

## Cartesian Cosmological Illustrations: a digital approach

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This document presents the website “[Cartesian Cosmological Illustrations](#),” currently in development within the framework of the research project on *Early Modern Cosmology Between “Mosaic Physics” and Mechanical Philosophy (1650-1713)* – PN-III-P1-1.1-TE-2016-0710 – at the University of Bucharest.

In early-April 2020, we established a virtual exhibition with Descartes’s cosmological illustrations on an [Omeka S](#) installment (<https://cartesian.unibuc.ro/s/cosmologicalillustrations>; see Fig. 1). The aim of the exhibition is to provide a convenient way to compare cosmological images included in two of René Descartes’s famous writings, *The World* and the *Principles of Philosophy*. The Cartesian scientific imagery was often discussed in the literature – with more emphasis on the physiological representations – yet, a thematic collection of illustrations included in his publications is missing. Our virtual collection selects images printed together with the two treatises covering cosmological topics and groups them on the basis of early modern prints, such that several editions of each work is (or will be) included.

Descartes’s cosmology is famous for the image of the vortex universe, which characterizes the motion of celestial bodies. However, the vortex theory of the *Principles* is a late formulation of an early cosmological view presented in the manuscript of *Le Monde*. In brief, while both treatises express Descartes’s cosmological views, the language of the vortex is included only in the *Principles*, and access to the illustrations of these editions would be valuable for scholars of early modern science.

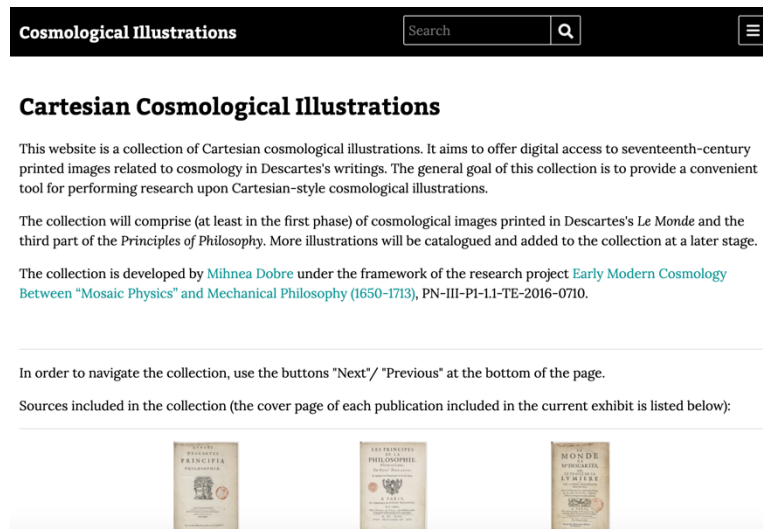


Fig. 1. The Home page of the exhibition. It lists the sources included as to May 30, 2020.

The initial release of the website – spring 2020 – provides direct access to the illustrations included in three editions of Descartes’s works: (1) the original Latin edition of the *Principia philosophiae* of 1644; (2) the French translation of (1), *Les Principes de la philosophie* (1647); (3) the 1664 edition of *Le monde de Mr Descartes, ou Le traité de la lumière et des autres principaux objets des sens* (see Fig. 4). The second release is planned for the summer of 2020 and it will include illustrations taken from other seventeenth-century editions of Descartes’s treatises. The purpose of this collection is to explore differences between several editions of Descartes’s works, and to help research on the role of images in Cartesian natural philosophy. One of the most notable examples of such differences is presented in the initial release of the website: variances between the *Principia* (1644) and *Les Principes* (1647) – see Fig. 2. Whereas the first includes 44 illustrations – with some of them repeated often throughout the treatise (see an example in Fig. 3) – the latter has only 10 illustrations. The quality of the print differs due to the engraving (wood vs copper), but other changes in drawings are noticeable.



Fig. 2. The webpage including (at the date) the illustrations of the two editions of Descartes's Principles.

Recently, there was a lively debate in the secondary literature about a different set of illustrations included in Descartes's writings (Wilkin 2003; Zittel 2011; Nadler 2016). It concerned the medical images added to the manuscript of *L'Homme*, initially printed in Latin in 1662 and lavishly illustrated with realistic anatomical images in copper engravings. The French edition, published in 1664, included a different set of illustrations prepared by two medicine professors – Gerhard van Gutschoven and Louis de La Forge – and supervised by Claude Clerselier, the editor of Descartes's unpublished manuscripts. The debate started from Clerselier's claim in the preface of *L'Homme* that images in his edition play an *epistemic role*, unlike the more realistic drawings of the 1662 edition. This episode might prompt a more general question about the role of illustrations in Descartes's philosophical writings; see for example (Lüthy 2006; Schuster 2012; Lo 2017). However, a focus on cosmological illustrations – or images included in the cosmological sections of Descartes's writings – is lacking. Reasons for such neglect might be diverse (see for example the discussion in a forthcoming paper by Mihnea Dobre, “Depicting Cartesian Cosmology in the Seventeenth Century”), but discussing them is beyond the scope of the online exhibition. A prospective aim of the virtual exhibition is, for now, to set the stage for further debates about the visual apparatus of Cartesian physics and cosmology.

