



## Descartes' Correspondence between Philology and Philosophy

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**Resumo:** A correspondência de Descartes faz uma leitura essencial para qualquer pessoa interessada em suas idéias sobre filosofia e ciência. O estudo das cartas de Descartes requer uma edição confiável, e a edição padrão existente de Adam e Tannery, agora com mais de cem anos, pode certamente ser melhorada. Na preparação de uma nova edição crítica das cartas de Descartes, editadas por Theo Verbeek, Roger Ariew e eu, voltei às fontes sempre que possível. Neste artigo, apresento vários resultados interessantes da minha pesquisa, mostrando como o trabalho filológico pode mudar a interpretação das cartas do filósofo. Os temas da investigação são as cartas a Stampioen (1633), a Reneri (163 [4]) e, finalmente, a Clerselier (1649).

**Palavras-chave:** Descartes; correspondência; edição crítica

**Abstract:** The correspondence of Descartes makes essential reading for anyone interested in his ideas on philosophy and science. The study of Descartes' letters requires a reliable edition, and the existing standard edition by Adam and Tannery, now over a hundred years old, can certainly be improved. In preparation of a new critical edition of Descartes' letters, edited by Theo Verbeek, Roger Ariew and myself, I have gone back to the sources whenever possible. In this article I present several interesting results of my research, showing how philological work can change the interpretation of the philosopher's letters. The subjects of inquiry are the letters to Stampioen (1633), to Reneri (163[4]), and finally to Clerselier (1649).

**Keywords:** Descartes; correspondência; critical edition

Many topics for which René Descartes is well-known are not found in the famous works like the *Discours de la méthode*, the *Meditationes*, or the *Passions de l'âme*. To apprehend his thoughts on transubstantiation, one must consult his letters to the Jesuit father Mesland; his ideas on ethics are found in his letters to Princess Elisabeth and Queen Christina; to understand what he thinks are 'eternal truths', one needs to examine his early letters to Mersenne. The importance of the letters to the understanding of Descartes' philosophy and science was recognised shortly after his death. Claude Clerselier, who received the papers Descartes had left behind in Stockholm, edited three volumes of correspondence between 1657 and 1667, giving priority to the letters over *Le Monde and L'Homme*.<sup>2</sup> At the turn of the 20<sup>th</sup> century, the interest in the correspondence gained new momentum by the edition of Charles Adam and Paul Tannery, who published Descartes'

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2 See the contribution of Giulia Belgioioso on the history of Clerselier's edition elsewhere in this volume.

letters in the first five volumes of their monumental edition.<sup>3</sup> The “AT” edition, still the standard edition for Descartes’ letters, is now over a 100 years old. A new historico-critical edition and complete English translation of Descartes’ correspondence is badly needed, for reasons we have explained elsewhere.<sup>4</sup> Theo Verbeek and I have been working on such a project for about a decade. In 2010 the project entered a new phase when Roger Ariew, Verbeek and I decided to collaborate in completing the critical edition, and providing a complete English translation of Descartes’ letters. We constituted ourselves into a new research team that formally started in summer 2011, upon receiving a grant from the National Endowment for the Humanities. Oxford University Press has accepted to publish the edition, the first volume of which we will send to the press in 2018.<sup>5</sup>

Given the fact that a new edition of Descartes’ correspondence is a second generation edition, it will be used to give new impetus to Cartesian scholarship. Accordingly, much care is given to notes and commentaries and to correcting the still imperfect chronology of the correspondence. For all letters we go back to the sources and, if there is more than one, decide which one is the copy text. A choice of the text variants from those other versions are given in a critical apparatus. Manuscript sources are personally collated anew, except when high resolution color scans of letters without difficult passages are available. Printed sources are equally examined afresh, and, if necessary, several copies of a single edition are collated.

This is what constitutes the philological part of editing Descartes’ correspondence. Philological aspects may have strong repercussions on the interpretation of Descartes’ biography, or his ideas on music, mathematics, science, and philosophy. Below I present some interesting results of my research into these philological facets of Descartes’ letters. They concern the letter to Stampioen (1633), to Renéri (163[4]), and finally to Clerselier (1649).

