charron 1983: 497; see also 500). Charron echoes as well some aspects of what will become Descartes's second maxim: "in the external and common actions of life, and in what has an ordinary use, one should conform to and accommodate common practice . . . I agree that people should adhere and hold on to what seems most likely, honest, useful, convenient" (Charron 1983: 387).

3. MEDITATIONS ON FIRST PHILOSOPHY

In June 1637, Descartes began distributing copies of the *Discourse* to a great number of people. He even wrote to one of his old teachers, sending him the volume “as a fruit that belongs to you, whose first seeds were sown in my mind, just as I also owed to those of your Order the little knowledge I have of letters” (AT I.383). The attempt to promote his works by making them the focus of discussion was already part of Descartes’s strategy. In Part VI of the *Discourse*, he had announced: “I would be very pleased if people examined my writings and, so that they might have more of an opportunity to do this, I ask all who have objections to take the trouble and send them to my publisher and, being advised about them by the publisher, I shall try to add my reply at the same time” (AT VI.75). Of course, Descartes did request objections from his teacher and from others of his order. But only a few people sent in objections. Descartes was asked whether foreigners formulated better objections than the French. He replied that he did not count any of those received as French other than those of the astrologer Jean-Baptiste Morin. He referred to a dispute with the mathematician and engineer Pierre Petit, which he dismissed, saying that he did not take Petit seriously but simply mocked him in return. He then listed the objections of the foreigners: Libertus Fromondus from Louvain and his colleague Plempius, an anonymous Jesuit (Jean Ciermans), and someone from the Hague (AT II.191–2). Still, the objections by Petit seemed to have rankled him, prodding him to write the *Meditations* in response. A recently discovered letter indicates that, until very late, the *Meditations* were intended to be introduced by a Latin translation of *Discourse* Part IV, and then a preface responding to Petit; Descartes removed these and inserted instead the Preface to the Reader with which we are familiar: “I was forced to soften what I had written about Mr. Petit, as you will see in the preface to the reader, which I sent you to have printed, if you please, at the beginning of the book after the dedicatory Epistle to the faculty of the Sorbonne, and not to print the 4th part of the *Discourse on Method* or the small preface I put after it, nor the one that preceded the objections of the Theologian but only the Synopsis.”¹⁸

The Preface to the Reader begins by indicating that he only “touched briefly on the issues of God and the human mind” in the *Discourse*, and alludes to the decision he made to write it in French because of its brevity: “I did not think it useful to hold forth at greater length in a work written in French and designed to be read indiscriminately by everyone, lest weaker minds be in a position to think that they too ought to set out on this path” (AT VII.7). He continues by sketching two objections that were made to *Discourse* Part IV, the first being “from the fact that the human mind, when turned in on itself, does not perceive itself to be anything other than a thinking thing, it does not follow that its nature or *essence* consists only in its being a thinking thing, such that the word *only* excludes everything else that also could perhaps be said to belong to the

¹⁸ *Descartes to Mersenne*, 27 May 1641; Bos 2010: 295. See also Marion 1995.

nature of the soul”.¹⁹ To answer the objection, Descartes asserts that his exposition follows an order, and distinguishes between an order of being and an order of knowledge: “I answer that in that passage I did not intend my exclusion of those things to reflect the order of the truth of the matter (I was not dealing with it then), but merely the order of my perception” (AT VII.8).²⁰ He then connects the notion of order with a request to his reader to treat his work—*Meditations on First Philosophy*—as a step-by-step how-to manual leading its readers to meditate, in order for them to withdraw from their senses and passions: “I do not advise anyone to read these things except those who have both the ability and the desire to meditate seriously with me, and to withdraw their minds from the senses as well as from all prejudices. I know all too well that such people are few and far between. As to those who do not take the time to grasp the order and linkage of my arguments, but will be eager to fuss over statements taken out of context (as is the custom for many), they will derive little benefit from reading this work” (AT VII.9–10).

Since at least 1930 it has been customary to link these remarks—that is, the preoccupation for the order of reasons and the request for the reader to meditate, with the genre of religious meditation; Etienne Gilson points out the oddity of that association: “we are no longer surprised to read *Metaphysical Meditations*; these are, however, the first that history has known. The form *meditation*, adapted to the needs of religious souls who want to penetrate slowly certain truths, . . . has never seemed requisite for presenting abstract truths of a purely metaphysical order” (Gilson 1930: 186–7). In the 1950s, Martial Gueroult and others debated whether the spiritual exercises of Ignatius Loyola, the founder of the Jesuits, were the appropriate model for this kind of meditation. For the affirmative position was the fact that Descartes attended the Jesuit College of La Flèche for more than eight years and most likely participated in such exercises. Gueroult agreed that Descartes’s *Meditations* was patterned after a religious meditation: “The use of the first person, the monologue of the soul, the recital of an experience of spiritual transformation, the constant temptation by old habits . . . , the effort to confirm the mind in its new path . . . , all these traits are specific to the religious genre: prayers, confessions, soliloquies, considerations, elevations, and spiritual exercises” (Gueroult 1985: II.305). However, he argued against the Ignatian style as the appropriate model for it. The issue he emphasized was that Descartes wanted readers to detach themselves from the senses, whereas, as Gueroult stated: “Ignatius proposed, in order to engender the force of religious sensation, that we set out to have concrete images arise in us—for example, to represent to ourselves the sufferings of Jesus in a vivid manner” (Gueroult 1985: II.294).

¹⁹ The second objection: “it does not follow from the fact that I have within me an idea of a thing more perfect than me, that this idea is itself more perfect than me, and still less that what is represented by this idea exists” (AT VII.7–8). Petit is alluded to in the next paragraph: “In addition, I have seen two rather lengthy treatises, but these works, utilizing as they do arguments drawn from atheist commonplaces, focused their attack not so much on my arguments regarding these issues, as on my conclusions.”

²⁰ And he emphasizes order in his reply: “what I had in mind was that I was aware of absolutely nothing that I knew belonged to pertain to my essence, save that I was a thinking thing, that is, a thing having within itself the faculty of thinking. Later on, however, I will show how it follows, from the fact that I know of nothing else belonging to my essence, that nothing else really does belong to it” (AT VII.8).

Gueroult suggested instead “a spiritual elevation, in the fashion of the Neoplatonists, Plotinus, and Saint Augustine”²¹

One does not have to look very far to find such Augustinian meditational books in the seventeenth century. Among Mersenne’s early works were two short religious tracts, *L’usage de la raison* and *L’analyse de la vie spirituelle* (both 1623). The first of the two religious tracts was rediscovered in 1978, but the second remains lost. Mersenne intended the two religious works as contributions to the genre of devotional exercises, to be placed alongside those of Ignatius and others. What makes Mersenne’s devotional exercises useful as part of the philosophical context of early seventeenth-century France, however, is Mersenne’s emphasis in these exercises on the intellect and will, away from the passions and senses. As he asserts in *L’usage de la raison*:

I will take the paths I trace for heaven from inside yourself, so that at any moment you wish, in the midst of royal greatness, during banquets, dances, pastimes, day and night, in prosperity and adversity, whether poor or rich, caressed or abandoned, healthy or sick, you will be able to practice that which will be your salvation. I will take, therefore, the motions of the soul, insofar as it is rational and capable of accruing merit or giving offense, and I will set aside that which concerns the brutal passions, common to men and beasts . . . I therefore want us to suppose that the only path leading to heaven for those who have the use of reason and who remain within the order established by God is to train and perfect the spiritual actions and motions of the understanding and will.²²

4. PRINCIPLES OF PHILOSOPHY

When, in 1640, Marin Mersenne was sending out the manuscript of the *Meditations*, Descartes thought himself at war with the Jesuits. He wrote to Mersenne that he will not travel that winter, since he is “expecting the objections of the Jesuits in 4 or 5 months” and believed that he “must put himself in the proper posture to await them” (AT III.184–5). For that reason he told Mersenne that he felt like “reading some of their philosophy—something I have not done in twenty years—in order to see whether it now seems to me better than I once thought”. Thus he requested that Mersenne send him “the names of authors who have written textbooks in philosophy and who have the most following among the Jesuits, and whether there are new ones from twenty years ago”. Descartes, reminiscing about the Jesuit textbook authors he had known at La Flèche, then said he

²¹ Gueroult 1985: II.229. There is an extensive literature on the subject; see, for example, Hatfield 1986 and Rubidge 1990.

²² Ariew, Cottingham, and Sorell 1998: 138–9. Mersenne asserts that his method “has been taught very excellently by the great bishop of Geneva in his *Theotime*”, a reference to Saint François de Sale and his *Treatise on the Love of God* (1616). De Sale’s work, a manual for practicing spiritual reading, meditation, and prayer, in an Augustinian, not Ignatian tradition, enjoyed wide popularity.

remembered “only the Coimbrans, Toletus, and Rubius”, but also requested from Mersenne “to know whether there is someone who has written a summary of all of Scholastic philosophy and who has a following, for this would spare me the time to read all their heavy tomes”. Descartes recalled: “It seems to me that there was a Carthusian or a Feuillant who had accomplished this, but I do not remember his name” (AT III.185). We do not have Mersenne’s reply about the “Carthusian or Feuillant”, but, presumably, he identified Eustachius a Sancto Paulo as the Feuillant Descartes remembered having written a summary of all of Scholastic philosophy in one volume, since, in his next letter to Mersenne Descartes wrote: “I have purchased the *Philosophy* of Brother Eustachius a Sancto Paulo”, and added that Eustachius’s *Summa* seems to him to be “the best book ever written on this matter” (AT III.232). Descartes continued to look for other Scholastic textbooks, seeking one as excellent as Eustachius’s, but written by a Jesuit; in that process he looked over the *Philosophy* of Abra de Raconis (who, unfortunately for Descartes, was not a Jesuit). He wrote to Mersenne, “I have seen the *Philosophy* of Mr. Raconis, but it is not as suitable for my design as that of Father Eustachius. And as for the Coimbrans, their writings are too lengthy; I would have wished wholeheartedly that they had written as briefly as the other [Eustachius], since I would have preferred to have dealings with the society [that is, the Jesuits] as a whole, instead of a particular person” (AT III.251). Descartes also initiated another project, the precursor to the *Principles*: “My intent is to write in order a textbook of my philosophy in the form of theses, in which, without any superfluity of discourse, I will place only my conclusions, together with the true reasons from which I draw them—what I think I can do in a few words. And in the same book, I will publish an ordinary philosophy text, such as perhaps that of Brother Eustachius, with my notes at the end of each question, to which I will add the various opinions of others and what one should believe about all of them, and perhaps, at the end, I will draw some comparisons between these two philosophies” (AT III.233). A month later, he informed Mersenne that he had begun the project; but, unfortunately, it was soon aborted: “I am unhappy to hear about the death of Father Eustachius; for, although this gives me greater freedom to write my notes on his philosophy, I would nevertheless have preferred to do this with his permission, while he was still alive” (AT III.286).

The *Principles of Philosophy*, which replaced the proposed commentary on Eustachius, is a work patterned on Scholastic textbooks. Scholasticism is a key intellectual context for understanding the *Principles* and comprises as well a crucial context for all of Descartes’s works. However, Descartes was taught Scholastic philosophy at La Flèche, and, as he said, he abandoned his study of it for about twenty years, roughly between 1620 and 1640, and he picked it up again only in 1640, to arm himself against the expected attacks of the Jesuits. We should expect that Descartes was most familiar with Scholastic philosophy (as represented by the Coimbran Jesuits or Franciscus Toletus, for example) when writing his earliest works, i.e. the *Rules*. The remnants of Scholasticism in Descartes’s mature works—the *Discourse* and the *Meditations*—might therefore be somewhat deceptive for the interpreter. Finally, from 1640 on, in the *Replies* to the *Objections* to the *Meditations* and in the *Principles*, Descartes reconnected with Scholastic

philosophy and terminology (in the form of Eustachius's *Summa*) and began the process of translating his doctrines to make them outwardly more compatible with Scholasticism.²³ One can detect Descartes's subtle shifts in doctrine or terminology by contrasting his early and later writings.

Descartes's primary works present approximately the same philosophy, expanding and contracting it for the purpose at hand. Of course there were developments and changes throughout. But one of the more astonishing differences was Descartes's radical change of genre and style: he could be working, in the *Discourse*, on an informal account of his philosophy and method, together with essays that exhibit the merit of that philosophy and method; he could be producing a manual for people to meditate with him about the foundations of his philosophy—that is, his metaphysics, in the *Meditations*; or, with the *Principles*, he could be issuing a collegiate textbook for the use of teachers in schools. All of these undertakings displayed the books he read, the models he was following, and the contexts that were appropriate as their intellectual background.²⁴

REFERENCES

- Ariew, Roger (2011), *Descartes Among the Scholastics*. Leiden: Brill.
- Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.
- Ariew, Roger, John Cottingham and Tom Sorell, eds. (1998), *Descartes' Meditations: Background Source Materials*. Cambridge: Cambridge University Press.
- Baillet, Adrien (1691), *La Vie de Monsieur Des-Cartes*, 2 vols. Paris: Daniel Horthemels.
- Baudry, Hervé (2015), *Le Dos de ses livres: Descartes a-t-il lu Montaigne?* Paris: Honoré Champion.
- Bos, Erik-Jan (2010), "Two Unpublished Letters of René Descartes: On the Printing of the *Meditations* and the Groningen Affair", *Archiv für Geschichte der Philosophie* 92: 290–303.
- Charron, Pierre (1983), *De la Sagesse*. Paris: Fayard.
- Dictionnaire de l'Académie française* (1694), *Dictionnaire de l'Académie française*, 1st edition. Paris: Jean Baptiste Coignard et Veuve.
- Dictionnaire de l'Académie française* (1762), *Dictionnaire de l'Académie française*, 4th edition. Paris: Veuve B. Brunet.
- Dictionnaire de l'Académie française* (1798), *Dictionnaire de l'Académie française*, 5th edition. Paris: J. J. Smits.
- Du Vair, Guillaume (1641), *La Philosophie morale des Stoïques: Oeuvres*. Paris: Cramoisy.
- Gilson, Etienne (1925), *Discours de la Méthode, texte et commentaire*. Paris: Vrin.
- Gilson, Etienne (1930), *Etudes sur le rôle de la pensée médiévale dans la formation du système cartésien*. Paris: Vrin.
- Gueroult, Martial (1985), *Descartes' Philosophy Interpreted According to the Order of Reasons*, trans. Roger Ariew, 2 vols. Minneapolis: University of Minnesota Press.

