

# The Descartes-More Correspondence

The Latin text is from:

Henry More. “Quatuor ad Renatum Des-Cartes Epistolae.” In *A Collection of Several Philosophical Writings of Dr. Henry More*. London: Printed by J. Downing, 1712 [1662]. 53–113.

The English translation is from:

Henry More. “Epistolae quatuor ad Renatum Des-Cartes (English translation by Christian Hengstermann).” From *Opera Omnia* II (1679), 227–271, <https://www.cambridge-platonism.divinity.cam.ac.uk/view/texts/diplomatic/Hengstermann1679C>, accessed 2021-06-17.

Marginal numbers refer to the following editions:

- |      |  |
|------|--|
| AT   | René Descartes. <i>Œuvres de Descartes</i> . 11 vols. Edited by Charles Adam and Paul Tannery. Paris: Vrin, 1983.  |
| OO   | Henry More. 1679. <i>Scriptorum Philosophicorum Tomus alter</i> . London: 1679.  |
| CSMK | <i>The Philosophical Writings of Descartes: Volume III: The Correspondence</i> . Edited and translated by John Cottingham, Robert Stoothoff, Duglad Murdoch, and Anthony Kenny. Cambridge: Cambridge University Press, 1991. |

**HENRICI MORI  
EPISTOLÆ  
QUATUOR**

A D

**Renatum Des-Cartes:**

C U M

*Responsis Clarissimi Philosophi ad duas Priores,*

Cumque aliis aliquot

**EPISTOLIS,**

Q U A R U M

**Occasiones, Argumenta, Ordinem versa  
Pagina tibi commonstrabit.**

Aristot.

*Τοῖς ἀπορῆσαι βυλωδῶς πρῆγῃ ὅτι τὸ διαπορῆσαι καλῶς.*

**L O N D I N I,**

Typis, & venales prostant apud J. Downing in vico vulgo  
vocato Bartholomew-Close, prope West-Smithfield, 1712.

D d 2

**Four Letters of Henry More to Rene Descartes**

*with the answers of that most distinguished philosopher to the first two and with some  
other letters whose occasions, arguments and order will be indicated to the reader on  
the reverse*



## Continentur in hac parte,

1. *Epistola Claudii Clerselier ad H. Morum, qua veniam ab eo petit publicandi literas ejus ad Cartesium.*
2. *Responsum H. Mori.*
3. *Epistola prima H. Mori ad R. Des-Cartes, ubi præcipue agitur de Natura Corporis & Vacui, de Mundi extensione, deque sensu Brutorum.*
4. *Responsum R. Cartesii.*
5. *Epistola secunda H. Mori ad R. Cartesium, ubi Responsa ad priores Objectiones novis, ut plurimum, Instantiis diluit, variasque proponit Quæstiones de Mundi extensione, de natura Motus, de particulis striatis, de Animæ unione cum Corpore, ipsiusq; in corpus imperio, de conversione globulorum æthereorum in elementum primum, de flexibilitate particularum aquearum, & de Materiae denique αὐτοκινήσει.*
6. *Responsum Cartesii ad dictas Instantias & Quæstiones.*
7. *H. Mori Epistola tertia ad R. Cartesium, qua quæ hætenus disputata sunt breviter recognoscit, dein varia e Principiis Philosophiæ nunc probanda nunc explicanda proponit.*
8. *Henrici Mori Epistola quarta ad R. Cartesium, quæ varia item tum e Dioptrice tum e Meteoris proponit aut probanda aut dilucidanda.*
9. *Fragmentum Responsi R. Des-Cartes ad Epistolam tertiam H. Mori, ubi agitur de sensu Angelorum Mentisque separata, de contractione & dilatatione Spiritus, de Dei amplitudine, de quiete motuque Materiae, &c.*
10. *Responsum H. Mori ad dictum Fragmentum.*
11. *Epistola H. Mori ad V. C. quæ Apologiam complectitur pro Cartesio, quæque Introductionis loco esse poterit ad universam Philosophiam Cartesianam.*

OO, 229 This part includes:

1. Letter of Claude Clerselier to H. More in which he asks for his permission to publish his letters to Descartes.
2. More's answer.
3. The first letter of H. More to R. Descartes which deals primarily with the nature of the body and the vacuum, the extension of the world and the sensation of brutes.
4. Descartes' answer.
5. The second letter of H. More to R. Descartes in which he refutes the earlier objections by mostly new instances, and raises various further questions regarding the extension of the world, the nature of motion, grooved particles, the soul's union with the body and its control of the body, the transformation of ethereal globules into the first element, the flexibility of water particles and, finally, the αὐτοκινήσεια of matter.
6. Descartes' answer to said instances and questions.
7. H. More's third letter to R. Descartes in which he briefly reviews the issues discussed so far, and then proposes several of the principles of philosophy for examination or explanation.
8. Henry More's fourth letter to R. Descartes in which he also proposes various aspects of the Optics and the Meteorology for examination or elucidation.
9. Fragment of R. Descartes' answer to H. More's third letter which deals with the sensation of angels and separate minds, the contraction and dilation of spirits, God's amplitude, the rest and motion of matter, etc.
10. H. More's answer to said fragment.
11. A Letter of H. More to VC. which contains a defence of Descartes and which may also serve as an introduction to the whole of Cartesian philosophy.



Clarissimo Viro

HENRICO MORO.

**L**EGI, vir eximie, & perlegi summa cum voluptate tuas ad D. Cartesium difficultates, quas ei tertio Idus Decembris 1648. tertio nonas Martii, 10 Calendas Augusti, & duodecimo Calendas Novembris 1649. proposuisti; miratusque sum ingenium tuum, & summam humanitatem, quâ fretus ausus sum hæc ad te confidenter rescribere, ut de iis quæ facere instituo te certiore faciam, & a te impetrem ea quæ mihi necessaria sunt, ut opus quod suscepi ad finem perducam. Scies igitur me habere præ manibus præcipua Autographa quæ incomparabilis Philosophus D. Cartesius, D. Chanut, olim apud Serenissimam Sueciæ Reginam, nunc vero apud Batavos legato meritissimo, affini meo, apud quem Sueciæ vitâ functus est, reliquit: Inter quæ sunt & illa literarum quas pluribus ex amicis suis rescripsit, ex quibus præcipuas colligo, quæ vel Philosophiam suam tangunt, vel ea quæ perficienda susceperat respiciunt, vel difficultates a plerisque summis viris, inter quos non minimum tenes locum, ipsi propositas solvunt, ut eas omnes publici juris faciam, quod spero me brevi peracturum. Sed quia literæ illæ quæ difficultatibus respondent vix possunt intelligi, nisi etiam eæ quæ occasionem ipsi dederunt tale quid respondendi simul in lucem edantur, nec tamen mihi honestum visum fuerit hoc exequi absque venia & licentia eorum qui ipsi rescripserunt, a quibusdam petii & impetravi, ut illud mihi concederent, quod etiam spero a te, pro summa tua humanitate & incredibili erga Cartesium studio, mihi concessum iri. Sed præterea cuperem ut mihi exemplaria mitteres earum omnium quas a D. Cartesio accepisti epistolarum; duas enim tantum præ manibus habeo, quarum prior responder tuis tertio Idus Decembris datis; altera, iis quæ tertio nonas Martii scriptæ sunt. Superest igitur tertia, quæ mihi deest, quæque tuis 10 Calendas Augusti & 12 Calendas Novembris datis satisfacere debet: quæ profecto non potest non esse pulcherrima, & continere plura scitu dignissima, cum tot tuis tantisque difficultatibus & quæstionibus, cum ex principiis Philosophiæ tum ex Dioptrice excerptis, respondere debeat, cujus tamen duas duntaxat paginas inveni; quæ tantum instantiis tuis satisfacere tentant, nec ullum verbum ad quæsitâ tuâ super Principiis & Dioptrice continent. Quare summo opere exopto & enixe precor, ut & mihi licentiam concedas literas duas simul cum responsis imprimendi, & ut simul ad me mittas quas habes a D. Cartesio, ut & posteritatis utilitati, & Amici nostri famæ ac memoriæ consulamus. Præter hæc autem literarum Autographa, plura adhuc habeo celeberrimi Viri præclara monumenta, quæ singula suo tempore lucem videbunt; & quæ non parùm jucunditatis puto tibi fore allatura, utpote qui in evolvendis Cartesianis scriptis tam impiger videris. Si mihi vernaculâ linguâ uti licuisset, aptius atque ornatius sententiam

meam

It was with great pleasure, most excellent Sir, that I read and reread the list of difficulties which you proposed to the learned Descartes in your letters of 11<sup>th</sup> December 1648, 5<sup>th</sup> March, 23<sup>rd</sup> July and 21<sup>st</sup> October 1649. I could not but admire both your genius and your extraordinary kindness.