### The letter to Stampioen (1633)

In 1896, the German scholar Max Grunwald published the text of Descartes’ letter to Johan Stampioen from a 17<sup>th</sup> century manuscript copy that is kept in the State and University library of Hamburg in Germany.<sup>6</sup> The letter is an important document, because it is the only letter that discusses mathematical problems, solutions, and notations at length, before the publication of the *Géométrie* (1637). The date of the letter—the manuscript supplies none—can be established by Descartes’ reference to the famous mathematical problem of Pappus, which he had received ‘about two years ago’ (AT I, 277), namely towards the end of 1631 (see AT I, 232). Moreover, in a work that was published late 1639, Jacob Waessenaer wrote that Stampioen had received Descartes’ letter ‘six years ago’ (note 7 below), and the date of the letter is accordingly late 1633.

Grunwald reported that the manuscript was difficult to read, containing numerous errors. In their introduction to the letter, Adam and Tannery acknowledged that they had not seen the manuscript themselves, but relied on the publication by Grunwald. They stipulated that the

3 Charles Adam and Paul Tannery, *Oeuvres de Descartes*, 11 vols., Paris: Léopold Cerf, 1897-1913; new edition, edited by B. Rochot and P. Costabel, Paris: Vrin-CNRS, 1964-1974. A paperback edition of the new edition appeared in 1996.

4 Theo Verbeek and Erik-Jan. Bos, ‘Trois cent cinquante années d’édition de la correspondance de Descartes’, *Bulletin Cartésien* XXXIII, *Archives de philosophie*, 68 (2005), 142–148; Th. Verbeek, E.-J. Bos and J. van de Ven, *The Correspondence of Descartes: 1643*, Utrecht: Zeno Institute of Philosophy, 2003, *Introduction*.

5 In annotating the correspondence we collaborate with several outstanding specialists: Delphine Bellis (Paul Valéry University of Montpellier), Sébastien Maronne (Paul Sabatier University of Toulouse), Carla Rita Palmerino (Radboud University, Nijmegen), and Rudolf Rasch (Utrecht University).

6 M. Grunwald, ‘Miscellen’, *Archiv für Geschichte der Philosophie*, 9 (1896), 310–336, pp. 329–331. Hamburg, Staats- und Universitätsbibliothek Carl von Ossietzky, Uffenbach-Wolfschen Briefsammlung, Sup. ep. 90, fo. 219.

changes they made to the text were conjectural. Just like Adam and Tannery, I have not seen the actual manuscript, but a xerox of it was kindly sent to me by the library staff of the Staats- und Universitätsbibliothek Carl von Ossietzky. The comparison between the manuscript, and the texts as published by Grunwald and Adam and Tannery, shows that a number of the corrections suggested by the French editors are actually found as such in the manuscript. Indeed, the transcription by Grunwald was erroneous itself. Before discussing a number of differences between the manuscript and the afore mentioned publications, let me briefly recapitulate the historical context.

Johan Stampioen the Younger (1610–1653) was a Dutch mathematician who had invented a new method in geometry, which he believed to be superior to any other.<sup>7</sup> To demonstrate his method, he challenged his fellow mathematicians with problems he thought only he could solve. One of such contests he sent to Descartes towards the end of 1633, and the reply to Stampioen contains Descartes' solution, as well as a number of problems Descartes in his turn challenged Stampioen to solve, one of them being the problem of Pappus. In 1639, Stampioen publicly proposed another set of mathematical problems, which were tackled by one of Descartes' friends, Jacobus Waessenaer, a land surveyor from Utrecht, who used Descartes' geometrical method to solve the questions. Stampioen however refused to acknowledge the solutions, and publicly dared his opponent to demonstrate his criticism for a forfeit of 600 guilders, which would benefit the poor in case a jury should decide that Stampioen's method was inferior. A jury was formed, the wagers of 600 guilders, a substantial sum of money, were consigned, and after much deliberation the jury decided in favor of the Cartesian method, and Stampioen lost his money.

This affair, in which Descartes was closely involved, received a lot of public attention because the antagonists showered each other with broadsheets and pamphlets. Thanks to these pamphlets, Adam and Tannery were able to fill in an important lacuna in the manuscript of the 1633 letter, namely Descartes' equation from which he derived his solution to the problem proposed by Stampioen. In the manuscript a complete line is left blank for this equation, presumably with the intention to fill it in later. Grunwald seems to have been unaware of the omission but Adam and Tannery did notice the absence of this key equation, and in the main text of their edition they suggested the following equation:

$$3x^4 - 2x^3 + x^2 - 2x - 1 = 0$$

In the *Additions* to their first volume of the correspondence, Adam and Tannery were able to replace their conjecture by the correct equation, which is totally different (AT I, 575):