²³ See Ariew 2011 and 2014: ch. 2.

²⁴ One could also mention the geometrical exposition of the *Meditations* in 'synthetic' style, in the Appendix to *Replies* II, and the courtly dialogue constituting the unfinished *Search for Truth* as other genres with which Descartes experimented.

-
- Hatfield, Gary (1986), "The Senses and the Fleshless Eye: The Meditations as Cognitive Exercises", in Amelie E. Rorty (ed.), *Essays on Descartes' Meditations*. Berkeley: University of California Press, 45–79.
- Marion, Jean-Luc (1995), "The Place of the *Objections* in the Development of Cartesian Metaphysics", in Roger Ariew and Marjorie Grene (eds.), *Descartes and His Contemporaries: Meditations, Objections, and Replies*. Chicago: University of Chicago Press, 7–20.
- Montaigne, Michel de (1962), *Oeuvres Complètes*, ed. M. Rat. Paris: Gallimard.
- Nicot, Jean (1606), *Le Thresor de la langue francoyse*. Paris: David Douceur.
- Ramus, Petrus (1555), *La Dialectique*. Paris: André Wechel.
- Rubidge, Bradley (1990), "Descartes's *Meditations* and Devotional Meditations", *Journal of the History of Ideas* 51: 27–49.
- Sanchez, Francisco (1581), *Quod nihil scitur*. Lyon: A. Gryphiu.

CHAPTER 3

DESCARTES'S CORRESPONDENCE AND CORRESPONDENTS

THEO VERBEEK AND
ERIK-JAN BOS

1. INTRODUCTION

UNTIL the emergence of learned journals like the *Journal des savants* and the *Philosophical transactions of the Royal Society* (both started in 1665), letters were one of the main vehicles of philosophic and scientific communication.¹ They were shared and discussed in mostly informal gatherings. In Paris there were many such groups, some with a literary, others with a philosophical or mathematical orientation, but quite often fairly mixed.² Thus, in their *académie* or *cabinet*—actually a daily ‘at-home’ in the library of their late patron Jacques-Auguste de Thou (1553–1617)—the brothers Pierre (1582–1651) and Jacques Dupuy (1591–1656) welcomed visitors as diverse as Rubens (1577–1640), Campanella (1568–1639), Grotius (1583–1645) and, in his Parisian period (1625–8), probably also Descartes.³ They came to talk and gossip, exchange news, read books and manuscripts from the library. At the same time the *cabinet* served as a cultural news agency with correspondents in the French province and abroad, whose letters were read aloud and discussed.⁴ Similarly, in the Minim convent on the *Place Royale* (now *Place des Vosges*) Mersenne welcomed philosophers and mathematicians to exchange ideas and

¹ Cf. Van Miert 2013; Raymond and Moxham 2016. For earlier, usually less scholarly, journals see Kronick 1976: ch. 3; Kronick 1991. On letters and correspondences also see Berkvens-Stevelinck, Bots and Häselser 2005; O’Neill 2015 deals with the latter half of the seventeenth century, but contains much that is relevant to the first half as well.

² Brown 1934; De Boer 1938: 730–80.

³ After the foundation of the *Académie française* (1635), a governmental institution, they came to be referred to as the *Cabinet Dupuy*, undoubtedly to emphasize their non-official status.

⁴ Delatour 2005: 61–101.

observations. From 1635 this took the form of a regular *académie*, convening every Thursday. Visitors included virtually everyone in Paris interested in mathematics, philosophy, or science, like Desargues (1591–1666), Gassendi (1592–1655), Hobbes (1588–1679), Roberval (1602–75), Étienne Pascal (1588–1651), and Beaugrand (c.1585–1640), although typically hardly any professional academics. They discussed a paper by one of them, read the letters Mersenne received, and suggested reactions. Among Mersenne's correspondents were Fermat (c.1600–65), Peiresc (1580–1637), Galileo (1564–1642), Torricelli (1608–47), and Descartes, to cite only the very best known.⁵ The existence of such groups is one of the reasons why most letter writers kept an archive. Given a letter's ephemeral nature (it could be lost in the mail, be destroyed, be tampered with), they needed something for future reference and, in many cases, publication. This not only assured the survival of their correspondence but also turns their letters into an indispensable supplement of their published work, showing their evolution, motives, strategies, and network. Moreover, the fact that letters circulated in a semi-public domain allows an understanding of how, through an exchange connecting widely distant centres of learning, ideas were formed and transformed, how fast they spread, by whom they were picked up or rejected, modified, or ignored. The correspondences of Mersenne, Oldenburg (1618–77), and Leibniz (1646–1716) read as running journals of all important philosophical, theological, and mathematical discussions in Europe.⁶

A large part of Descartes's correspondence conforms to this model. Although not as voluminous as Mersenne's (of which almost 1,500 letters survive) or Oldenburg's (almost 4,000), let alone Leibniz's (about 20,000), it is large and significant enough to be an important source, also because his correspondence with Mersenne allowed him to participate in discussions in France, while at the same time preserving a carefully protected distance. More importantly, perhaps, by rejecting scholastic philosophy Descartes no longer had at his disposal a standard format, nor a standard set of problems. Descartes's letters, rather than his books, show how he struggled to give his philosophy substance, form, and unity. In the following we deal, in Sections 2 to 4, with some material aspects of Descartes's autograph letters and the various editions of the correspondence. In Section 5 we take a closer look at several of Descartes's correspondents and the subjects treated in their correspondence.

2. DESCARTES'S AUTOGRAPH LETTERS

Receiving a handwritten letter from René Descartes must have been something special. If the addressee was a correspondent of Descartes, he or she would immediately recognize

⁵ Rochot 1966; Armogathe 1992. Cf. Lenoble 1943; Dear 1988. The edition of the correspondence: Mersenne 1932–88.

⁶ Oldenburg 1965–86. Leibniz' correspondence is being published as part of the general edition of his works (*Sämtliche Schriften und Briefe*, herausgegeben von der Preussischen Akademie der Wissenschaften, the first volume of which was published in 1923). For a digital edition, see <https://rep.adw-goe.de/handle/11858/00-001S-0000-0006-AB16-C>.

the philosopher's characteristic handwriting. The frontside of the letter mentioned the name of the correspondent, with correct form of address, and some descriptive postal directions ("At the Two Cockerels near the Cattle Market" (Beeckman), "At the convent of the Minims near the Place Royale" (Mersenne), "Professor at the Academy" (Reneri), followed by the place name. The backside was unwritten, there was no mention of the sender, but Huygens, for example, who received numerous letters and packages every day, would immediately pick out Descartes's letter by the familiar italic hand that had written the address in black ink: *A Monsieur/Monsieur de Zuylichem/Chevalier, Conseiller/et Secretaire de son Altesse* (Knight, Counsellor and Secretary to His Highness)/*A la Haye*.⁷ Whenever Huygens was accompanying the Prince of Orange on a military campaign, Descartes changed "At The Hague" for "With the army", and that usually worked just as well. The seals, in red, green, or black wax, revealed Descartes's signet, and authenticated the epistle. The signet showed the interlaced letters 'R C', the initials of 'René des Cartes'; indeed, the habit to write his name as 'Descartes' was not Descartes's own. Occasionally Huygens had to cut coloured silk floss wrapped around the letter to open it; besides being an additional safety measure, a flossed letter was also a particularly pretty favour.⁸

Once opened and unfolded a striking feature of an autograph letter by Descartes is the wide top and left margins, reflecting the esteem for the correspondent. Good writing paper was an expensive commodity, and very wide margins signalled that the receiver was worth it. The disregard of the costs was further emphasized when the text filled just one page, so the back could have served for the superscription and address, but Descartes would still use a sheet folded in half (producing four pages, the most common size) for the letter. The second and third page (or page one *verso* and two *recto*) were blank, the address being found on the last page (two *verso*). Another manner to enhance a letter was the quality of the paper, which, if the right kind of ink was used, also contributed to the letter's preservation. Some of Descartes's letters are still in such mint condition it is hard to believe they are almost 400 years old. Usually there were no, or just a few, deletions to be found in the text, as if the letter was written in one fluent movement. Actually, Descartes first wrote a draft, which he subsequently copied on quality paper. The letters to Mersenne prove that such paper was not cheap. Descartes wrote so many lengthy letters (or perhaps we must say that Mersenne demanded extensive replies to his numerous questions) that he kept a watchful eye on the paper costs. The paper quality of these letters is much poorer than of those to Huygens, and the margins are much smaller. The handwriting in the letters to Mersenne is moreover much smaller, which results in a much higher information density, the one thing that really counted in missives to Mersenne. In the letters to Mersenne, empty space was a waste, as shown by remarks

⁷ Huygens was Lord of Zuilichem after buying the fief in 1630. Descartes sometimes gives Huygens the title of *chevalier* in recognition of a knighthood awarded by James I in 1622.

⁸ An image of the first page of a letter to Huygens (10 July 1643), kept at the library of Uppsala University (Waller Collection), is found at http://waller.uu.se/images/Waller_Ms_fr2/02706/f_001a.jpg. Several letters to Mersenne are digitally available via the NuBis website of the Bibliothèque interuniversitaire de la Sorbonne: <https://nubis.univ-paris1.fr>.

such as “I have answered all your questions, but I still have some space left, so I can tell you that, *etc.*”, which occur every now and then.

The letter starts with a salutation, simply “Monsieur” to Huygens, or “Mon Reverend Pere” to Mersenne. The body of the text starts on a new line. Descartes’s handwriting is an elegant and clear italic script, comprehensible to present-day readers. Once you realize that the use of the letters ‘u’ and ‘v’ differs from ours (“vn liure” = “un livre”), that apart from the short ‘s’ there is also a long ‘s’, and that typically Descartes always writes an ‘i’ where most people nowadays use a ‘j’ (“ie pense donc ie suis”), reading Descartes’s autographs poses no real palaeographical challenge, unlike the handwriting of many of his contemporaries. The beautiful physical appearance of the letter was matched by interesting contents and/or a superb epistolary style.⁹ Even a letter of thanks or a note asking back a manuscript can be a little literary gem. Receiving a handwritten letter from Descartes must have been nothing short of a delight, unless of course he considered you an enemy exposing you to vile rhetoric. But even in that case the letter closed with the repetition of the salutation, on a separate line, and the assurance that Descartes remained “your very humble and obedient servant”. The date and place, and the signature “Des Cartes” (no first name) bring the letter to a close.

3. THE PROBLEMATIC SUM TOTAL OF THE LETTERS

At present, 197 autograph letters of Descartes are known to have survived the tempest of time. The largest collection by far is kept at the *Bibliothèque nationale de France* (BnF) in Paris, followed at some distance by the library of the Institut de France (Paris), and the libraries of the University of Leiden and the Sorbonne. The number of surviving autograph letters addressed *to* Descartes is considerably lower: fifty-three, the majority written by Huygens (forty-seven). The main reason for this disparity is that most letters in Descartes’s possession, the letters addressed to him, disappeared around 1700. The imbalance is thus typical for the correspondence as a whole, which comprises about 767 letters, 582 of which are written by Descartes, and 185 written to him. Huygens’s letters are still extant, because they were returned to him shortly after Descartes died, and he carefully archived the letters exchanged between them. Huygens, apparently fond of Descartes’s handwriting, once asked Descartes, when he gave the Frenchman a document the latter wished to copy, not to return the original: he preferred the copy in Descartes’s hand (cf. AT III.815, 819, 836–59).

It is practically impossible to give a precise number of the letters in the extant correspondence. The number of 767 letters is an artificial estimation. If original, autograph letters were our only source, there would not be much of a problem. Unfortunately, most letters in the correspondence are not autographs, but manuscript copies, or, and these

⁹ On Descartes’s literary style, see Kambouchner 2013; Vermeulen 2015.

make up the largest number, printed sources. The principal printed sources are the edition of Descartes's correspondence edited by Claude Clerselier, and the biography by Adrien Baillet (1691).

Clerselier became Descartes's literary executor after receiving the manuscripts that Descartes had left behind in Stockholm in 1650. Initially, Pierre Chanut, the French ambassador in Sweden, took care of the legacy, toying with the idea of publishing some of the letters, but eventually left it to his brother-in-law Clerselier to prepare an edition. Instead of an anthology, Clerselier, himself one of Descartes's correspondents, published 334 letters in three major volumes (Descartes 1657–67). Most of the letters addressed to Descartes he did not publish, partly because their authors objected, like Princess Elisabeth and Henricus Regius, partly because he simply did not have them. Descartes's own letters he published in varying degree of completeness. Some are complete with date, place, and addressee, presumably printed after well-prepared copies, but many letters lack these particulars because the bulk of the material consisted of draft versions of letters. Moreover, the editor mixed up letters allegedly due to the disarray of the manuscripts, presenting the contents of different letters as one. This became apparent when subsequent editors were able to compare the versions printed in Clerselier's edition with autograph letters. Recently, it has been pointed out that the letters to Regius in particular suffered from Clerselier's tendency to put various loose fragments together to form a single letter, and that two 'letters' served as a dustbin for numerous fragments left over when Clerselier had reached the end of his correspondence project.¹⁰ Nevertheless, Clerselier was right in his judgement that the correspondence was an extremely valuable and necessary addition to Descartes's own publications. The volumes sold well, as did their Latin and Dutch translations. Nowadays, Clerselier's edition is still our only source for 228 letters. That number is an estimation, because we will never know how many texts presented as a single letter are actually the result of patchwork.¹¹

Baillet's *La vie de Monsieur Des-Cartes* (1691) is another major source for the correspondence. He was able to draw on a wealth of manuscripts; not only those that had been in Clerselier's possession, but also many more that were actively sought after in various countries in view of the biography, and of a new enlarged edition of the correspondence, which was never realized. Baillet lavishly adorned his biography with excerpts, quotes, summaries of the correspondence, also referring to many letters in passing. Baillet's biography provides information regarding ninety-eight letters which are not known otherwise, including Regius's letters to Descartes (thirty-two), and Descartes's letters to Claude Picot (also thirty-two).