Therefore, trusting in the latter, I have dared to write back to you with confidence to inform you about what I have decided to do, and request from you what is necessary for me to complete the work which I have undertaken. Know, then, that I have in my hands the autographs of the principal letters which that incomparable philosopher, the learned Descartes, bequeathed to the learned Chanut, most distinguished both as the erstwhile ambassador to the most serene queen of Sweden and as the current ambassador to the Dutch and my brother-in-law, at whose house the philosopher died. Among these letters are also answers to many of his friends from which I am selecting the most important ones, notably such as bear upon his philosophy, refer to works which he sought to finish, or solve difficulties proposed to him by a great number of celebrated persons amongst whom you do not have the least of places. I hope that I shall be able to publish all of these letters shortly.

247 However, the letters written in reply to difficulties will hardly be intelligible unless the ones which occasioned his responses are also made available. Moreover, it would have seemed wrong to me had I pursued this without the consent and permission of those who wrote to him. Hence, I approached and asked several of them to grant me that which I hope you, in your extraordinary kindness and exceptional zeal for Descartes, will grant me as well. Moreover, I should also like to ask you to send me the copies of all the letters which you received from Descartes, since I have only two of them in my hands, the first an answer to your letter of 5<sup>th</sup> February, the second an answer to the one which you wrote on 15<sup>th</sup> April. There remains a third one, therefore, which I do not have yet and which must be the answer to your letters of 23<sup>rd</sup> July and of 21<sup>st</sup> October. It cannot but be a very fine piece and contain a great many things most worthy of note, since it must be Descartes' answer to the many important difficulties and questions which you raised regarding his *Principles of Philosophy* and especially his *Optics*. Of this letter I have found a mere two pages which only seek to address your instances without containing a single word on your questions regarding the *Principles* and the *Optics*. Hence, I very much hope and beseech you most earnestly that you give me the permission to publish your letters alongside Descartes' answers. And please send me those which you received from Descartes as well so that we may do a great service both to posterity and to the fame and memory of our common friend. However, besides these handwritten letters, I also possess quite a few other documents of this most celebrated man each of which will see the light of day in due course. I assume that you, too, being, as it seems, quite an avid reader of Cartesian writings, will take no little delight in them. Had I been allowed to use the vernacular language instead, I should have expressed my view in more well-chosen and pleasing words.



meam explicuisssem: sed nè in varios errores inciderem, styllum contraxi, & ut pòtui, non ut volui, mentem meam tibi aperui; quod rogo ut mihi condones, & scias me tuæ semper humanitatis & sapientiæ laudatorem & cultorem fore.

Parisiis 12 Dec.  
1654.

CLAUDIUS CLERSÉLIER.

## Responso HENRICI MORI.

**L**iteræ tuæ, Vir Clarissime, datæ Lutetiæ Parisiorum pridie Idus Decembris, anno 1654. non pervenerunt ad manus meas ante decimum septimum Calendarum Maii. Miror tantum temporis interfluxisse. Granthamiæ tunc agebam in agro Lincolnensi. Rus enim concesseram cum aliis de causis, tum ad confirmandum valetudinem. Vehementer equidem gaudebam postquam intellexi præclarum tuum institutum edendi omnia Cartesii scripta quæ apud te sunt, quo non solum nobilissimi Philosophi famæ ac memoriæ, verum etiam communi omnium literatorum utilitati optimè consulēs. In neminem enim aptius quadrat, quàm in divinum illum virum, Horatianum illud,

— Qui nil molitur inepte.