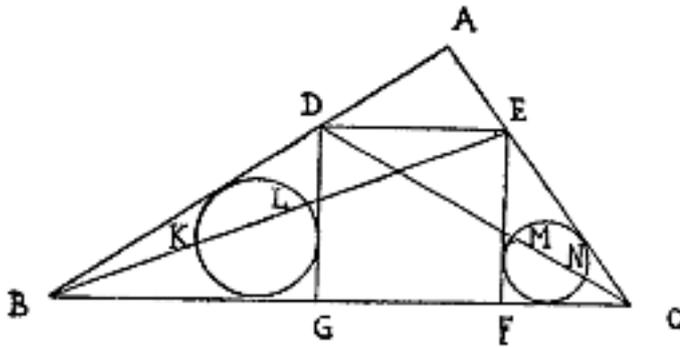
$$4900x^6 \text{ aequat} - 4899x^5 + 2354x^4 + 16858x^3 + 9458xx + 429x - 4900$$

As it turned out, this first skirmish between Stampioen and Descartes was extensively discussed in the pamphlets that were published several years later. In fact, we owe the correct equation to Stampioen, who published a short but literal quotation from Descartes' letter, including the equation.<sup>8</sup> The pamphlets also revealed the exact problem that was proposed by Stampioen in 1633, which could not properly be deduced from the letter. Moreover, the pamphlets supply the accompanying diagram (fig. 1<sup>9</sup>):

7 On Stampioen, see the bio-biographical entry by Jeroen van de Ven, in Th. Verbeek, E.-J. Bos and J. van de Ven, *The Correspondence of Descartes: 1643*, Utrecht, 2003, pp. 299–303.

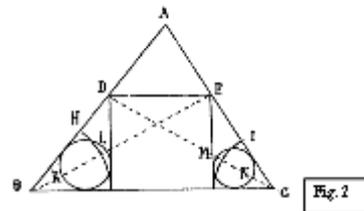
8 See AT I, 575; J. Stampioen, *Wis-Konstigh ende Reden-Maetigh bewijs*, The Hague, 1640, pp. 57–58.

9 AT I, 574; J. van Waessenaer, *Aenmerckingen op den Nieuwen Stel-Regel van Iohan Stampioen d'Jonge*, Leiden: J. Maire, 1639, p. 57.



Stampioen's problem, then, is as follows: In the right triangle ABC there is a square DEFG, and two circles KL and MN. Through the circles two straight lines EB and DC are drawn. The cross-cuts of both lines and the circles are known, KL is 7 and MN is 5. Calculate the area of the triangle ABC (or, calculate the length of the sides of the triangle).

Note that the triangle ABC in the diagram of fig. 1 has a right angle in A. Now compare this diagram with the diagram published in Adam and Tannery (fig. 2, AT I, 276). In AT the angle A is not rectangular, and, moreover, the letters F and G are missing in this diagram, thereby hampering the interpretation of the mathematical puzzle.<sup>10</sup> By contrast, in the manuscript as well as in the publication by Grunwald we find the correct diagram (included in the *Additions*, AT I, 574).



Let us now take a look at Descartes' solution of the problem:

En suite de quoy il est aysé de trouver la quantité des trois costés de ce triangle, d'autant que, prenant BH esgal a BG et CI esgal a CF, le quarré de GF multiplié par le quadruple de HD est esgal au quarré de MN multiplié par BC + BF.  
(AT I, 276; Grunwald 1896).

It is difficult to make sense of this solution, which induced Tannery to suggest that Descartes deliberately withheld information from Stampioen, in order to discourage him (AT I, 279). However, looking at the manuscript, it becomes clear that Grunwald made a serious mistake in transcribing the text, omitting the phrase that is put here in boldface:

En suite de quoy il est aysé de trouver la quantité des trois costés de ce triangle, d'autant que, prenant BH esgal a BG et CI esgal a CF, le quarré de GF multiplié par le quadruple de la ligne EI et esgal au quarré de LK multiplié par BC + GC, et reciproquement le mesme quarré de GF multiplié par le quadruple de HD est esgal au quarré de MN multiplié par BC + BF.

(The original line breaks of the text in the manuscript are adhered to. Boldface and underlining are mine (EJB).)