Obviously, a mere reference to a letter is not the same as the actual text of the letter in whatever format, but references can be nevertheless be interesting additions contributing to our knowledge of Descartes. The editors of the modern standard edition, Charles Adam (1857–1940) and Paul Tannery (1843–1904), therefore included such testimonies, as well as quotes from or summaries of letters, if these are the only sources available for

¹⁰ See Bos 2002; Alexandrescu and Vida 2015.

¹¹ On Clerselier's editorial efforts, see Dibon 1990, Bos 2002: xxiv–xxxviii, and Agostini 2018.

these letters. The principle of inclusion in the correspondence is up to some degree arbitrary, and perhaps necessarily so. As the source for some event in Descartes's life, Baillet may refer to two letters, but it might be difficult to conclude what exactly he took from these letters, let alone from which of the two specifically. Such a reference is presented in AT under a single heading. By contrast, in a letter to Mersenne, Descartes may be answering three different letters from Mersenne, of which Descartes supplies the date, and we can, by Descartes's point-by-point reply, get a clear picture of their contents. Nevertheless, these three letters are not incorporated separately in the correspondence, whereas an utterly vague reference of Baillet or by someone else is. This practice could be remedied, but editors since AT have largely refrained from doing so. The above shows the practical difficulties in giving a precise number of the letters in Descartes's surviving correspondence.

4. FROM CLERSELIER TO THE PRESENT DAY

As remarked above, along with the biography by Baillet, a new edition of the correspondence was also envisaged. After Roberval's death in 1674, about seventy-five of Descartes's letters to Mersenne, which Roberval had kept from Clerselier, were bequeathed to the *Académie des Sciences*. They were inventoried by the mathematician Philippe de La Hire (1640–1718), who discovered major textual differences between the autographs and the texts published by Clerselier. This prompted Jean-Baptist Legrand to prepare a new edition. He had already received the Cartesian manuscripts from Clerselier and a small sum of money to produce a last volume with texts still unpublished. Legrand opted for a new, corrected, and enlarged edition of the correspondence, but the edition never materialized. A copy of Clerselier's edition, however, bears witness to the editorial work by Legrand (and possibly Baillet, who worked on the biography). In this so-called *Exemplaire de l'Institut*, as it is kept in the library of the Institut de France, the "new" letters to Mersenne were collated with the published texts, and dates were added when missing in Clerselier's edition. Although many dates can now be rejected, in some cases the annotator(s) of the *Exemplaire* could draw on manuscripts no longer available, and are thus of value.¹²

Shortly after Legrand's death in 1704 all manuscripts vanished without a trace, and must be considered as lost, except for the letters to Mersenne at the *Académie*. These, however, were stolen by the infamous rare book and manuscript thief Guglielmo Libri (1803–69), who sold them to autograph collectors. Over the years, some have returned to the Institut de France, from which library they were taken; others ended up in the Bibliothèque Nationale de France (BnF). In 2010 and 2011, two more letters were returned to the Institut.

¹² Descartes 2008 offers a reproduction of the *Exemplaire de l'Institut*. See also Bos 2002: xxxviii–xl, and Descartes 2009: xiv–xviii.

Adam and Tannery started their monumental edition in 1897 (Descartes 1897–1913), which concluded with a separate biography by Adam in 1910, and a supplement in 1913. The first five volumes are devoted to the correspondence, with additions in volume 10 and the supplement. The editors retrieved quite a few of Descartes's original letters, publishing almost 600 letters in all. Moreover, they made systematic use of Baillet's biography and of the *Exemplaire de l'Institut*. Finally, the project led many historians and collectors to come forward with new findings.

The most dramatic addition to the corpus of letters was the publication of the autograph collection of the Descartes–Huygens correspondence by Leon Roth (Descartes 1926). It contained no less than 115 letters, most of them completely unknown. After the publication the collection was donated by the owner, the English Buxton family, to the BnF. Confronted with this new material, Adam recognized that many letters in the AT edition could be re-dated (Adam 1933), and his conclusions found their way into a new edition of the correspondence, which he undertook together with Gérard Milhaud (Descartes 1936–63). The edition is little known outside France, it is not a critical edition, and it does not contain any notes; all Adam and Milhaud added were very brief biographies of Descartes's correspondents. Moreover, the dating of the letters is still far from perfect.

An attempt to replace the old AT edition was made in the 1960s. Realizing that a completely new edition would be very laborious, the editors of the 'nouvelle édition' opted for a photo-mechanical reprint of the original edition, expanding each volume at the back with the corresponding 1913 supplement material, the letters from the edition by Roth, and whatever had been discovered since, as well as their own notes and corrections (Descartes 1964–71). Although the correspondence was thus more or less brought up to date, the edition as such became very difficult to handle, and still left many problems regarding chronology, identity of the correspondents, and the texts themselves unanswered. The cheap pocket-size reprint in 1996 became very popular, but did not contain reference to discoveries made since 1971. The most noteworthy among the resurfaced letters are a letter to Cornelis van Hogelande (1590–1662) from late 1639 or early 1640 containing a (harsh) judgement on the pansophical endeavours of Jan Amos Comenius (1592–1670), and a letter to Mersenne of 27 May 1641, supplying many unknown details on the publication of the *Meditations*.¹³

Neither Descartes (1936–63) nor the new edition of AT triggered much interest in Descartes's epistolary legacy. This changed during the fourth centenary of Descartes's birth, when a four-day international congress specifically targeted the correspondence (Perugia, October 1996). The publication of the contributions, covering the very many facets of the correspondence, is aptly captured by Jean-Robert Armogathe as showing Descartes's "intellectual laboratory".¹⁴ It proved to be the occasion for numerous

¹³ Van de Ven and Bos 2004; Bos 2010. On Descartes and Comenius, see Bos 2006. For the other letters discovered between 1671 and 2002, or not published in AT, see Pastine 1972, Bos and Vermeulen 2002, and Breger 2002.

¹⁴ Armogathe 1999.

subsequent studies, editions, and translations, and at present the attention for the letters is unabating. To mention just a few: Verbeek, Bos, and van de Ven 2003 provides a critical edition of one year: 1643; it offers textual improvements and supplied various new dates. Giulia Belgioioso and her team published an edition of the complete correspondence with Italian translation, taking into account the insights gathered since the old AT edition (Descartes 2009). The increasing interest in the whole corpus of letters is shown by complete translations in Rumanian (Descartes 2014–present) and Japanese (Descartes 2012–16). The scholarly edition with German translation of the correspondence with Princess Elisabeth is also worth mentioning here (Descartes 2015). Finally, an actual new critical edition of the correspondence, with complete English translation, is currently being prepared.¹⁵

5. SOME CORRESPONDENTS

Not all of Descartes's correspondence functioned in a network of scientific communication. Indeed, even if we disregard the correspondence with his family, fragments of which survive in Baillet, neither Descartes's letters to Constantijn Huygens (1596–1687) nor those to Princess Elisabeth (1618–80) and Henricus Regius (1598–1679), to mention only a few, were meant to be seen by others. In fact, only the correspondence with Mersenne is of that format.

5.1. Constantijn Huygens

As to Huygens, long before Descartes wrote him his first letter, it becomes clear that the relation he aimed at with respect to Descartes is one of patronage. In a letter to Jacob Golius (1596–1667), professor of oriental languages and mathematics at Leiden, who early in 1632 invited Descartes at his Leiden home to present his optics, Huygens, who was among the guests, not only shows himself much impressed by the “admirable Frenchman”, but also urges Golius to prevent him from leaving the country, as Descartes apparently intended to do, before publishing his findings. According to him “it would be against reason to deprive the inhabitants of this country of the fruit sown in their soil”. At the same time, Huygens does not “think so lowly of himself” as to beg “that man to be [his] friend, nor [does he want to be] so indiscrete as to disturb the obscurity he seeks in order to enlighten posterity better”. It was up to Golius to “prevent [Descartes] from begrudging himself entirely to his age by saying simply that it is bad luck we were not

¹⁵ Editors in chief of this edition are Erik-Jan Bos, Theo Verbeek, and Roger Ariew. Collaborating in the annotation are Delphine Bellis, Sébastien Maronne, Carla Rita Palmerino, and Rudolf Rasch. The first volume covering the years 1619–32 is to appear with Oxford University Press in 2019.

born later".¹⁶ Whereas Huygens presents his request as a matter of cultural policy, Golius's reply shows he understood it as an offer of patronage: if Descartes could be brought to accept Huygens's support and protection, that would confirm the latter's position as a promoter of the arts and sciences. However, Golius's letter also shows that, politely but firmly, Descartes declines that offer and prefers obscurity.¹⁷ A second attempt, mediated by David le Leu de Wilhem (1588–1658), already a patron of Descartes's friend Henricus Reneri (1593–1639) and eventually Huygens's brother-in-law, was no more successful: in response to what must have been an offer of support, Descartes declares not to know "how to respond to the courtesy of Mr Huygens, apart from cherishing the honour of his acquaintance", and promises to "miss no opportunity to see him".¹⁸ In other words, he appreciates good relations with Huygens, but refuses to give up his independence. Apparently all he expects from all those who want to promote the sciences is already, as he put it in the *Discourse* a few years later, that they "contribute to the expenses of his observations and prevent unwelcome visitors from wasting his time".¹⁹ Moreover, patronage is essentially public, whereas, if in these days Descartes thinks of any publication at all, it must be in France and anonymous.²⁰ Finally, patronage presupposes inequality in rank and social status, whereas Descartes must have seen Huygens as his equal, perhaps even as being of inferior rank, given the fact that he was not a nobleman and only the private secretary of a high servant of a republic.

It is in 1635 only that a face-to-face meeting between Descartes and Huygens could be arranged. The reason for that delay cannot be alone that Huygens was an extremely busy man, nor that for the last two years Descartes had lived in Deventer, far from Amsterdam and The Hague.²¹ Having been rebuked at least twice, Huygens may have been hurt in his pride, whereas Descartes presumably did not become less attached to his independence. Those sensibilities, however, must have been overcome, for it was the beginning, not only of a large correspondence (second in volume only after that with Mersenne), but also of the project of the *Discourse*, by which Descartes reversed the decision of 1634 not to publish anything during his lifetime.²² Even though there is no

¹⁶ Huygens to Golius, 7 April 1632, in Huygens 1911–17: I.34.

¹⁷ Golius to Huygens, 16 April 1632, Huygens 1911–17: I.349.

¹⁸ Descartes to De Wilhem, 23 May 1632, AT I.253–4. De Wilhem, who married Huygens's youngest sister Constantia in 1633, immediately forwarded this letter to Huygens; De Wilhem to Huygens, 4 June 1632, Huygens 1911–17: I.353 (summary—for the full text, see Hoof (1855–7): III, 478–9). On the relation De Wilhem-Reneri, see Buning 2013.

¹⁹ *Discours de la méthode* VI, AT VI.73/CSM I.148.

²⁰ Descartes to Mersenne, 8 October 1629, AT I.23–4/CSMK 6; 18 December 1629, AT I.85–6/CSMK 14.

²¹ Descartes moved to Deventer at the end of May 1632 (Descartes to De Wilhem, 23 May 1632, AT I.253) and is still in Deventer in February 1634 (Descartes to Marguerite de La Porte, 24 February 1634, Jurgens and Mesnard 1979: 744–8 (not in AT)).

²² Descartes's first letter to Huygens was written two weeks after the Amsterdam meeting (Descartes to Huygens, 15/25 April 1635, AT I.585–6)—Huygens visited Amsterdam with his wife from 29 March to 6 April 1635 (Huygens 1885: 26). For the decision not to publish anything, see Descartes to Mersenne, [end of November 1633], AT I.270–2/CSMK 40–1; [February 1634], AT I.281–2/CSMK 41–2; [April 1634], AT I.285–6/CSMK III.42–3; *Discours* v, AT VI.41/CSM I.131–2; vi, AT VI.60/CSM I.141–2.

hard evidence to prove that the *Discourse* was Huygens's idea—if it was, Golius and Reneri probably had the same idea—it is Huygens who, more than anyone else, provided actual assistance: he finds a lens grinder to help Descartes construct the machine to produce hyperbolic lenses he discusses in the *Dioptrics*; he invites Descartes to The Hague to see what other unpublished manuscripts could be published as well; he suggests an alternative when the intended publisher of the *Discourse* is not available; he uses diplomatic messengers to forward the manuscript; he mediates to obtain a printing licence; and with his wife and sister he checks the *Discourse* on printing errors.²³ In fact, Descartes owed Huygens a great debt, which, however, he never publicly acknowledged. On the contrary, Part 6 of the *Discourse* reads as a long, albeit a very gentle, rebuke of all those—but, in fact, Huygens, Golius, and Reneri—who offered support and exerted pressure.²⁴

For Huygens that was not the end of the story. As soon as the *Discourse* was published he asked Descartes for “three sheets of paper” (*trois feuillets*) on mechanics. Descartes grudgingly delivered, but intimated that he did not want a publication: the treatise would not be complete; the best part would be missing. Moreover, that would be Huygens's own fault because he had asked only for a few pages. Although, therefore, Huygens was free to do as he liked, the text being his property, he understood perfectly what Descartes preferred him to do—or rather not to do—and the text was not published until after Descartes's death.²⁵ Descartes may have had good philosophical reasons, given the fact that the relation between his mechanics and physics is not unproblematic, but a serious argument was certainly also that, in the event of a publication, a dedication to Huygens could hardly be avoided.²⁶ Reminding Descartes of this earlier attempt, and taking advantage of his good mood (caused by a favourable judgement of Groningen University), Huygens tried a second time in 1645, asking Descartes for a treatise on chemistry. Descartes replied that all he knew about that was already published; that work in chemistry would make it necessary to work with others; and that, luckily,

²³ For the lens grinder (*tourneur*), see Huygens to Descartes, 28 October 1635, AT I.590; Descartes to Huygens, 1 November 1635, AT I.592/CSMK 50. A design of the machine was published in *Dioptrique X*, AT VI.216–24; Manuscripts: Descartes to Huygens, 28 March 1636, AT I.601–3; Huygens to Descartes, 31 March 1636, AT I.603–4; Descartes to Huygens, [31 March 1636], AT I.605. Publisher: Huygens to Descartes, 28 October 1635, AT I.589. For the diplomatic mail: Huygens to Descartes, 5 January 1637, AT I.616–7; Huygens to [Euskercke], 5 January 1637, AT I.347/CM VI.165–6; Huygens to Descartes, 24 March 1637, AT I.625–6. Proof reading: Descartes to Huygens, 1 January 1637, AT I.615; Huygens to Descartes, 5 January 1637, AT I.617–18; Descartes to Huygens, [3 March 1637], AT I.623–4; 29 March 1637, AT I.629. The “errata” of the first edition had undoubtedly been signalled by Huygens (cf. Van Otegem 2002: I.8–9—also on the printing history).