Quam ob causam si ego tibi à consiliis essem, nihil quicquam eorum supprimeretur quæ vel ille tentavit ullo modo in rebus Philosophicis, vel feliciter ad exitum perduxit; sed lucem viderent omnia, in majus Reipub. Literariæ commodum. Ac proinde, ut nullum impedimentum esset tam utili ac generoso proposito, vel ultrò tibi concederem copiam edendi primas meas secundasque literas ad Cartesium conscriptas; quippe quodd absque eis, ut rectè mones, responsa ejus tam commodè intelligi non possint: nec multum abs re fore diffiteor, si tertias meas simul edideris, cum per eas responsum sit alteris illis Cartesianis. Sed cum quartæ meæ nullis illius literis respondeant, nec illis ab ipso responsum sit quicquam, utpote inopinatâ morte prærepto, de iis aliquantùm hæsito an publici juris facerem. Cæterum omnem scrupulum eximeret, si quis ex amicis ipsius aut familiaribus, qui frequentius eum inviserunt, & colloqui sunt, vel cum eo vixerunt conjunctius, respondendi vices suppleret; tunc enim parùm dubito quin operæ esset pretium illas etiam in lucem dare. Quodd si hoc in præsens impetrari no possit, modò probabile esset quodd literæ illæ meæ, tertiarum quartarumque, editæ allicerent aliquem ex peritioribus Philosophiæ Cartesianæ sectatoribus ad respondendum omnibus difficultatibus inibi Cartesio ipsi propositis, ex illa saltem spe facilius animum inducerem ut jus tibi concedam eas in publicum proferendi. Quid autem futurum sit in hac re ipse forsân opportuniùs quàm ego conjecturam capies. Nè multis igitur te morer, totum hoc negotium judicio tuo ac candori permitto, ut, quodd factò opus sit, facias. Incredibile quanto mœrore sum affectus, audito præmaturo Cartesii fato, quippe

However, to avoid making too many mistakes, I have been very brief and explained my intention to you only as well as I could and not as well as I would have liked to. I very much hope, though, that you will see past this fault and rest assured that I shall always be an ardent admirer both of your kindness and your wisdom.

Claude Clerselier  
Paris, 12<sup>th</sup> December 1654

OO, 232 AT V, 247

## The Answer of Henry More

248 Your Letter written on 12<sup>th</sup> December in Paris, most distinguished Sir, reached me only on 15<sup>th</sup> April 1655. It is surprising how long it took. I was in Grantham in Lincolnshire at that time, because I had gone to the countryside for various reasons, but mostly to recover my health. I was very pleased indeed when I learned of your excellent project of publishing all the writings of Descartes in your possession in order to do the greatest of services, both to the fame and memory of the most noble of all philosophers, and to the whole learned world. For there is no-one whom Horace's dictum fits better than this divine man:

"One who does nothing ineptly."

Hence, if I were to give you my advice, nothing either of what he began writing in matters philosophical in one way or another or of what he contrived to complete should be left unpublished. Instead, all of it should see the light of day for the greater good of the republic of letters. And therefore, lest there be any further obstacle to so useful and so noble an enterprise, I gladly give you my permission to publish my first and second letters to Descartes without which, as you rightly point out, it is more difficult to understand his answers. Moreover, I think it may be quite useful if you also publish my third letter, because it is a response to those other Cartesian writings. My fourth letter, however, is not an answer to any of his, nor has he written an answer to it on account of his unexpected and untimely death. Therefore, I am not really sure whether I should publish it. It would remove all my doubts, though, if one of his friends or acquaintances who visited and conversed with him very frequently or lived with him quite closely were to take over the task of answering it instead. In this case, I would have very little doubt that this letter was worth being published as well. Although this might prove to be unfeasible at present, the publication of my third and fourth letters might arguably attract one of the more capable proponents of Cartesian philosophy to answer all the difficulties which I proposed to Descartes himself in them. It is in this hope at least that I could convince myself more readily to give you the permission to prepare both of the letters for print. But perhaps you yourself can foresee more clearly what will happen in this matter than I can. Therefore, lest I hold you back any longer, I leave this whole business to your honesty and judgement so that you may do what must be done. I was incredibly grieved by the news of Descartes' premature demise,