This is an example of a classical copyist mistake, called in French 'saut du même au même': as Grunwald was reading the manuscript, his eyes skipped from the words, 'le quadruple de', to

<sup>10</sup> The omission of the letters F and G appears to be an error of the 'nouvelle édition' of the first volume of AT from 1969, re-appearing in the pocket edition from 1996. The letters are present in the original edition (1897).

the same words two lines down, leaving out the words in-between in the transcription.<sup>11</sup> Needless to say that without the omitted lines the understanding of Descartes' solution is difficult indeed.

The most remarkable discovery in the manuscript is perhaps Descartes' use of cossic symbols.<sup>12</sup> These symbols were invented by the German mathematician Christoff Rudolff in the 16<sup>th</sup> century, and became generally accepted and used, until the *Géométrie* of Descartes published in 1637. In one of the problems Descartes proposes to Stampioen in this letter, we find a formula that Grunwald transcribed as follows:

$$\frac{3x - 1y}{12}$$

Given the context, Paul Tannery decided that that formula could not be correct, and he proposed to read the following:

$$\frac{3xx - 1x}{2}$$

The manuscript, however, shows a formula in cossic notation, which was not recognised as such by Grunwald:

$\frac{3z - \bar{e}}{2}$	in modern notation:	$\frac{3xx - 1x}{2}$
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Paul Tannery thus made excellent emendations. In the manuscript the numerator does indeed read '3 xx - 1 x', albeit in cossic notation—Tannery would have been very surprised had he known that. The denominator '12' in the transcription from the manuscript by Grunwald, is certainly mathematically incorrect: it needs to be '2'. The little vertical bar in the manuscript, interpreted as the number 1 by Grunwald, does not signify a number, but it is the final stroke of the last letter of the word preceding the denominator on the next line, *racines*. Elsewhere in the manuscript similar little bars that seem detached from a final 's' are visible as well.

Descartes' use of cossics in this letter—if the cossic notation was indeed copied out faithfully by the copyist and not introduced by him—seems to be in conflict with two apparently well-established views. First, it is emphasized in the historiography that Descartes' invention of algebraic geometry is tied up with his symbolism, especially the exponential notation.<sup>13</sup> Second, cossic algebra is considered to be cumbersome and not adapted for Descartes' algebraic problem solving, even if recent studies on Bramer, Faulhaber, and Roth show that cossic algebra was used

11 I would like to thank prof. Vlad Alexandrescu for pointing out to me a comparable mistake in my transcription of Descartes' letter to Mersenne of 21 May 1641 (the 'Haverford letter'). In stead of "mais que cete premiere qui a pouvoir de conserver quelque chose hors de soy, a aussy à plus forte raison la puissance de **se** conserver", I accidentally transcribed "mais que cete premiere qui a pouvoir de **se** conserver quelque chose hors de soy a aussy à plus forte raison la puissance de conserver". See 'Two Unpublished Letters of René Descartes: On the Printing of the *Meditations* and the Groningen Affair', *Archiv für Geschichte der Philosophie*, 92 (2010), 290–302, p. 294.

12 In the paragraphs that follow I am very much indebted to Sébastien Maronne, specialist in the history of mathematics at the Paul Sabatier University of Toulouse. He was the first to recognise the cossics when I showed him the xerox of the letter. We are preparing an article on Descartes' letter to Stampioen, in which many aspects of the letter, in particular regarding the use of the cossics, touched upon only cursorily below, will receive fuller treatment.

13 See, in particular, Michel Serfati, 'Descartes et la constitution de l'écriture symbolique mathématique', *Revue d'histoire des Sciences*, 51 (1998), 237–290, and by the same author, *La constitution de l'écriture symbolique mathématique*, Paris: Petra, 2005.

for elaborated mathematics.<sup>14</sup> It is thus remarkable to find a Cartesian mathematical text with cossic notations only a few years before the publication of the *Géométrie*.

### The drawing in the letter to Reneri (July 2, 163[4])

The library of Hamburg keeps another letter of Descartes, addressed to Henricus Reneri. Just like the previous letter, it was published for the first time by Grunwald, and Adam and Tannery only used Grunwald's publication for their own edition.<sup>15</sup> This letter to Reneri, professor of philosophy at Utrecht University, is presumably dated July 2, 163[4], because the last digit is illegible, as already mentioned by Adam and Tannery. Adam and Tannery conjecture that the year is in all likelihood 1634, and I accept their argumentation (AT I, 300). The letter contains Descartes' reply to a certain question of hydrostatics posed by Reneri. The letter begins as follows:

Monsieur,

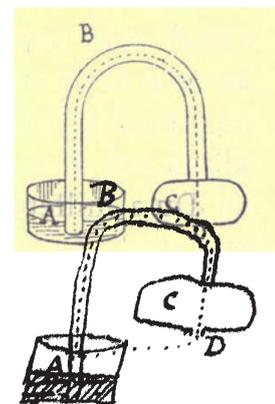
Je ne doute point que vous ne puissiez rendre raison beaucoup mieux que moy de ce que l'eau qui est dans l'instrument ABCD ne descend point par le trou D. Mais puis qu'il vous plaist sçavoir comment ie pense le pouvoir expliquer, ie vous diray que premierement il faut considerer qu'il n'y a point de vuide en la nature ... (AT I, 300–301)

Descartes' answer involved an explanation in terms of the circularity of motion, on the assumption that there can be no vacuum in nature. That there can be no void is a traditional view, the classical argument being that nature abhors a vacuum. Descartes' own reason for believing that nature admits no void is first of all that the very idea of an extension without matter is contradictory (*Le Monde* vi, AT XI, 33). That all movement is circular is primarily presented as a fact of experience (*Le Monde* iv, AT XI, 19–20); there is no movement if the circle of which it is part, is interrupted. Descartes had already dealt with these questions in an earlier letter to Reneri, dated 2 June 1631 (AT I, 205–08).

The hydrostatic question in the letter to Reneri of 1634 is the following: given are two communicating vessels, vessel A is filled with water and open at the top, while vessel C has a hole in the bottom at D, which is at a higher level than the water level in vessel A. Reneri asked why the water does not flow away through the hole at D.

A close examination of the accompanying drawing in AT (fig. 3) reveals that the hole at D is below the surface of the water level in vessel A. This would mean that the water will flow away through the hole at D, but this contradicts the observation by both Reneri and Descartes that no water passes through D. The drawing must thus be wrong, which becomes absolutely clear when Descartes later on in the letter writes that the surface of the water in vessel A is lower than the opening at D (AT I, 302).

The drawing in the manuscript of the letter (fig. 4) is correct: the hole at D is clearly above the surface of the water in vessel A. The



<sup>14</sup> Edouard Mehl, *Descartes en Allemagne, 1619–1620*, Strasbourg: Presses Universitaires de Strasbourg, 2001; Ken Manders, 'Algebra in Roth, Faulhaber, and Descartes', *Historia Mathematica*, 33 (2006), 184–209.

<sup>15</sup> M. Grunwald, 'Miscellen', 1896, pp. 327–329; AT I, 300–302. For Reneri, see the recent study by Robin Buning, *Henricus Reneri (1593–1639). Descartes' Quartermaster in Aristotelian Territory*, PhD. Diss. Utrecht University, Utrecht: Zeno Institute of Philosophy, 2013.

figure was drawn by someone who understood the experimental set-up: indeed, the sketch was made by Descartes himself, it is an autograph drawing. Not only the drawing is in the hand of the French philosopher, the whole letter is an autograph and signed by Descartes. Grunwald did not recognise Descartes' handwriting, and Adam and Tannery never consulted the manuscript themselves.

### The letter to Clerselier (November 6, 1649)

Descartes' correspondence comprises approximately 770 letters. The autographs of one third of the letters are still extant, amounting to 257 autographs. For the remainder of the letters, we have two main sources, first, the three volume edition of the correspondence published by Claude Clerselier, which is still the only source for no less than 228 letters. The second largest source is the biography of Descartes written by Adrien Baillet, the only source for 97 letters.<sup>16</sup>

Baillet's biography is a peculiar source, and has to be handled with care. Occasionally Baillet supplies the reader a literal quote from a letter, more often however he refers to letters in passing. Sometimes we can only guess what exactly was to be found in the letter Baillet is referring to.<sup>17</sup> One of those letters that is only known from the biography is Descartes' letter to Claude Clerselier, written from Stockholm on November 6, 1649.

According to Baillet, Descartes wrote to Clerselier that he had received a warm welcome from the wife of the French ambassador in Stockholm, Pierre Chanut. Madame Chanut is Marguerite Clerselier, the sister of Claude. The other topic of the letter would have been Descartes' refusal to reply to the last letter of Pierre de Carcavi, d.d. 24 September 1649.