²⁴ In the original plan, Part 6 was the introduction to the *Dioptrique* and the *Météores*—Parts 1–5 of the *Discours*, as well as the *Géométrie*, were added later (Gadoffre 1987).

²⁵ Huygens to Descartes, 18 September 1637, AT I.642–3; Descartes to Huygens, 5 October 1637, AT I.644–5/CSMK 66; Huygens to Descartes, 23 November 1637, AT I.646–8; Descartes to Huygens, 4 December 1637, AT I.648–50/CSMK 75–6. The *Explication des Engins* (AT I.435–47/CSMK 66–73) was first published in an English translation as part of a volume of *Discourses of the mechanicks*, two vols., Thomas Salusbury (ed.), London: Leybourn, 1661–5. See Van Otegem 2002: II, 553–72.

²⁶ For the relation between physics and mechanics, see Roux 2004.

there was still enough he could do alone.²⁷ Again, the argument is not entirely futile, but perhaps should not be taken too seriously. Descartes's actual message seems to be that he does not write on command—in other words, that Huygens must not see himself as his patron. In fact, although the relation between the two men remained polite and even cordial, in many ways the correspondence tells the story of a failed relationship. It is hardly a surprise that in his autobiography Huygens has nothing to say on his relation with Descartes, despite the fact that by the time of writing (1678) Descartes was a very famous philosopher.²⁸

5.2. Princess Elisabeth

Someone who eventually did become a patron—Descartes dedicated the *Principia* (1644) to her, a significant gesture—was Princess Elisabeth, the eldest daughter of Frederick V (1596–1632), Elector Palatine and for a short while (1619–20) King of Bohemia, and Elisabeth Stuart (1596–1662). After Frederick's defeat in the *Battle of White Mountain* (8 November 1620), his loss of the Bohemian crown and the invasion of the Palatinate, the family sought asylum in The Hague, Frederick being a first cousin of the Dutch stadholders.²⁹ Elisabeth was tutored privately (in classics and mathematics) at Leiden, but after the death of her father joined her mother in The Hague. In fact, her weak constitution, the mismatch between her intellectual ambitions and court life, as well as the misfortunes of her family must have made her profoundly unhappy.³⁰ Some of that is echoed in her letters to Descartes, which at times are intensely personal. It is not exactly known in what way the contact with Descartes was established. A role was certainly played by Alphonse Pollot (1602–68), a friend and correspondent of Descartes and a regular guest at the Bohemian court in The Hague, who occasionally also carried Elisabeth's letters.³¹ Perhaps also by Samson Johnson (1603–61), the chaplain of Elisabeth's

²⁷ Huygens to Descartes, 7 July 1645, AT IV.778–80; Descartes to Huygens, 4 August 1645, AT IV.780–2.

²⁸ Descartes is mentioned only once when Huygens refers to the time before Descartes had “cast a new light”, *De vita propria sermones inter liberos* (1678), published in Huygens 1892–9: VIII.184; Huygens 2003: I.72–3.

²⁹ Frederick's mother was Louise Juliana of Nassau (1576–1644), a daughter of William of Orange (1533–84) and Charlotte of Bourbon (c.1546–82), and as a result a half-sister of Maurice of Nassau (1567–1625) and Frederick-Henry of Orange (1584–1647).

³⁰ Elisabeth's eldest brother Henry (1614–29) was drowned in a ship's accident; her brother Edward (1625–63) converted to Catholicism, according to Elisabeth for frivolous motives; her sister Louise Hollandine (1622–1709), a gifted painter, also converted to Catholicism and became a nun; her brother Philip (1627–50) killed a French officer for boasting about an affair with Louise; her uncle, Charles I of England, was decapitated. It is only after the reinstatement of her brother Charles-Louis (1617–80) in the Lower Palatinate (in 1649) that things looked a bit less gloomy.

³¹ Descartes to Pollot, 6 October 1642, AT III.577–8/CSMK 214–15; cf. Descartes to Elisabeth, [November 1643], AT IV.38; 18 May 1645, AT IV.200; [May or June 1645], AT IV.221/CSMK 251. After the death of his father Alphonse Pollot (or Palotti), an Italian protestant, fought in the Dutch army. He lost an arm during the Siege of 's-Hertogenbosch (1629), was taken captive in the Battle of Kallo (1638), became an equerry of the stadholder and, after the latter's death (1647), chamberlain of the princess dowager, Amalia of Solms (1602–75).

mother, who is said to have been an ardent Cartesian.³² Or by Descartes's friend Henricus Regius, who visited the princess in The Hague shortly before she wrote her first letter.³³ In any case, Elisabeth seems to have "thoroughly enjoyed" Descartes's theories, and discussed them frequently, one such discussion being on record for 10 June 1643, the date of her second letter to Descartes.³⁴ Moreover, previous to their correspondence Descartes had already met her, although the occasion would have made him unable to speak.³⁵

Elisabeth's first letter is on the mind-body relation, which she finds hard to understand: How can the soul move the body in voluntary action, given the fact that normally a body is set in motion by another body? More particularly, she wants a definition of the soul's "substance separate from her action, that is, from thinking".³⁶ Descartes answers by claiming that our mind contains "primitive notions" (*notions primitives*), some general, like "being", "number", "duration", and others more particular, like "extension", which applies only to bodies, "thinking", which applies only to souls, and "union of body and soul", which applies only to man as a feeling and acting being. The main task of philosophy being to prevent their confusion, it would be futile to attempt an understanding of the union of mind and body starting from an understanding of either the mind or the body.³⁷ Although primitive notions cannot be further explained or defined, we grasp them, as Descartes explains in a second letter, provided we have a clear view of our mental operations: the soul is known by the pure intellect, the body also by the intellect but "much better by the intellect assisted by the imagination" (that is, by mathematics), whereas, "what belongs to the union of the soul and the body is known only obscurely by the intellect alone and even by the intellect aided by the imagination, but very clearly by the senses".³⁸ In brief, the only way to "understand" the union of body and mind is by feeling and acting. Although the argument is not entirely new—Descartes himself refers, rather inadequately, to the *Sixth Replies*³⁹—it can be found only in this letter.

It was the beginning of a correspondence which led Descartes to write the *Passions de l'âme* (1649). The first time a revised moral theory is mentioned is still largely ironic: after receiving a copy of the *Principia* (which was dedicated to her), Elisabeth thanks Descartes for this "public testimony" of his friendship, and suggests that "a new morality"

³² Sorbière to Gassendi, 10 May 1644, in: Gassendi, *Opera* VI, 470. Samson Johnson (also Jonsson or Jonson) was a friend of Hugo Grotius (1583–1645), in whose name he supervised the English edition of his book on Socinianism (*Defensio fidei catholicae adversus Faustum Socinum*, 1636). On Grotius's recommendation, Archbishop Laud (1573–1645) sent Johnson to Holland to be preacher at the court of Elisabeth Stuart.

³³ Elisabeth to Descartes, 6 May [1643], AT III.660. On Regius, see Section 5.3.

³⁴ Sorbière to Thomas Martel, 15 June 1643 (quoted Descartes 1936–63: V.317); cf. Elisabeth to Descartes, 10 June 1643, AT III.683–5.

³⁵ Descartes to Elisabeth, [21 May 1643], AT III.664/CSMK 217; cf. Descartes to Pollot, 6 October 1642, AT III.578/CSMK 214–15.

³⁶ Elisabeth to Descartes, 6 May 1643, AT III.661.

³⁷ Descartes to Elisabeth, [21 May 1643], AT III.665/CSMK 218.

³⁸ Descartes to Elisabeth, [28 June 1643], AT III.691–2/CSMK 227.

³⁹ "Or again, the mind, even though it is in fact a substance, can nonetheless be said to be a quality of the body to which it is joined." *VI^{te} Objectiones et Responsiones*, AT VII.442/CSM II.297–8.

would be needed to make her worthy of it.⁴⁰ It becomes more serious one year later when, before long, a shared reading of Seneca is replaced by a straightforward discussion of Descartes's own ideas.⁴¹ Still, Elisabeth's request for a definition of the passions, which would explain "how their force makes them especially useful if they are subjected to reason", is met with some hesitation.⁴² In fact, Descartes finds it hard to produce an "enumeration" (*dénombrément*), that is, a reasoned inventory serving as the basis for an explanation.⁴³ A few months later, though, Descartes sent Elisabeth a "treatise of the passions", presumably a draft of what is now Part 2 of *Les passions de l'âme*, while inviting her comments.⁴⁴ However, there were many distractions on both sides. Descartes made two journeys to France, in 1647 and 1648, and in the summer of 1646 Elisabeth was sent away from The Hague to stay with her aunt in Berlin.⁴⁵ More importantly, perhaps, from 1646 Pierre Chanut (1600–62), French ambassador in Stockholm, tried to attach Descartes to the court of Queen Christina (1626–89). Descartes hesitated, also, presumably, because he was afraid to offend Elisabeth: by joining the court at Stockholm he exchanged Elisabeth's patronage, which he acknowledged by his dedication of the *Principles*, with that of Christina. From her side, Elisabeth, who was related to Christina by marriage, deeply distrusted both her royal cousin and Chanut—she felt, rightly for that matter, that France was working on a redistribution of power in Europe that might not be to the advantage of her family in Germany and England.⁴⁶ Finally, she was probably hurt by the fact that Descartes shared with Christina not only a draft of the *Passions of the soul*, a book that had grown out of their correspondence, but also some of that correspondence.⁴⁷ Descartes may have felt uneasy. Not only does he try to reassure Elisabeth by promising her that before long he will be back; he also never dedicated the

⁴⁰ Elisabeth to Descartes, 1 August [1644], AT IV.131; cf. Descartes to Elisabeth, [August 1644], AT IV.136.

⁴¹ For Seneca, see Descartes to Elisabeth 21 July 1645, AT IV.253/CSMK 256; 4 August 1645, AT IV.263–8/CSMK 256–9; 18 August 1645, AT IV.271–7/CSMK 259–62. Eventually Elisabeth complained that Seneca's book did not make her any wiser (Elisabeth to Descartes, 16 August [1645], AT IV.269), after which Descartes starts presenting his theories without reference to others; Descartes to Elisabeth, 18 August 1645, AT IV.275–7/CSMK 261–2; 1 September 1645, AT IV.281–7/CSMK 262–5; 15 September 1645, AT IV.290–6/CSMK 265–7.

⁴² Elisabeth to Descartes, 13 September 1645, AT IV.289–90; Descartes to Elisabeth 15 September 1645, AT IV.296/CSMK 267; 6 October 1645, AT IV.310/CSMK 270.

⁴³ Descartes to Elisabeth, 6 October 1645, AT IV.313/CSMK 272; 3 November 1645, AT IV.332/CSMK 277. For the notion of "enumeration", see *Regulae* vii, AT X.387–92/CSM I.25–8; cf. *Discours* ii, AT VI.19/CSM I.120. For another example of enumeration as a precondition for explanation, see *Principia* iv, art. 145.

⁴⁴ Elisabeth to Descartes, 25 April [1646], AT IV.404–6. It is possible that the draft also covered part of what is now Part 1 of the *Passions*; cf. Descartes to Elisabeth, 6 October 1645, AT IV.310/CSMK 270); [May 1646], AT IV.407–9/CSMK 285–6.

⁴⁵ Elisabeth to Descartes, [August 1646], AT IV.448–9. The aunt was Elisabeth Charlotte of Brandenburg (1597–1660), a sister of Elisabeth's father. The reason of Elisabeth's "exile" (that is how she felt it) was the incident with her brother Philip (see note 30). She never returned to The Hague.

⁴⁶ See, particularly, Elisabeth to Descartes, 23 August [1648], AT V.225–6. The late husband of Elisabeth's aunt, George William of Brandenburg (1595–1640), was a brother of Christina's mother, Maria Eleonora (1599–1659).

⁴⁷ Descartes to Christina, 20 November 1647, AT V.81–6/CSMK 324–6; to Chanut, 20 November 1647, AT V.87/CSMK 327; to Elisabeth, 20 November 1647, AT V.89–92.