quippe qui ingenium virtutesque incomparabilis viri impensè amavi & miratus sum. Præterea, accessit ingens desiderium perlegendi responsa ejus, quæ expectavi, ad tertias quartasque meas literas, quæ universam illius Philosophiam percurrunt. Inchoasse integrum responsum ad meas datas 10. Cal. Aug. ex te intelligo. Quod fragmentum scripsisse eum conjicio cum Egmondæ esset in Hollandia. Destitit autem, ut per amicos suos certior me fecit, ab incepto, quod animus occupatissimus paratu ad iter Suecium non potuit vacare tam subtilibus tantique, ut ipse dixit, momenti difficultatibus & disquisitionibus; sed constanter pollicitus est suis, se proximo vere reversurum, & tunc mihi copiosè & perspicuè omnia explicaturum. Sed cum invida mors cætera nobis præripuerit, nollem vel illud Fragmentum duarum paginarum quarum mentionem facis, interire. Quod ad solidiora illa Cartesii monumenta attinet, quæ profiteris te habere, quæque, uti promittis, lucem visura sunt suo tempore, gestit profectò animus ad tam lætum gratumque nuncium; avidèque interim cupio, si tibi non sit molestum, ut argumenta titulosve singulorum librorum recenscas in proximis tuis literis. Revixit enim in me, ex quo nuperas tuas accepi, pristinus ille ardor erga Philosophiam Cartesianam, qui aliquantulum ab obitu desideratissimi nostri Amici deferbuerat, cum nova legendi materies non suppeteret. Sed, ut ingenuè fatear quod res est, illud solum in causa non fuit, sed peculiaris quædam studia quæ alio animum avocarent. Est enim illud rerum pondus, veritatis pulchritudo, amplitudo ingenii & acumen, Theorematum denique omnium admirabilis ille ordo & consensus in scriptis Cartesianis, ut vel millies lecta non sordescant: non magis quam lux Solis, cujus ortum singulis diebus aves, pecudes, ipsique adeo homines gratulabundi contemplantur.

Nec certè solum lectu jucunda est hæc Cartesiana Philosophia, sed apprimè utilis, quicquid aut mufitent aut deblaterent alii, ad summum illum omnis Philosophiæ finem, putà Religionem. Cum enim Peripatetici formas quasdam contendunt esse substantiales, quæ è potentia materiæ oriuntur, quæque cum materia ita coalescunt, ut absque illa subsistere non possint, ac proinde necessariò demum redeunt in potentiam materæ (cui ordini accensent viventium fere omnium animas, etiam eas quibus sensum cogitationemque tribuunt;) Epicurei autem, explosis illis substantialibus formis, ipsi vim sentiendi cogitandique inesse statuunt; solus, quod scio, inter Physiologos, extitit Cartesius, qui substantiales illas formas, animasve materiæ exortas, e Philosophia sustulit, materiamque ipsam omni sentiendi cogitandique facultate planè spoliavit. Unde, si principiis staretur Cartesianis, certissima esset ratio ac Methodus demonstrandi, & quòd Deus sit, & quòd anima humana mortalis esse non possit. Quæ sunt illa duo solidissima fundamenta ac fulcra omnis veræ Religionis. Hæc breviter noto, cum possim & alia bene multa huc adjicere, quæ eodem spectant. Sed summatim dicam, nullam extare Philosophiam, nisi Platoniam fortè exceperis, quæ tam firmiter Atheis viam præcludit ad perversas istas cavillas & subterfugia quo se solent recipere, quàm hæc Cartesiana, si penitus intelligatur. Unde spero, quòd omnes boni clementius ferent amplissimas illas laudes quibus incomparabilem Virum cumulo, in iis

quas

249 since I have always felt the deepest love and admiration for the genius and virtues of this incomparable man. Moreover, I am also very eager to read his long-awaited answers to my third and fourth letters which review the whole of his Philosophy. I have learned from you that he started writing a comprehensive answer to my letter of 23<sup>rd</sup> July, and suspect that he wrote this fragment when he was still in Egmond in Holland. However, as I have been told by his friends, he had to stop working on it because he was very occupied with the preparations for his journey to Sweden so that he could not concern himself with so subtle and, as he said himself, so important difficulties and questions. However, he promised his friends time and again that he would return to it the following spring, when he would explain everything to me in great detail and clarity. However, since envious death has so prematurely deprived us of the rest, I would not want even the two-page fragment which you mention to be lost. As regards those more complete documents of Descartes which you say are in your possession and which, as you promise, will see the light of day in due time, my mind rejoices at such truly happy and joyful tidings. And meanwhile, I earnestly beseech you that, if this is not too troublesome for you, you list the contents of each of the books by title in your next letter. For, ever since I received your recent letters, my erstwhile zeal for Cartesian philosophy has been rekindled. It had somewhat abated after the death of our most-missed friend, when there was no new reading material anymore. However, to tell you the truth of the matter, this was not the sole reason, but I was also engaged in certain special studies which held my attention elsewhere. For there is such a profundity of subject matter in his writings, such resplendent truth, such a breadth and acumen of genius and, lastly, such an admirable order and agreement of all the tenets that they do not grow stale even on the thousandth reading, no more than does the light of the rising sun, which birds, animals and even men themselves contemplate in joy every single day.