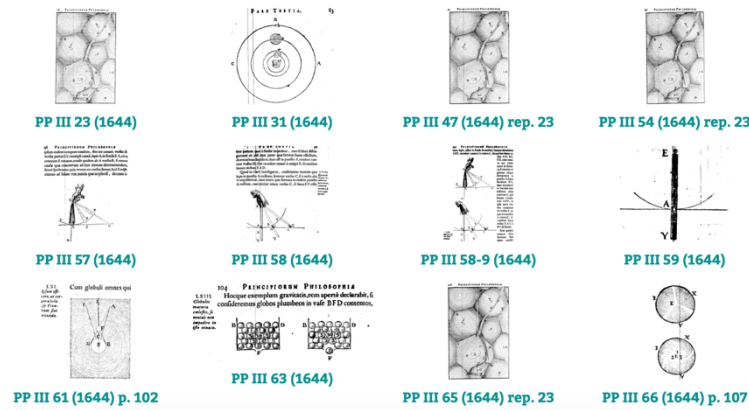


Fig. 3. An example with the display of a collection of illustrations (items) on the Omeka S platform.

The website collects and puts into display all illustrations included in what we label as Descartes’s cosmological writings (i.e., the third part of the *Principles* and the first part of *Le Monde*). Some of the images are dealing with general physics, such as the various representations of corpuscles or the famous illustration of the circular path described by a stone in a sling. While they are not cosmological images *per se*, they do support the argument presented in the text, and are therefore included in the collection.

### Le Monde

This page collects illustrations from Descartes's *Le Monde* or the *Traité de la Lumière* of 1664. The collection will be expanded with other editions, such as Clerselier's more famous version of 1677, which is reprinted in all modern editions, including the AT.

The source for the illustrations on this page is the digital version of Descartes's *Le monde de Mr Descartes, ou Le traité de la lumière et des autres principaux objets des sens. Avec un discours de l'action des corps et un autre des fièvres, composez selon les principes du même auteur* (Paris: T. Girard, 1664) on Gallica.



Fig. 4. The webpage presenting the illustrations of *Le Monde* (1664).

We are interested in variations between several early modern editions – both in terms of the material of the engraving and other visual differences – of the same illustration. The exhibition is expected to expand beyond the initial examples and to explore such differences in 8 seventeenth-century imprints of the *Principia* and 2 editions of *Le Monde* (see Fig. 2 and Fig. 4).

Author	Title	Year	Place	Publisher	Language
Descartes	Principia Philosophiae	1644	Amsterdam	Louis Elzevier	Latin
Descartes	Les Principes de la philosophie	1647	Paris	Henry Le Gras	French
Descartes	Les Principes de la philosophie	1651	Paris	Henry Le Gras; Edme Pepingué	French
Descartes	Principia Philosophiae	1656	Amsterdam	Johanes Janssonius	Latin
Descartes	Principia Philosophiae	1657	Amsterdam	Jan Rieuwertz	Dutch
Descartes	Les Principes de la philosophie	1659	Paris	Henry Le Gras; Nicolas Le Gras	French
Descartes	Principia Philosophiae	1664	Amsterdam	Daniel Elzevier	Latin
Descartes	Le Monde (Traite de la lumiere)	1664	Paris	Theodore Girard	French
Descartes	Les Principes de la philosophie	1668	Paris	Theodore Girard	French
Descartes	Le Monde	1677	Paris	Theodore Girard	French

Fig. 5. A table listing the publication details of Descartes's *Principles* and *Le Monde*, between 1644 and 1677.

Preliminary research confirms Clerselier’s decisive role in the selection of specific sets of illustrations and we aim to correlate this finding with the publication process of Descartes’s writings (see Fig. 5). For example, we investigate the relation between publishers and new editions, and we do this with digital tools such as [Palladio](#). In Fig. 6 we provide an example of a graph generated in Palladio, which offers a convenient visualization of Theodore Girard’s role in the publication of both *Le Monde* and the *Principles*. Such and similar findings are supported by the database we are currently constructing as the groundwork of the online exhibition.