Passions of the soul to Christina, as one would expect from a courtier, but instead of a dedication inserted an anonymous correspondence on the various ways an experimental philosopher can be supported—in many ways a dialogued rehash of the argument of Part 6 of the *Discourse*.⁴⁸ Caught between two royals, that presumably was the best he could do. That being said, it must be underscored how rich and informative Descartes's correspondence with Elisabeth is: for not only does it allow us to follow the genesis of the *Passions of the soul* and the evolution of Descartes's ideas on the passions; without it we would not have his comments on Seneca and Machiavelli.⁴⁹

5.3. Henricus Regius

A completely different case is the correspondence with Regius.⁵⁰ Born in 1598 as Hendrik de Roy, Regius (his name as an academic) studied law at Franeker (1616), and medicine at Groningen (1617) and Leiden (1618), before starting on a European tour (1621), which finished in Padua, where he took a degree on 29 March 1623. Back in Utrecht, Regius gave private lessons to students of the university. He was probably aware of Descartes through his neighbour, Henricus Reneri (1593–1639), professor of philosophy at Utrecht university, as well as a friend and correspondent of Descartes.⁵¹ As soon as the *Discourse* was published (1637), he used the few indications in the *Dioptrics* and the *Meteorology* to construct a mechanical physics, which he then taught to his students, apparently with much success.⁵² This provided Reneri with an argument to lobby for a second chair in medicine, for which he could also propose a candidate—Regius. As a result, Regius became professor *extra ordinem* in theoretical medicine and botany in the summer of 1638—a position which, less than a year later, was changed into an *ordinaris* professorship.⁵³

⁴⁸ Van Otegem (2002: I.340) suggests that Descartes's anonymous correspondent is Henri Desmarets (1629–1725), the Latin translator of the *Passions de l'âme* (*Passiones animae*, Amsterdam: Elsevier, 1650); Mori (2017), that all letters were written by Descartes.

⁴⁹ For a discussion of Machiavelli (referred to as “the teacher of princes”), see Descartes to Elisabeth, [September 1646], AT IV.486–92/CSMK 292–5; Elisabeth to Descartes, 10 October [1646], AT IV.519–22; Descartes to Elisabeth, [November 1646], AT IV.531; Elisabeth to Descartes, 29 November [1646], AT IV.580.

⁵⁰ On all problems concerning Descartes's correspondence with Regius, see Bos 2002 (critical edition and revised chronology). On Regius and Descartes, see also Chapter 27 in this Handbook.

⁵¹ On Reneri, see Buning 2013. Reneri as well as Regius had a house in Utrecht *Munstertrans* (now *Trans*).

⁵² Descartes to Mersenne, 23 August 1638, AT II.334; cf. *Letter to Dinet*, AT VII.582–3; *Lettre apologétique aux magistrats d'Utrecht*, AT VIII.B.208. Of this “compendium” there exists no printed version. Regius probably dictated it to his students.

⁵³ The difference between an “ordinary” professor and an “extraordinary” professor is that the second had no voting rights in the “senate”, that is, the assembly of professors. Usually he was also paid less than an ordinary professor. There was already an ordinary professor in medicine, Guilielmus Stratenus (1593–1681), who, however, limited himself to practical medicine. In 1641 he became court physician of the stadholder.

Regius's first letter to Descartes was written to thank him for his appointment, which he owed, or so he said, to Descartes's philosophy.⁵⁴ This first letter was still carried by Reneri, who jealously guarded Descartes's privacy.⁵⁵ In fact, Regius and Descartes almost certainly did not meet in person until 1640. Although the first letters were mainly filled with civilities, things took a more serious turn after Reneri's death (20 March 1639).⁵⁶ From now on Regius communicated directly with Descartes. In Utrecht, moreover, Reneri's funeral was followed by an academic ceremony during which Antonius Aemilius (1589–1660), the professor of history, pronounced a funeral oration, in which, instead of limiting himself to an edifying report on the life, work, and death of his late colleague, he also presented an elaborate eulogy of Descartes and his philosophy, the friendship with "the one and only Archimedes of our time" being allegedly the most important feature of Reneri's life (Aemilius 1639). For quite a few professors and citizens this must have been the first time they heard about Descartes. Many were scandalized, not only because much of the speech was devoted to a foreigner, but also because of Aemilius's excessive claims on behalf of Descartes, which must have sounded like a delirious expression of megalomania (Van Buchell 1940: 70). Theologians were particularly disturbed by Descartes's alleged claim that everything could be known with certainty. It cannot be a coincidence that, a few months later, the main professor of theology, Gysbertus Voetius (1589–1676), tabled four disputations "On Atheism" (*De atheismo*), in which he denounced attempts at *pansophia* as an important cause of "indirect" and even "direct" atheism.⁵⁷ That much is certain; from then on, many in Utrecht viewed Descartes, and as a result Regius, who made no secret of his admiration for the French philosopher, with suspicion.⁵⁸ Descartes, however, interpreted both Regius's professorship and Aemilius's speech as an official endorsement of his philosophy. It led him to send Regius and Aemilius a draft of the *Meditations*, which they were among the very first to see, despite the fact that neither were particularly interested in metaphysics and that both were orthodox Calvinists.⁵⁹ Descartes's idea to push the *Meditations* as a proof of his Roman Catholic orthodoxy may as yet not have been formed.⁶⁰

In 1641, Regius started a series of disputations. His first intention had been to publish an "introduction to a new philosophy" (*prodromus novae philosophiae*), building on the "compendium" dictated to his students. Descartes rejected that plan, alleging that

⁵⁴ Regius to Descartes, 8/18 August 1638, AT II.305–6/Bos 2002: 3–6.

⁵⁵ See Schoock 1643: "praefatio" (Descartes and Schoock 1988: 157–8).

⁵⁶ Cf. Descartes to Pollot, 6 May 1639, AT II.545–6; to Mersenne, 27 August 1639, AT II.570/CSMK III.137.

⁵⁷ They were held on 22 June, 29 June, 6 July, and 13 July 1639. Copies of the original edition are extremely rare. A revised text was published in Voetius 1648: 114–226. "Direct atheism" is the explicit claim that there is no God; "indirect atheism" any idea, theory, or behaviour which entails that claim, or facilitates it. Admittedly "*pansophia*" is also one of the key notions of Comenianism, with which Reneri, who was part of the Hartlib network, also sympathized (cf. Bos 2006; Buning 2013).

⁵⁸ *Letter to Dinet*, AT VII.583; *Lettre apologétique aux magistrats d'Utrecht*, AT VIII.203–4 (Descartes 1996: 76–7).

⁵⁹ Descartes to Regius, [June 1640], AT III.63–5/Bos 2002: 51–2/CSMK 146–8.

⁶⁰ Descartes to Mersenne, 13 November 1639, AT II.622.

Regius's presentation was suitable for disputations only.⁶¹ Undoubtedly, he had also reservations of a different kind. By publishing a book, Regius would cut the ground under his feet. Moreover, he probably foresaw that Regius would leave nobody in doubt about the closeness of their association, so a book would be seen as an authentic presentation of Descartes's physics. In fact, Descartes preferred not to be mentioned by Regius at all.⁶² However, the fact that until the end of 1641 Regius submitted almost every word to Descartes before it was printed made it necessary for him to solve new problems and state their differences: "there are many things in your disputations which I must admit I ignore, as well as many others I do know about, which I would explain in a different way".⁶³ Certainly in its first years the friendship with Regius must have been highly stimulating, Regius being the first with whom he could share and discuss his ideas on medicine and physiology. Indeed, without Regius we would probably have a slightly different Descartes. Apart from the often detailed notes on Regius's disputations, there are the two long letters of January and February 1642, in which Descartes dictates Regius's answer to Voetius's *Diatribes on substantial forms*—a *Response* Regius published in February 1642.⁶⁴ Not only is there no text in which Descartes as explicitly discusses the notion of substantial form; it also contains the statement that "the soul is the true substantial form of man"—an important addition to the file on the relation between body and mind.⁶⁵

5.4. Marin Mersenne

The most voluminous correspondence is that with Mersenne. Although Baillet assumes that Mersenne's association with Descartes goes back to La Flèche (where both attended school), this is not very likely given the fact that Descartes came to the school more than two years after Mersenne, who, moreover, was a day student and entered the school in one of the higher forms (Baillet 1691: I.21). In fact, before starting for the Low Countries, Descartes did not arrange anything with Mersenne about a correspondence, also because it was never Descartes's intention to stay in the Low Countries for the rest of his life. On the contrary, his first plan, matured in 1628, was to work a few weeks,

⁶¹ Descartes to Regius, [April 1641], AT IV.239–40/Bos 2002: 57. For the date (different from AT's) see Verbeek 1993: 6–7; Verbeek 1994; Bos 2002: 58–9.

⁶² Descartes to Regius, [24 May 1640], AT III.66, 68/Bos 2002: 41, 43.

⁶³ Descartes to Regius, [November 1641], AT III.443/Bos 2002: 87; cf. Descartes to Regius, [early May 1641], AT III.371/CSMK 181/Bos 2002: 64.

⁶⁴ Regius 1642; Descartes to Regius, [late January 1642], AT III.491–502; 509/Bos 2002: 98–107; [3 or 4 February 1642], AT III.509–10; 503–9/Bos 2002: 113–8 (for the reasons to split the letter, see Bos 2002). For all details, see Descartes and Schoock 1988; Verbeek 1992.

⁶⁵ Regius 1642: 25; Descartes to Regius, [3 or 4 February 1642], AT III.412/Bos 2002: 115. So far Descartes had spoken only a few times of the "substantiality" of the union of body and mind; cf. *IV^{ae} Objectiones*, AT VII.219, 228/CSM II.155, 160; *Letter to Dinet*, AT VII.585. In most other cases he limits himself to the statement that the union was close and intimate.

perhaps months, with Isaac Beeckman (1588–1637).⁶⁶ Moreover, when, instead of working with Beeckman, he moved to Franeker, more than 200 km north of Dordrecht, he probably did not know how long he would stay there. In any case, initially Descartes's mail was handled by Beeckman.⁶⁷ Thus, a letter to Gibieuf could be dated "from Holland", whereas actually Descartes was living in Friesland—by the time Gibieuf would send an answer, Descartes might no longer be in Franeker, and all mail would be directed to Beeckman in Dordrecht (Holland) anyway.⁶⁸ Similarly, Ferrier—the artisan with whom Descartes wanted to work in Franeker—was asked to go to Beeckman first and receive instructions and money from him.⁶⁹ Actually, Mersenne wrote his first letter to Descartes only several months after the latter's arrival in the United Provinces, after the question he submitted to Descartes had already been discussed in letters to Beeckman himself.⁷⁰ The wording of Descartes's first letter to Mersenne does not suggest either that they had been very close, even though it is obvious they had met.⁷¹ Finally, Descartes's second letter shows that Mersenne interpreted Descartes's first letter as a request not to be bothered—a request Mersenne, for that matter, must have ignored implicitly, for in his second letter Descartes already deals with at least six questions.⁷²

It was the start of a voluminous correspondence: not only do over 150 letters survive (but there must have been many more), quite a few consist of two, or even more, densely covered large sheets of paper, in which Descartes often deals with two or three letters of Mersenne at the same time. Except when he was not in Paris (which was rare anyway) Mersenne wrote almost every two weeks, sometimes even more often. Among Mersenne's correspondents, on the other hand, Descartes is also one of the principal contributors. Moreover, his letters cover a large spectrum of subjects—indeed, Descartes's letters are an important, albeit indirect, source for what went on in Mersenne's *académie*. On the whole, there is hardly any question Descartes leaves unanswered, although he avoids theological questions if they do not suit him and sometimes protests Mersenne's suggestion is "ridiculous" or "absurd".⁷³ Through Mersenne, Descartes tried to know, but also to influence, what people in France thought of him and his philosophy. Thus

⁶⁶ Beeckman 1939–53: III.94–5; cf. Verbeek 2003.

⁶⁷ Beeckman to Mersenne, [June 1629], CM II:233–4.

⁶⁸ Descartes to Gibieuf, 18 July 1629, AT I.17. Until Louis Bonaparte (1778–1846), king of the short-lived "royaume de Hollande" (1806–10), the name 'Holland' never referred to the territory of present-day Netherlands, but only to the former County of Holland, that is, the most western of the seven united provinces.

⁶⁹ Descartes to Ferrier, 18 June 1629, AT I.14–15.

⁷⁰ Mersenne to Rivet, 28 February 1629, CM II.205–6; Beeckman to Mersenne, [June 1629], CM II.233–4. Descartes's first letter is that of [early September 1629] (AT I.19–20; the second half of the letter, as published in AT, was probably addressed to someone else). Mersenne's letter, to which this is a reply, is lost.

⁷¹ Descartes is explicitly mentioned (on optics) in a letter of Cornier to Mersenne of 22 March 1626 (CM I.429, 430). Mersenne was also in contact with Claude Mydorge (1585–1647), with whom Descartes worked on optical problems before leaving Paris ([Mydorge] to Mersenne, [February–March 1626], CM I.404–14). At the end of 1628 or the beginning of 1629, Beeckman refers to contacts between Descartes and "a monk he knows" (undoubtedly Mersenne) on experiments with strings (Beeckman 1939–53: III.98).

⁷² Descartes to Mersenne, 8 October 1629, AT I.22–8/CSMK 6–7.

⁷³ Descartes to Mersenne, [15 January 1630], AT I.109, 112; [25 February 1630], AT I.116; [end of February 1634], AT I.286; 27 August 1639, AT II.573; 19 January 1640, AT III.11; 30 September 1640, AT III.192–3, etc.

he asks Mersenne whether he is still remembered, and “what [people] say and think he is doing”.⁷⁴ After the publication of the *Discourse* he hopes Mersenne “will go on to tell [him] frankly what people say of [him], whether it is good or bad”—they know of their relation, so won’t accuse him of indiscretion.⁷⁵ Mersenne must tell him what the Jesuits are doing with his *Meteorology* in their philosophy classes.⁷⁶ And when, in 1641, Descartes’s preoccupation with the Jesuits becomes obsessive, it is Mersenne who must forward angry letters and solicit answers (Sortais 1937). Similarly, he provides a brief summary of his theory on the creation of eternal truths only to urge Mersenne “not to keep it a secret [...] as long as you do not name me, for I will be happy to know what objections can be made”.⁷⁷

By means of his correspondence, Descartes also participates in the discussions of his friend’s “academy”. Thus, he elaborately criticizes the *Géostatique* of Beaugrand (c.1585–1640) more than one year after it is published, ostensibly because otherwise Mersenne’s friends might think he has no answer.⁷⁸ Similarly, he reacts to Fermat’s *De maximis et minimis*, admittedly written in reaction to Descartes’s own *Geometry*, in a letter to Mersenne personally, in which he pictures Fermat as someone who, “having suddenly acquired the reputation to know much about algebra [...] no longer pays any attention to what he is doing”, while adding a second letter, equally addressed to Mersenne, for Fermat himself, in which he declares that he would rather say nothing, “because I would be unable to say anything about it to the advantage of the person who wrote it”—and then goes on criticizing Fermat’s theory.⁷⁹

Mersenne becomes particularly useful when Descartes needs empirical evidence for his theories.⁸⁰ When, in the summer of 1629, Reneri shares with Descartes an observation of *parhelia* (mock suns) by the Jesuit Christoph Scheiner (c.1575–1650), Descartes immediately asks Mersenne for a verification on the manuscript as it circulates in Paris, wanting “to know whether it is the same as the one [he has] seen”.⁸¹ In another letter Descartes wants to know “whether there are other and more accurate observations of

⁷⁴ Descartes to Mersenne, [18 March 1630], AT I.135.