233 Not only, certainly, is the Cartesian philosophy readable, but also, whatever others may grumble and babble, extremely useful for the highest aim of all philosophy, namely religion. For the Peripatetics assert that there are certain substantial forms proceeding from the potentiality of matter and coalescing with matter in such a way that they could not subsist without it. Therefore, they will, of necessity, eventually return into the potentiality of matter (a category to which they assign the souls of almost all animals, even those to whom they attribute sense and thought). Moreover, the Epicureans, having exploded substantial forms, hold that there is a power of sense and thought in matter itself. Of all the philosophers of nature, only Descartes, to my knowledge, has removed from philosophy the notion of substantial forms as well as souls proceeding from matter, and robbed matter itself of all capacity for sense and thought. If, therefore, we were to hold on to Cartesian principles, we would have a most certain way and method of proof both that there was a God and 250 that the human soul could not be mortal. And these two doctrines are the most solid foundations and fulcrums of all true religion. I note this only briefly, although I could well add many other tenets of the same tenor. However, I shall say by way of summary that there is no other philosophy (with the possible exception of Platonism) which prevents the atheists from seeking their accustomed refuge in their perverse cavils and subterfuges as firmly as the Cartesian one, provided one understands it a little more deeply. Hence, I hope that all virtuous man will look leniently upon the most exuberant praises which I heaped upon this incomparable man in my letters to him.



quas ad eum scripsi literis; credoque, quicquid hæc præsens ætas fenerit de Cartesio (nam ut nunquam vivis, ita raro recenti defunctorum memoriæ parcat invidia) quod posteritas eum omni cum laude & veneratione sit exceptura, optimūque illius Philosophiæ usum sit agnitura. Quod lubentiùs prædico, ut majorem in modum tibi animos accendam ad pergendum in nobili illo instituto, edendi omnia quæ habes Cartesii scripta Philosophica; quo pacto cum alios multos tum me præter cæteros, devincies, qui in illis evolvendis tantam percipere soleo voluptatem.

Si tibi visum fuerit meas ad Cartesium literas publicare, vehementer hoc abs te efflagito, ut nè fiat juxta illa exemplaria quæ jam habes, quia multo correctiora tibi paro. Deprehendi enim, postquam attentius legeram, non pauca corrigenda, quæ imprudenti mihi exciderunt præ nimio animi fervore ac festinatione cum ad Cartesium scriberem. Expunxi etiam quædam ex Quæsitis in tertiis quartisque meis literis; sed primæ secundæque integræ sunt.

Quod mensis ferè jam elapsus est ex quo tuas accepi literas, nec tamen ad te rescripsi, id profecto factum est per nullam negligentiam aut incuriam. Non possum enim non magni te æstimare, tum propter eximium tuum ingenium, ad omnem, quod satis ex literis tuis perspexi, æquitatem & humanitatem compositum ac conformatum, tum propter honorificam Clarissimi fratris tui Chanuti, olim apud Suecos, nunc verò, uti narras, apud Batavos Legati meritissimi, in Cartesium defunctum pietatem. Sed totum id temporis quod effluxit partim negotiis, quibus eram ruri districtus, partim meis ad Cartesium literis castigandis transcribendisque, postquam ad Academiam rediissem, impensum est; nec putabam fore operæ pretium ad te rescribere, prius quàm ista perfecissem. Jam verò in parato sunt omnia, tam mearum quàm Cartesianarum literarum exemplaria: neutra tamen ad te mitto hæc vice, quippe quod experiundum putavi prius, quàm tutò hæc, quas jam scripsi, literæ ad manus tuas pervenerint: postquam id intellexerim, mittam ad te continuo. Perlubenter interim ex te audire vellem, quò usque deveneris in nobili illo negotio quod scribis te suscepisse. Rem fanè mihi pergratam præstabis, si per proximas tuas literas ea de re certiore me feceris. Vale, Vir Clarissime, & generosum illud opus quod moliris feliciter exequere. Sic optat,

*Tibi Cartesianisque*

*omnibus addictissimus*

Cantabrigiæ, è Collegio Christi,  
pridie Idus Maii, 1655.