Pierre de Carcavi (c.1600–1684) was a French mathematician, who became close friends with Fermat and Roberval. After the death of Mersenne in 1648, Carcavi wrote to Descartes for the first time, offering to take Mersenne's place as Descartes' contact in Paris. In his letter of 11 June 1649, the philosopher thanked Carcavi and asked him if he knew anything about the experiment conducted by Pascal, taking measurements with a tube filled with mercury at the Puy de Dôme. Descartes claimed that he had suggested that experiment Pascal two years earlier (AT V, 365–367).<sup>18</sup> In his answer of 9 July 1649, Carcavi wrote that the report of the experiment had been printed some months before. At the same time he informed Descartes of Roberval's objections to his *Géométrie* (AT V, 369–374). On 17 August 1649, Descartes replied with a refutation of Roberval's assertions (AT V, 391–401). After Carcavi's answer of 24 September 1649 (AT V, 412–422), in which he defended Roberval and revived the old accusation that Descartes had plagiarised his mathematical notation from Thomas Harriot, Descartes did not reply anymore. It is Baillet who informs us of the break with Carcavi, referring in his biography to the letter to Clerselier of 6 November 1649.<sup>19</sup> These references are incorporated in the edition by Adam and Tannery (AT II, 458; AT V, 447). Baillet has, however, more to offer regarding this particular letter: he supplies a long and literal quotation from the letter that has been overlooked by modern editors. Here it is in full:

16 A. Baillet, *La Vie de M. Des-Cartes*, 2 vols., Paris: Horthemels, 1691.

17 Cf. Erik-Jan Bos (ed.), *The Correspondence between Descartes and Henricus Regius*, PhD. Diss. Utrecht University, Utrecht: Zeno Institute of Philosophy, 2002, pp. xxxv ff.

18 For the barometrical experiment in Descartes' correspondence, see Erik-Jan Bos and Theo Verbeek, "Conceiving the Invisible. The Role of Observation and Experiment in Descartes's Correspondence, 1630-1650", in: D. van Miert (ed.), *Communicating Observations in Early Modern Letters (1500–1675). Epistolography and Epistemology in the Age of the Scientific Revolution*, London/Savigliano: The Warburg Institute/Nino Aragno Editore, 2013, pp. 161–177.

19 Baillet, *La Vie de M. Des-Cartes*, vol. II, pp. 387–388, 541.

Je ne feray point de réponse à la lettre de M. Carcavi, parce qu'encore qu'il ait pris la peine de l'écrire de sa main, elle ne contient néanmoins que les sentimens de M. de Roberval, qui semble ne s'étudier qu'à médire de moy. Il ne me fait envoyer ses prétendues objections que pour en dissimuler les solutions après que je les luy auray données, comme il a déjà fait de celles qui étoient dans mes précédentes, et pour y chercher de nouveaux prétextes de cavillations. Je ne veux point m'occuper à instruire une personne qui ne m'en sçauroit aucun gré, ny donner des armes à mes ennemis. Mais vous m'obligerez d'assurer M. Carcavi que je suis son très-humble serviteur à luy en particulier, et que je ne manqueray pas de luy faire réponse lors qu'il m'écrira ses propres pensées, ny de luy rendre service en tout ce qu'il luy plaira me commander. Mais que je ne puis croire que la lettre que j'ay reçue sous son nom vienne de luy, parce qu'on y nomme démonstrations des cavillations de nulle importance, et qu'on refuse d'y appercevoir des véritez très-manifestes.

Lettr. Ms. à Clerselier du 6 Novembre 1649 à Stockholm.

(Baillet, *La vie de M. Descartes*, II, 383.)

In this text, Descartes explicitly voices his reasons why he mistrusts Carcavi and has no intention to reply to his last letter. Does it tell us anything new? To be honest, not that much. We could have figured out Descartes' motives ourselves, but it is a privilege and an immense pleasure to read them in Descartes' own words. After the publication of an unknown letter to Joachim de Wicquefort, I received a very kind letter from Jean-Luc Marion, writing me that even though the letter itself was not really important, it is such a great pleasure to have another example of Descartes' superb epistolary style.<sup>20</sup> The same applies to this letter to Clerselier, which is, moreover, also another example of Descartes' unsurpassed talent in offending people and making new enemies.

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20 Erik-Jan Bos and Corinna Vermeulen, 'An Unknown Letter of Descartes to Joachim de Wicquefort', *Studia Leibniana*, 34 (2002), 100–109. On Descartes' literary style, see Denis Kambouchner, *Le style de Descartes*, Paris: Éditions Manucius, 2013.