⁷⁵ Descartes to Mersenne, [18 January 1638], AT I.485.

⁷⁶ Descartes to Mersenne, [27 July 1638], AT II.267–8/CSMK 118. *Philosophie* here means not the discipline of philosophy (as CSMK’s translation suggests), but the three highest forms of a Jesuit college, devoted to the teaching of philosophy.

⁷⁷ Descartes to Mersenne, 15 April 1630, AT I.146/CSMK 22–3. The discussion is continued in the letters of [6 May 1630] (AT I.149–50/CSMK 24–5) and [27 May 1630 (?)] (AT I.151–3/CSMK 25–6).

⁷⁸ Descartes to Mersenne, [22 June 1637?], AT I.391; 29 June 1638, AT II.182–90; [13 July 1638], AT II.247. This last letter accompanied Descartes’s critique (AT II.222–45/CSMK 111–18). As to Descartes’s personal judgement on Beaugrand, see Descartes to Mersenne, 11 October 1638, AT II.395–6; 30 July 1640, AT III.131; 31 December 1640, AT III.277; [September 1641], AT III.437.

⁷⁹ See the two letters to Mersenne of [18 January 1638], AT I.483–5; 486–93.

⁸⁰ For the following see also Bos and Verbeek 2013.

⁸¹ Descartes to Mersenne, [8 October 1629], AT I.23/CSMK 6; cf. Descartes to Mersenne, [13 November 1629], AT I.70. This being obviously Descartes’s second letter to Mersenne (see the beginning, AT I.22/CSMK 6), he can have asked this only in a part of his first letter that does not survive. Reneri obtained Scheiner’s description from Gassendi who in the summer of 1629 made a trip to the United Provinces. He left it to Reneri to publish his explanation (*Phaenomenon rarum et illustre Romae observatum*, Amsterdam: Hessel Geraerdsz, 1629). Descartes’s own explanation (*Météores* x, AT VI.361–2) was the starting point of his *Meteorology*.

the movements of sunspots and of the satellites of Jupiter and Saturn”—if so, he wants to see them, or rather “to know whether someone has written about it again, so [he] can buy the books”.⁸² Probably Mersenne had heard about Scheiner’s *Rosa ursina*, a book which was then being printed.⁸³ Of course, in this period Descartes hardly knew any Dutch specialist apart from Renieri, although he may have spoken on sunspots with Adriaan Metius (1571–1635), professor of mathematics at Franeker, who, like other Dutch astronomers and mathematicians, was engaged in discussions on that subject.⁸⁴

Whereas Descartes is eager to have Mersenne confirm astronomical observations, his interest in experiments is qualified. He is not interested in what he calls “particular experiences”—an expression that stands for what we would call “experiments” (artificial set-ups meant to prove a particular hypothesis or theory) and “irreproducible observations”.⁸⁵ The first time the subject comes along is when Descartes encourages Mersenne “to go on sending me such [experiences] as you believe deserve to be explained”, adding that he is interested only in “what is universal and what everybody can experience”. As to “particular experiments, which depend on the good faith of few people”, he is not interested and is “determined not to speak of them at all”.⁸⁶ In this period Descartes is mainly interested in a general theory of nature, which, as he explains in the *Discourse*, is best confirmed by “experiences” which “present themselves spontaneously to our senses” rather than “those which are more unusual and highly contrived”.⁸⁷ Experiments, in the specific sense of the word, often require the help of others, whereas the philosopher “could not usefully employ other hands than his own”.⁸⁸ Finally, reports of “experiences” of others cannot always be trusted because “they are for the most part bound up with so many details or superfluous ingredients that it would be very hard [...] to make out the truth in them”. Indeed, most turn out “to be so badly explained or indeed so mistaken—because those who performed them were eager to have them appear to conform with their principles—that it would simply not be worthwhile [...] to spend the time required to pick out those which might be useful”.⁸⁹

Although, therefore, there are many theoretical reasons why Descartes should not be interested in observations and experiments realized by others, much of his correspondence with Mersenne is devoted precisely to those. As it is, there were many practical reasons that overruled his reservations. First of all, Descartes eventually needed

⁸² Descartes to Mersenne, 18 December 1629, AT I.102–3; cf. Descartes to Mersenne, [beginning of February 1634], AT I.282. The ring on Saturn was still interpreted as consisting of satellites.

⁸³ Scheiner 1626–30. Descartes cites this book in *Principia* iii, art. 35. On the controversy over sunspots, see Galilei and Scheiner 2010.

⁸⁴ See Galilei and Scheiner 2010: 34. Descartes credited Metius’s brother Jacob (1571–1628) with the invention of the telescope (*Dioptrique* I, AT VI.82).

⁸⁵ Not only in Descartes’s days, but also now, the French word *expérience* means ‘experience’ in the ordinary sense of that word, as well as ‘experiment’ in the specific sense of that word.

⁸⁶ Descartes to Mersenne, 18 December 1629, AT I.84–5/CSMK 14.

⁸⁷ *Discours* VI, AT VI.63/CSM I.143. In his translation, Cottingham avoids the terms ‘experiment’ and ‘experience’ and replaces them by ‘observation’ (see note 85). We do not follow him there.

⁸⁸ *Discours* VI, AT VI.72/CSM I.148.

⁸⁹ *Discours* VI, AT VI.73/CSM I.148; cf. Descartes to Mersenne, [1 March 1638], AT II.29/CSMK 90.

experiments badly, as he admits in the *Discourse*: “the further we advance in our knowledge, the more necessary they become”.⁹⁰ Whereas the first part of physics is essentially an individual project, its second part, which also comprises physiology and chemistry, seeks to explain particular effects, and requires a great many “particular experiences”.⁹¹ However, these can be expensive; they often require technical assistance; and in the places where Descartes lived they cannot always easily be realized, whereas Mersenne was usually well informed about observations and experiments performed in Paris and elsewhere, and himself worked with engineers like Pierre Petit (1594–1677).⁹² Moreover, Descartes trusted him and felt free to give him detailed instructions.⁹³ On the whole, therefore, Mersenne was extremely useful, especially in this respect.

That being said, there was also, at least occasionally, some irritation, certainly on behalf of Descartes. Thus, for example, Descartes is seriously annoyed when instead of doing what is needed to obtain a *privilège* (printing licence) for the *Discourse*, which in itself was complicated enough, Mersenne tries to have one for whatever Descartes still was to publish—a bureaucratic challenge, which caused the publication of the *Discourse* to be delayed for several months.⁹⁴ Similarly, despite the fact that he heard about the “barometric experiments” of Torricelli almost from the beginning, and even witnessed a replication of the experiment in Florence in December 1644, Mersenne failed to inform Descartes, who first heard about it in June and September 1647 when he was in Paris.⁹⁵ Like others, presumably, who corresponded with Mersenne, Descartes had to take a certain amount of confusion and miscommunication in their stride. The way in which Mersenne organized a debate or contest by correspondence, submitting a problem to various correspondents, playing them off against each other, and sending back and forth letters and documents, led to much confusion and occasionally upset Descartes’s relations with other people. Thus, it was a thoughtless and indiscrete remark of Mersenne that precipitated Descartes’s quarrel with Beeckman, although the violence of

⁹⁰ *Discours* VI, AT VI.63/CSM I.143.

⁹¹ As to chemistry, see the letter to Huygens referred to above (note 27). As to physiology, see *Discours* V, AT VI.45–6/CSM I.134. For the general problem, see also *Principia* IV.203–4.

⁹² Petit, a military engineer, was a famous experimenter, who continually employed several artisans. Descartes came to dislike him because of his critique of the *Discours*; De Waard 1925.

⁹³ For an instance in which Descartes gave Mersenne detailed instructions on the way a certain experiment should be performed, see Descartes to Mersenne, 15 May 1634, AT I.293–4. Mersenne performed the experiment in the autumn of 1635 (Mersenne to Gassendi, 17 November 1635, CM V.484) and with opposite results six months later (CM VI.85–6); cf. Descartes to Mersenne, [March 1636?], AT I.341/CSMK 52.

⁹⁴ For the difficulties, see Mersenne to Descartes, 15 February 1637, AT I.659–62; Descartes to Mersenne, [27 April 1637?], AT I.363–5. Usually a *privilège* was granted for one particular book after the approval by a royal censor. It protected French publishers for a period of two to ten years against pirate editions made in France. However, not only was Descartes’s *Discourse* printed in the Netherlands; the *privilège* was also asked for the author. Although not impossible, *privilèges* for all works of an author were exceptional. For details, see Falk 1906: 71–4.

⁹⁵ For more detail, see Bos and Verbeek 2013.

Descartes's reaction suggests that some irritation had already been building up.⁹⁶ It is also clear that Mersenne gave permission to show the *Dioptrique* to Fermat, and perhaps even that he himself solicited Fermat's reaction—afterwards he told Descartes different stories on who did what, eventually, as it seems, putting all the blame on Beaugrand.⁹⁷

6. CONCLUSION

Descartes's correspondence is an integral part of his work. Not that by reading his letters we learn much about his life; indeed, in that respect the correspondence may even be found a bit disappointing, although, as we have shown, much can be learned about Descartes's personality, his self-image, his relations to others, and his strategies as an author. Still, it is through the letters that we sometimes have a glimpse of Descartes's day-to-day business. Thus we see Descartes dissecting rabbits and eels, visiting the Leiden anatomical theatre, being involved in the treatment of a young girl suffering from rickets, soliciting an interview with the stadholder for two Haarlem priests, and pleading the case of a murder suspect.⁹⁸ Finally, there are several theories and doctrines which can be known only from the correspondence, or which, on the basis of the correspondence, can be qualified or rendered more precise. Thus, for example, the theory of the creation of eternal truths is primarily known through the correspondence; indeed, despite Descartes's promises that it will be in his "Physics", the name for what came to be known as *Le monde*, there is nothing like it in that work, even though, obviously, there is nothing in that work either which contradicts it.⁹⁹ A long letter on love, written for Queen Christina, certainly adds a few elements to what can be known on the subject from the *Passions of the soul*.¹⁰⁰ The only presentation of Descartes's ideas on language

⁹⁶ Descartes to Mersenne, 8 October 1629, AT I.24; 18 December 1629, AT I.100; to Beeckman, [September or October 1630], AT I.155–6; 17 October 1630, AT I.157–67). Still, there must have been a reconciliation, given the fact that there are visits on record in 1631 and 1634 (Beeckman to Mersenne, 7 October 1631, CM III.203; Descartes to Mersenne, 14 August 1634, AT I.303/CSMK 44; Descartes to [Beeckman], 22 August 1634, AT I.307–12; cf. Baillet 1691: I.260).

⁹⁷ Fermat to Mersenne, [April or May 1637], AT I.355–61. See particularly the beginning and the end of the letter which show that Mersenne had asked Fermat for a judgement. The usual story goes back to two different testimonies of Baillet (1691: I.322 and I.358–9), of which Adam and Tannery remark that their "inaccuracies and mistakes, even with respect to the meaning of passages in letters quoted by him, are so serious that his entire testimony is invalidated" (AT I.362)—a remark unjustly forgotten. Mersenne seems to have told different stories about what happened, but put all the blame firmly on Beaugrand (Descartes to Mersenne, [22 June 1637], AT I.390–1). In February 1638 he still does not seem to have told the entire story (Descartes to Mersenne, [end of February 1638], AT II.25/CSMK 89).

⁹⁸ Dissections: Descartes to Plempius, 15 February 1638, AT I.526–7/CSMK 81; 23 March 1638, II, 66/CSMK 95. Anatomical theatre: Descartes to Mersenne, 1 April 1640, AT III.49/CSMK 146. Rickets: Descartes to De Wilhem, 13 and 24 June 1640, AT III.91–3. Haarlem priests: Descartes to Huygens, October 1639, AT II.583–6. Murder: Descartes to Huygens [?], January 1646, AT V.262–5.

⁹⁹ Descartes to Mersenne, 15 April 1630, AT I.145–6/CSMK 22–3; 6 May 1630, AT I.149–150/CSMK 24–5.