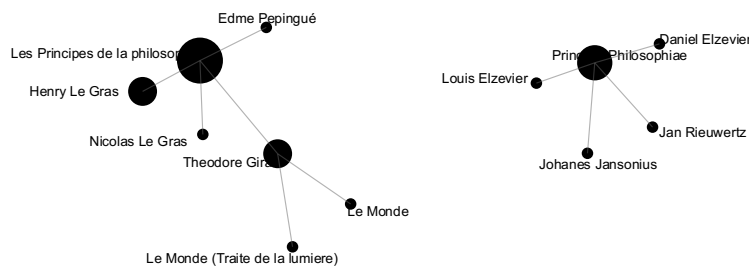


Fig. 6. Relations between publishers and editions. The network image was generated in Palladio starting from the data included in Fig. 5.

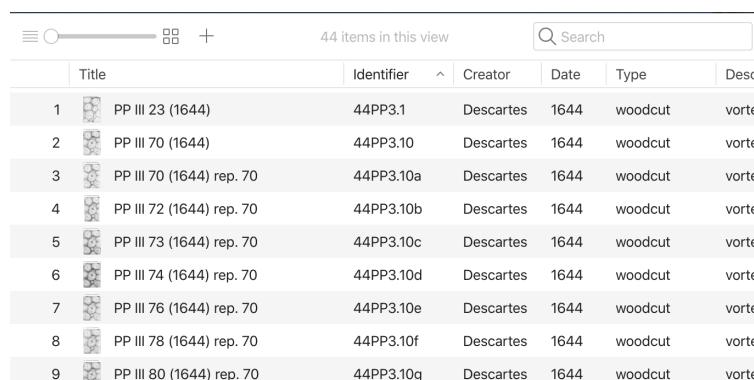
The illustrations are selected from open sources – i.e., digital editions available in the public domain and posted on Gallica (<https://gallica.bnf.fr/>) and other digital repositories – and collected in a local database in [Tropy](#) (see Fig. 7). Metadata for items are annotated in the Dublin Core standard. The categories listed for each item can be classified into three types, according to their purpose:

- (1) *descriptive metadata* which includes: (a) factual and historical elements of identification such as Title, Creator (i.e., Descartes), Date (e.g., 1644, 1647, 1664), Language (French, Latin), Publisher (e.g., L. Elsevier) and Coverage (e.g.,

Amsterdam, Paris), along with (b) two elements generated in the project: Identifier (a unique number generated by the year of the edition, abbreviated form of the publication title, section or chapter number, the order of the illustration inside the specific edition, and – optional – a letter to designate a repeated illustration; for example, the string 44PP3.1 will refer to the first illustration in the *Principia philosophia* of 1644, part III) and Description (e.g., vortex, corpuscles etc. – for the moment, the description field is rather limited and consists in key words or phrases).

- (2) *structural metadata* that helps us create a relational database by the category Relation (cross-references to other resources on the platform).
- (3) *administrative metadata*, such as Source (this category includes both the title of the book and the external source of the image; e.g., Gallica, BIU), Format (for the moment, print, as all illustrations are from printed books), Type (it refers to the engraving: woodcut or copper plate).

Once the local Tropy collection is complete, it is exported to our Omeka S website. The metadata is tested again on the online platform and some relational content is added (e.g., link to the original source on Gallica; the “Relation” category, creating cross-references between items included in the exhibition). The information included in the metadata is thus curated twice in the process: first, when it is added to the local database, in Tropy, and the second time, when the item is already online, as part of the exhibition. As this is a work-in-progress, an [error report form](#) has been added to the website, to register corrections for the metadata.



	Title	Identifier	Creator	Date	Type	Descr
1	PP III 23 (1644)	44PP3.1	Descartes	1644	woodcut	vorte
2	PP III 70 (1644)	44PP3.10	Descartes	1644	woodcut	vorte
3	PP III 70 (1644) rep. 70	44PP3.10a	Descartes	1644	woodcut	vorte
4	PP III 72 (1644) rep. 70	44PP3.10b	Descartes	1644	woodcut	vorte
5	PP III 73 (1644) rep. 70	44PP3.10c	Descartes	1644	woodcut	vorte
6	PP III 74 (1644) rep. 70	44PP3.10d	Descartes	1644	woodcut	vorte
7	PP III 76 (1644) rep. 70	44PP3.10e	Descartes	1644	woodcut	vorte
8	PP III 78 (1644) rep. 70	44PP3.10f	Descartes	1644	woodcut	vorte
9	PP III 80 (1644) rep. 70	44PP3.10g	Descartes	1644	woodcut	vorte

Fig. 7. A screenshot with the list of illustrations from Descartes's *Principia of 1644*, as they are catalogued in Tropy.

The exhibition is intended to grow. We welcome collaborations that might include new items for the collection. At the same time, we consider the possibility to develop this platform as a central repository of early modern Cartesian illustrations: cosmological, physiological, mathematical diagrams, optical analogies, and any other type of images included in Descartes’s writings. The collection can expand with images from other Cartesian authors, but that would be a different project that would require more resources than currently available. For the moment, we hope that the website “[Cartesian Cosmological Illustrations](#)” is a useful tool for scholars working on early modern cosmologies.

### References

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