¹⁰⁰ Descartes to Chanut, 1 February 1647, AT IV.600–17/CSMK 305–14.

are found in a letter to Mersenne.¹⁰¹ His political ideas can be reconstructed only from what he says about Machiavelli and Hobbes in letters to Elisabeth and an unknown correspondent.¹⁰² His explanation of fevers is found only in a letter to the Marquess of Newcastle.¹⁰³ Without the correspondence, Descartes's mathematics would be limited to the *Geometry*.¹⁰⁴ For a thorough discussion of his explanation of the Eucharist one must turn to the correspondence with Mesland.¹⁰⁵

REFERENCES

- Adam, Charles (1933), "Correspondance de Descartes: nouveau classement", *Revue philosophique de la France et de l'Étranger* 115: 373–401.
- Aemilius, Antonius (1639), *Oratio in obitum Cl. V. Henrici Renerii*. Utrecht: Roman. Reprinted in Aemilius, *Orationes quarum pleraeque tractant argumentum politicum*. Utrecht: Van Zyll and Van Ackersdyck, 1651, 105–24.
- Agostini, Sigrid (2018), *Claude Clerselier: la correspondance et le contexte intellectuel (1646–1681): A l'origine d'un cartésianisme après Descartes*. Leuven: Brepols.
- Alexandrescu, Vlad, and Grigore Vida (2015), "Sur les lettres CDLXXVI *ter* et *quater* d'AT (Clerselier, T. II, XXIII et XXIV)", *Bulletin cartésien XLIV, Archives de philosophie* 78: 174–82.
- Armogathe, Jean-Robert (1992), "Le groupe de Mersenne et la vie académique parisienne", *XVIIe Siècle* 44: 131–9.
- Armogathe, Jean-Robert (1999), "La Correspondance de Descartes comme laboratoire intellectuel", in Jean-Robert Armogathe, Giulia Belgioioso, and Carlo Vinti (eds.), *La biografia intellettuale di René Descartes attraverso la Correspondance: Atti del Convegno Descartes e l'Europe savante*, Perugia, 7–10 ottobre 1996. Naples: Vivarium, 5–22.
- Baillet, Adrien (1691), *La vie de Monsieur Des-Cartes*, 2 vols. Paris: Horthemels.
- Beeckman, Isaac (1939–53), *Journal tenu par Isaac Beeckman de 1604 à 1634*, ed. Cornelis de Waard, 4 vols. The Hague: Nijhoff.
- Berkvens-Stevelinck, Christiane, Hans Bots and Jens Häselser (2005), *Les grands intermédiaires culturels de la République des Lettres: études de réseaux de correspondances du XVIe au XVIIIe siècles*. Paris: Champion.
- Bos, Erik-Jan (2002), "The Correspondence between Descartes and Henricus Regius", ed. Erik-Jan Bos. PhD diss., Zeno Research Institute, Utrecht University, Utrecht.
- Bos, Erik-Jan (2006), "Descartes and Comenius: New Insights—Old Errors", *Comenius-Jahrbuch* 11–12 (2003–4): 83–95.
- Bos, Erik-Jan (2010), "Two Unpublished Letters of René Descartes: On the Printing of the *Meditations* and the Groningen Affair", *Archiv für Geschichte der Philosophie* 92: 290–302.
- Bos, Erik-Jan, and Theo Verbeek (2013), "Conceiving the Invisible: The Role of Observation and Experiment in Descartes's Correspondence, 1630–1650", in Dirk Van Miert (ed.),

¹⁰¹ Descartes to Mersenne, [20 November 1629], AT I.76–82/CSMK 10–13.

¹⁰² Descartes to ***, [1643], AT IV.67/CSMK 230–1 (Hobbes). For Machiavelli, see note 49.

¹⁰³ Descartes to Newcastle, [April 1645], AT IV.188–92.

¹⁰⁴ See Chapter 8 on Descartes's mathematics.

¹⁰⁵ Descartes to Mesland, 9 February 1645, AT IV.162–9; [25 May 1645], AT IV.215–17/CSMK 248–9; [End 1645–beginning 1646], AT IV.345–8/CSMK 278–9.

- Communicating Observations in Early Modern Letters (1500–1675)*. London: Warburg Institute, 163–179.
- Bos, Erik-Jan, and Corinna Vermeulen (2002), “An Unknown Letter of Descartes to Joachim de Wicquefort”, *Studia Leibnitiana* 34: 100–9.
- Breger, Herbert (2002), “Ein wiedergefundenes Autograph von Descartes”, *Studia Leibnitiana* 34: 110–16.
- Brown, Harcourt (1934), *Scientific Organizations in Seventeenth-Century France (1620–1680)*. Baltimore: Williams and Wilkins [reissue, New York: Russell and Russell, 1967].
- Buning, Robin (2013), “Henricus Reneri (1593–1639): Descartes’ Quartermaster in Aristotelian Territory”. PhD dissertation, Zeno Research Institute, Utrecht University, Utrecht.
- De Boer, Josephine (1938), “Men’s Literary Circles in Paris 1610–1660”, *Publications of the Modern Language Association* 53: 730–80.
- De Waard, Cornelis (1925), “Les objections de P. Petit contre le Discours et les Essais de Descartes”, *Revue de métaphysique et de morale* 32: 53–89.
- Dear, Peter (1988), *Mersenne and the Learning of the Schools*. Ithaca, NY: Cornell University Press.
- Delatour, Jérôme (2005), “Les frères Dupuy et leurs correspondances”, in Christiane Berkvens-Stevelinck, Hans Bots, and Jens Häselser (eds.), *Les grands intermédiaires culturels de la République des Lettres: études de réseaux de correspondances du XVIIe au XVIIIe siècles*. Paris: Champion, (note 1), 61–101.
- Descartes, René (1657–67), *Lettres de M^r Descartes*, ed. Claude Clerselier, 3 vols. Paris: Ch. Angot/H. le Gras.
- Descartes, René (1897–1913), *Œuvres de Descartes*, ed. Charles Adam and Paul Tannery, 12 vols. Paris: Cerf.
- Descartes, René (1926), *Correspondence of Descartes and Constantyn Huygens, 1635–1647*, ed. Leon Roth. Oxford: Clarendon.
- Descartes, René (1936–63), *Correspondance*, ed. Charles Adam and Gérard Milhaud, 8 vols. Paris: Alcan/Presses Universitaires de France.
- Descartes, René (1964–71), *Œuvres de Descartes*, 2nd edition, ed. Ch. Adam, P. Tannery, B. Rochot, P. Costabel, and A. Beaulieu, 11 vols. Paris: Vrin.
- Descartes, René (1996), *Verantwoordingh [...] aen d’achtbare overigheit van Utrecht*, ed. Erik-Jan Bos. Amsterdam: Amsterdam University Press.
- Descartes, René (2008), *Lettres: Esemplare annotato dell’Institut de France (edizione di Claude Clerselier, 1666–1667)*, ed. Jean-Robert Armogathe and Giulia Belgioioso, 6 vols. Lecce: Conte editore.
- Descartes, René (2009), *Tutte le lettere (1619–1650): Testo francese, latino e olandese*, ed. and trans. Giulia Belgioioso et al., 2nd edition. Milan: Bompiani.
- Descartes, René (2012–16), *Descartes’ Correspondence* [Japanese translation], ed. and trans. Hiroaki Yamada et al., 8 vols. Tokyo: Chisen-shokan.
- Descartes, René (2014–present), *Corespondența completă*, ed. and trans. Vlad Alexandrescu, 3 vols. Bucharest: Polirom.
- Descartes, René (2015), *Der Briefwechsel mit Elisabeth von der Pfalz*, ed. and trans. Isabelle Wienand, Olivier Ribordy, and Benno Wirz. Hamburg: Felix Meiner Verlag.
- Descartes, René, and Martinus Schoock (1988), *La querelle d’Utrecht*, ed. Theo Verbeek. Paris: Impressions nouvelles.
- Dibon, Paul (1990), “Clerselier, éditeur de la correspondance de Descartes”, in Paul Dibon, *Regards sur la Hollande du Siècle d’or*. Naples: Vivarium, 495–522.

- Falk, Henri (1906), *Les privilèges de librairie sous l'Ancien Régime*. Paris: Rousseau. Reprint Geneva: Slatkine, 1970.
- Gadoffre, Gilbert (1987), "La chronologie des six parties", in *Le Discours et sa méthode*, ed. Nicolas Grimaldi and Jean-Luc Marion. Paris: Presses Universitaires de France, 19–40.
- Galilei, Galileo, and Christoph Scheiner (2010), *On Sunspots*, trans. Eileen Reeves and Albert van Helden. Chicago: University of Chicago Press.
- Hooft, Pieter Cornelisz (1855–7), *Brieven*, ed. Johannes van Vloten, 4 vols. Leiden: Brill.
- Huygens, Constantijn (1885), *Dagboek*, ed. J. H. W. Unger. Amsterdam: Binger.
- Huygens, Constantijn (1892–9), *Gedichten*, ed. J. A. Worp, 9 vols. Groningen: Wolters.
- Huygens, Constantijn (1911–17), *De briefwisseling van Constantijn Huygens*, ed. J. A. Worp, 6 vols. The Hague: Rijks geschiedkundige publicatiën.
- Huygens, Constantijn (2003), *Mijn leven verteld aan mijn kinderen*, ed. and trans. Frans Blom, 2 vols. Amsterdam: Prometheus/Bakker.
- Jurgens, Madeleine, and Jean Mesnard (1979), "Quelques pièces exceptionnelles découvertes au minutier central des notaires de Paris (1600–1650)", *Revue d'histoire littéraire de la France* 79: 739–54.
- Kambouchner, Denis (2013), *Le style de Descartes*. Paris: Éditions Manucius.
- Kronick, David A. (1976), *A History of Scientific and Technical Periodicals: The Origins and Development of the Scientific and Technical Press 1665–1790*, 2nd edition. Metuchen, NJ: Scarecrow.
- Kronick, David A. (1991), *Scientific and Technical Periodicals of the Seventeenth and Eighteenth Centuries: A Guide*. Metuchen, NJ and London: Scarecrow.
- Lenoble, Robert (1943), *Mersenne ou la naissance du mécanisme*. Paris: Vrin.
- Mersenne, Marin (1932–88), *La correspondance du P. Marin Mersenne*, ed. Cornelis de Waard, Bernard Rochot, and Armand Beaulieu, 17 vols. Paris: Beauchesne/Presses Universitaires de France/Centre Nationale de la Recherche Scientifique. [Abbreviated in the notes as 'CM'.]
- Mori, Gianluca (2017), "Descartes incognito: la 'préface' des *Passions de l'âme*", *Dix-septième siècle* 277: 685–700.
- Oldenburg, Henry (1965–86), *The Correspondence of Henry Oldenburg*, ed. Alfred Rupert Hall and Marie Boas Hall, 13 vols. Madison, WI: University of Wisconsin Press.
- O'Neill, Lindsay (2015), *The Opened Letter: Networking in the Early Modern British World*. Philadelphia: University of Pennsylvania Press.
- Pastine, Dino (1972), "Caramuel contro Descartes: Obiezioni inedite alle Meditazioni", *Rivista critica di storia della filosofia* 27: 177–221.
- Raymond, Joad, and Noah Moxham (2016), *News Networks in Early Modern Europe*. Leiden: Brill.
- Regius, Henricus (1642), *Responsio sive Notae in Appendicem [...] Voetii*. Utrecht: Van Doorn.
- Rochot, Bernard (1966), "Le Père Mersenne et les relations intellectuelles dans l'Europe du XVIIe siècle", *Cahiers d'histoire mondiale* 10: 55–73.
- Roux, Sophie (2004), "Cartesian mechanics", in Carla Rita Palmerino and Hans Thijssen (eds.), *The Reception of the Galilean Science of Motion in Seventeenth-Century Europe*. Dordrecht: Kluwer, 25–66.
- Scheiner, Christoph (1626–30), *Rosa ursina sive sol ex admirando facularum et macularum phaenomeno varius necnon [...] mobilis ostensus*. Bracciano: Phaeus.
- [Schoock, Martinus] (1643), *Admiranda methodus novae philosophiae Renati Des Cartes*. Utrecht: Van Waesberghe.
- Sortais, Gaston (1937), "Descartes et la Compagnie de Jésus: menaces et avances, 1640–1646", *Estudios* 57: 441–68.

- Van Buchel, Aernout (1940), *Notae Quotidianae*, ed. J. W. C. van Campen. Utrecht: Kemink.
- Van de Ven, Jeroen, and Erik-Jan Bos (2004), “*Se nihil daturum*—Descartes’s Unpublished Judgement of Comenius’s *Pansophiae Prodromus* (1639)”, *British Journal for the History of Philosophy* 12: 369–86.
- Van Miert, Dirk, ed. (2013), *Communicating Observations in Early Modern Letters (1500–1675)*. London: Warburg Institute.
- Van Otegem, Matthijs (2002), “A Bibliography of the Works of Descartes”, 2 vols. PhD diss., Zeno Research Institute, Utrecht University, Utrecht.
- Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy, 1637–1650*. Carbondale/Edwardsville: Southern Illinois University Press.
- Verbeek, Theo (1993), “Le contexte historique des *Notae in programma quoddam*”, in Theo Verbeek (ed.), *Descartes et Regius: Autour de l’Explication de l’esprit humain*. Amsterdam: Rodopi, 1–33.
- Verbeek, Theo (1994), “Regius’ *Fundamenta physices*”, *Journal of the History of Ideas* 55: 533–51.
- Verbeek, Theo (2003), “A Philosopher’s Life”, in Thomas Lennon (ed.), *Cartesian Views: Papers Presented to Richard A. Watson*. Leiden: Brill, 53–69.
- Verbeek, Theo, Erik-Jan Bos, and Jeroen van de Ven (2003), *The Correspondence of René Descartes: 1643*. Utrecht: Zeno Research Institute.
- Vermeulen, Corinna (2015), “*La langue des doctes*: Style and Strategy in Descartes’s Latin Works”, *Humanistica Lovaniensia* 64: 367–79.
- Voetius, Gysbertus (1648), *Selectarum disputationum theologiarum Pars prima*. Utrecht: Van Waesberghe.

CHAPTER 4

DESCARTES ON THE METHOD OF ANALYSIS

LEX NEWMAN

THERE is no scholarly consensus on how to understand Descartes's account of the distinction of *analysis* and *synthesis*. His most detailed discussion occurs in the Second Replies and poses interpretive difficulties. For example, he points to his *Meditations* as a model of analysis—"it was this method alone which I employed in my *Meditations*" (Second Replies, AT VII.156/CSM II.111). As a model of synthesis, he recasts four lines of argument from the *Meditations* into a more obviously geometric style of demonstration—a geometric exposition published at the end of the Second Replies. Prima facie, a comparison of the two models fails to illuminate any substantive methodological difference. In both works, the arguments purport to deduce conclusions from self-evident premises; moreover, both works cite similar premises. The literary style of the works differs, but it is unclear that *this* makes for the kind of substantive difference Descartes supposes. In his detailed explanation of the distinction, he likens analysis to *apriority*, and synthesis to *aposteriority*. Based on this, one might expect to find that the *Meditations* presents the four arguments in an *a priori* style, while the geometric exposition presents them in an *a posteriori* style. In each work, however, one finds the same mix of both a priori and a posteriori arguments.¹

Appeals to the history of the analysis/synthesis distinction have not been fruitful. There is scant evidence linking Descartes's discussion of the distinction to historically prior accounts,² nor is there a unified historical tradition.³ On one historically prominent tradition, analysis involves *resolution* or decomposition, while synthesis involves *composition*. Though some commentators have usefully explicated some of Descartes's work

¹ Gaukroger thus concludes that Descartes's explanation of the distinction in terms of apriority and aposteriority "turns out to be utterly unhelpful" (Gaukroger 1989: 74). Curley adds, of Descartes's explanation, that it "is likely only to confuse us", leaving us to try to understand the distinction in some other way (Curley 1986: 154–5).

² Cf. Gaukroger (1989), Hintikka (1978), Timmermans (1999).

³ Cf. Hintikka and Remes (1974).

in light of this historical account,⁴ it is at odds with the Second Replies account of the distinction.⁵

The account I shall propose focuses on Descartes's Second Replies treatment of the distinction. Generally unnoticed in the scholarly literature is a subtlety in his references to the apriority/aposteriority distinction. Attention to that subtlety, plus to the broader context of his discussion, suggests an account centering on the handling of first principles. In short: analytic demonstrations motivate their first principles; synthetic demonstrations merely clarify them. There is, of course, more to be said. As I shall argue, the account makes sense of everything Descartes writes about the distinction—including the claim that he uses analysis “alone” in his *Meditations*. Moreover, the account renders his interest in the method of analysis continuous with his career-long interest in the foundations of knowledge. He thinks analysis is the method of choice when one's enquiry encompasses a discovery of first principles—an endeavor he regards as an essential component in the acquisition of knowledge: to achieve perfect knowledge, “it must be deduced from first causes; thus, in order to set about acquiring it . . . we must start with the search for first causes or principles” (French Preface to the *Principles*, AT IXB.2/CSM I.179).

In what follows, Section 1 develops and defends the above interpretation of the analysis/synthesis distinction. Section 2 develops the explanatory power of the interpretation for Descartes's own metaphysical works, giving special attention to his two most developed works of analysis, the *Regulae* and the *Meditations*. It emerges that analysis is employed in each of Descartes's major works treating metaphysics—an outcome consistent with his claim that analysis is better suited to metaphysical inquiry than is synthesis.

1. METAPHYSICS AND THE ANALYSIS/SYNTHESIS DISTINCTION

How is metaphysical knowledge possible? While this is a bigger question than I mean to engage, it helps frame what, for Descartes, is an important upshot of the analysis/synthesis distinction. He thinks that all prior efforts at metaphysical knowledge have failed, and that he can explain why. His primary diagnoses focus on failures of Aristotelian thinking, in the Schools.

⁴ For examples, see Nelson (2018: 230), Gaukroger (1989: 74), and Schouls (1980: 9–11).

⁵ For example, the Second Replies account (to be clarified in Section 1) stands in contrast to the Pappus-inspired account that Cottingham attributes to Descartes. On that latter account, the distinction does “boil down to nothing more than a contrast between moving [in synthesis] ‘downwards’ from axioms to a desired result and moving [in analysis] ‘upwards’ from a given proposition until we reach the axioms that generate it” (1988: 45).

Aristotelians agree, in theory, that arguments should be based in evident principles. However, Descartes thinks their epistemological practices have prevented success in metaphysics, as evidenced by their track record at identifying metaphysical principles:

So it is in philosophy: when one has true principles and follows them, one cannot fail to come upon other truths from time to time. Indeed the best way of proving the falsity of Aristotle's principles is to point out that they have not enabled any progress to be made in all the many centuries in which they have been followed.

(French Preface to the *Principles*, AT IXB.18/CSM I.189)

One source of blame is their penchant for deriving principles from the senses, or from authorities themselves invoking the senses. Part and parcel of Descartes's own epistemological views is the unreliability of the senses in metaphysical inquiry. The problem is not simply that the senses provide an incomplete picture; worse still, the picture provided often conflicts with truth. Descartes thinks the associated problems arise especially for *metaphysical* inquiry, as opposed to other more empirically friendly fields, such as Euclidean geometry:

The difference is that the primary notions which are presupposed for the demonstration of geometrical truths are readily accepted by anyone, since they accord with the use of our senses. Hence there is no difficulty there, except in the proper deduction of the consequences, which can be done even by the less attentive, provided they remember what has gone before

In metaphysics by contrast there is nothing which causes so much effort as making our perception of the primary notions clear and distinct. Admittedly, they are by their nature as evident as, or even more evident than, the primary notions which the geometers study; but they conflict with many preconceived opinions derived from the senses which we have got into the habit of holding from our earliest years, and so only those who really concentrate and meditate and withdraw their minds from corporeal things, so far as is possible, will achieve perfect knowledge of them.

(Second Replies, AT VII.156–7/CSM II.111)

Related issues help frame the context of Descartes's Second Replies discussion of analysis and synthesis. The distinction concerns two approaches to demonstration. The approaches are similar in regards to the *order* of the demonstrations:

The order consists simply in this. The items which are put forward first must be known entirely without the aid of what comes later; and the remaining items must be arranged in such a way that their demonstration depends solely on what has gone before. (Second Replies, AT VII.155/CSM II.110)

In Descartes's view, the difference between analysis and synthesis arises from their respective *methods* of demonstration. The key difference, as I understand him, arises in their handling of "the items which are put forward first"—that is, in their approach to first principles.

Further helping to frame the context of Descartes's discussion is a request in the Second Objections that Descartes "set out the entire argument [of the *Meditations*] in geometrical fashion, starting from a number of definitions, postulates and axioms" (AT VII.128/CSM II.92). His discussion of the analysis/synthesis distinction is given as part of his response. After explaining the distinction, he offers the requested geometric account—a synthetic geometric exposition (SGE). SGE focuses on four lines of argument from the *Meditations*—three proofs of God, and a proof of the real distinction—offering a *synthetic* presentation, in contrast with their *analytic* presentation in the *Meditations*.

Here is Descartes's explanation of the distinction between analysis and synthesis:

Analysis shows [1] the true way by means of which the thing in question was discovered methodically and [2] as it were *a priori*, so that if the reader is willing to follow it and give sufficient attention to all points, he will make the thing his own and understand it just as perfectly as if he had discovered it for himself. But [4] this method contains nothing to compel belief in an argumentative or inattentive reader; for if he fails to attend even to the smallest point, he will not see the necessity of the conclusion. Moreover [3] there are many truths which—although it is vital to be aware of them—this method often scarcely mentions, since they are transparently clear to anyone who gives them his attention.

Synthesis, by contrast, employs a directly opposite method where [2] the search is, as it were, *a posteriori* (though the proof itself is often more *a priori* than it is in the analytic method). It demonstrates the conclusion clearly and [3] employs a long series of definitions, postulates, axioms, theorems and problems, so that [4] if anyone denies one of the conclusions it can be shown at once that it is contained in what has gone before, and hence the reader, however argumentative or stubborn he may be, is compelled to give his assent. However, this method is not as satisfying as the method of analysis, nor does it engage the minds of those who are eager to learn, since [1] it does not show how the thing in question was discovered.

It was synthesis alone that the ancient geometers usually employed in their writings. But in my view this was not because they were utterly ignorant of analysis, but because they had such a high regard for it that they kept it to themselves like a sacred mystery.

Now it is analysis which is the best and truest method of instruction, and [5] it was this method alone which I employed in my *Meditations*. As for synthesis, which is undoubtedly what you are asking me to use here, it is a method which it may be very suitable to deploy in geometry [1] as a follow-up to analysis, but [6] it cannot so conveniently be applied to these metaphysical subjects.

(Second Replies, AT VII.155–6/CSM II.110–11)

The passage provides at least six points of contrast—here summarized in abbreviated form:

1. Analysis, unlike synthesis, is suited to the original *discovery* of truth.
2. Analysis unfolds *a priori*; synthesis unfolds *a posteriori*.
3. Synthesis, unlike analysis, employs a long series of starting assumptions.

4. Synthesis is better than analysis at inducing agreement in opponents.
5. The *Meditations* employs analysis alone, not synthesis.
6. Analysis is better suited to metaphysical inquiry than is synthesis.

The first three contrasts shed light on the nature of the distinction; the last three concern consequences of the distinction. Ideally, a satisfying interpretation should explain all six contrasts. As already noted, the fifth contrast poses a special interpretive challenge. The four lines of argument presented in SGE repeat similar lines of argument presented in the *Meditations*. How, then, can the *Meditations* be said to employ analysis *alone*, when SGE—presenting similar lines of argument—is supposed to exemplify synthesis?

On the answer I propose, the *Meditations* purports to *discover* the first principles it employs, while SGE does not. This difference lies at the heart of Descartes's understanding of the distinction. Both analysis and synthesis follow the order of demonstration. But while analytic demonstrations attempt to discover their first principles, synthetic demonstrations merely clarify them. This understanding of the distinction explains how the very same demonstrative steps might count as analysis in one context, but synthesis in another.⁶ To more fully clarify the interpretation, let us consider each of the six contrasts, in turn.

1. The first contrast has it that analysis, unlike synthesis, is suited to the original *discovery* of truth. Because synthetic method presumes, rather than establishing, its first principles, it is incapable of *producing* knowledge, as opposed to demonstrating truths already known.⁷ In the Preface to the French edition of the *Principles*, Descartes writes, of the “logic of the Schools”, that it is “nothing but a dialectic which teaches ways of expounding to others what one already knows” (AT IXB.13–14/CSM I.186). The *Regulae* develops the point further:

[D]ialecticians are unable to formulate a syllogism with a true conclusion unless they are already in possession of the substance of the conclusion, i.e. unless they have previous knowledge of the very truth deduced in the syllogism. It is obvious therefore that they themselves can learn nothing new from such forms of reasoning, and hence that ordinary dialectic is of no use whatever to those who wish to investigate the truth of things. Its sole advantage is that it sometimes enables us to explain to others arguments which are already known. (AT X.406/CSM I.36–7)

⁶ Some interpretations entail that analysis, unlike synthesis, does not encompass demonstrative steps in the sense of deductive proofs wherein conclusions logically follow from premises. Cf. Cunning (2015: 9), Gaukroger (1989: 104–5), and Clarke (1982: 172). Cunning rightly adds that this understanding leaves unanswered “how exactly an analytic demonstration is supposed to be structured” (2015: 9). Other interpretations have it the other way around. For instance, Hintikka (1978: 77–8) writes that Descartes “thinks of analysis as consisting of deductive inferences”; adding that the “idea of analysis as consisting of logical inferences is part and parcel of what Descartes means by saying that in the *Meditations* he employed analysis”.

⁷ In a letter to Morin (13 July 1638), Descartes writes: “there is a big difference between *proving* and *explaining*. I should add that the word ‘demonstrate’ can be used to signify either, if it is used according to common usage and not in the technical philosophical sense” (AT II.198/CSMK 106).

It is because dialecticians work with presumed first principles that “ordinary dialectic is of no use whatever to those who wish to investigate the truth of things”.

An implication of our interpretation is that Descartes does not intend readers of SGE to *acquire* knowledge of the four propositions demonstrated *from* that exposition, unless “as a follow-up to analysis”; i.e. unless they have already achieved knowledge of them, say, from their analytic treatment in the *Meditations*.

2. On the second contrast, analysis unfolds *a priori*, while synthesis unfolds *a posteriori*. Descartes’s use of this terminology appears to align with scholastic usage. Accordingly, *a priori* demonstrations derive effects from their causes (or from principles); *a posteriori* demonstrations derive causes (or principles) from their effects.⁸ Yet, how can Descartes consistently invoke this contrast, given that the *Meditations* and SGE each offers both *a priori* and *a posteriori* arguments?

A routinely overlooked subtlety of the passage is that Descartes thinks the *apriority/aposteriority* distinction may be applied at two levels: either at the level of the broader *inquiry* (the “search”), or at the level of the *proofs* themselves. He writes that with synthesis, “the search” is *a posteriori*, while adding of “the proof itself”, that it “is often more *a priori* than it is in the analytic method”. Consider the level of the broader inquiry. I take Descartes’s point to be that in a synthetic demonstration, the broader inquiry *begins* with conclusions already known (as per the first contrast, above). Only then does one devise a set of starting principles (definitions, postulates, etc.); indeed, the choice in principles is specifically tailored to the already known conclusion, ensuring that those principles enable its deduction. Thus understood, at the level of the broader inquiry, synthesis proceeds *a posteriori*, deriving starting principles from already known effects. Consider the level of the proofs themselves—i.e. the proofs employing those definitions, postulates, etc., *as* premises. The proof itself might proceed in either manner: *a priori*, deriving effects from principles; or *a posteriori*, deriving principles from effects. What the passage implies is simply that the proof is “often” *a priori*, but not that it always is.

One can see this distinction of levels in Descartes’s *own* synthetic treatment, SGE. At the level of the broader inquiry, he purports already to *know* the four propositions there demonstrated;⁹ and he now devises a set of starting principles (definitions, postulates, etc.), with the aim of demonstrating the four propositions. At the level of the proofs themselves, we find a mix of *apriority* and *aposteriority*:¹⁰ the first and fourth proofs are *a priori*; the second and third are *a posteriori*.

⁸ In SGE, Descartes characterizes the demonstration of Proposition II as a *posteriori*—“The existence of God can be demonstrated *a posteriori* merely from the fact that we have an idea of God within us” (AT VII.167/CSM II.118). In *Le monde*, Descartes describes a case of *apriority*: “those who are able to examine sufficiently the consequences of these truths and of our rules will be able to recognize effects by their causes. To express myself in scholastic terms, they will [be] able to have *a priori* demonstrations of everything that can be produced in this new world” (AT XI.47/CSM I.97).

⁹ Recall, he thinks of synthesis as being useful “as a follow-up to analysis”. And he has already run the relevant knowledge-producing analysis in the *Meditations*.

¹⁰ The four propositions demonstrated in SGE: Proposition I: “The existence of God can be known merely by considering his nature.” II: “The existence of God can be demonstrated *a posteriori* merely from the fact that we have an idea of God within us.” III: “God’s existence can also be demonstrated from