HENRICUS MORUS.

*Clarissimo*

And whatever this present age may think about Descartes (and the living are never spared its envy, while the memory of the recently deceased seldom is), I believe that posterity will bestow all praise and veneration upon him and acknowledge the extraordinary usefulness of his philosophy. And I prophesy this all the more cheerfully because I want to encourage you even more to carry on in your noble enterprise of publishing all of Descartes' writings in your possession. And of all the people whom you will thereby make beholden to you, no-one will be more grateful to you than me who have always reaped such extraordinary pleasure from reading his works.

If you decide to publish my letters to Descartes, I beseech you most earnestly that you do not do it on the basis of the copies which you already possess, because I am furnishing you with ones with quite a few corrections. For, on reading them more attentively, I found several mistakes which I had made in my carelessness, being carried away by too much fervour when writing to Descartes. I have also cut some passages in my questions in my third and fourth letters. The first and the second, however, are uncut.

The fact that almost a whole month has already passed since I received your letter without my answering you is not due to any negligence or carelessness on my part. For I cannot but think highly of you, not only because of your excellent character which, as I have seen sufficiently clearly from your letter, conforms completely to all justice and kindness, but also because of the worthy piety which Chanut, your most famous brother-in-law, most well-deserving, as you report, both as the erstwhile ambassador to the Swedes and as the current one to the Dutch, has displayed towards the late Descartes. However, I have devoted the whole time which has elapsed since then partly to the obligations which I had to attend to in the country, and partly, on returning to the university, to the correction and transcription of my letters to Descartes. Now, however, I have prepared all of the copies both of my letters and Descartes' for publication. However, I am sending you neither the former nor the latter just yet because I thought I should first make sure that the one which I have written to you has reached you. Once you have confirmed this, I shall send them to you immediately. Meanwhile, I should very much like to learn how far you have progressed in your noble enterprise which, as you have written, you have undertaken. You will do me a great favour indeed if you will inform me about this in your next letter. Farewell, most distinguished Sir, and may you bring that excellent work which you are undertaking to a successful conclusion. This is the wish of

the most ardent follower of yours and all Cartesians

Henry More

Cambridge, Christ's College, 14<sup>th</sup> May 1655

Clarissimo Viro

RENATO DES-CARTES

HENRICUS MORUS ANGLUS.

**Q**uantâ voluptate perfusus est animus meus, Vir clarissime, scriptis tuis legendis, nemo quisquam præter te unum potest conjectare.

Equidem ausim asseverare me haud minùs exultâsse in recognoscendis intelligendisque præclaris tuis Theorematis, quàm ipse in inveniendis, æquèque charos habere atque deamare pulcherrimos illos ingenii tui fœtus, ac si proprius eos enixus esset animus. Quod & certè fecisse aliquo modo mihi videtur, exerendo sese atque expediendo in eisdem sensus ac cogitationes, quos generosa tua mens præconcepit & præmonstravit. Qui sanè istiusmodi sunt, ut, cum intellectui judicioque meo adeo sint congeneres, ut non sperem fore ut incidam in quicquam conjunctum magis ac consanguineum, ita sanè à nullius ingenio alieni esse possint, cujus itidem ingenium non sit à recta ratione alienum.

Libere dicam quod sentio: Omnes quotquot extiterunt, aut etiamnum existunt, Arcanorum Naturæ Antistites, si ad Magnificam tuam indolem comparentur, Pumilos planè videri ac Pygmæos: meque, cum vel unicâ vice evolvissem Lucubrationes tuas Philosophicas, suspicatum esse, illustrissimam tuam discipulam, Serenissimam Principem Elizabetham, universis Europæis, non sœminis solum, sed viris, etiam Philosophis, longè evasisse sapientiorum. Quod mox evidentius deprehendi, cum inceperim scripta tua paulò penitiùs rimari & intelligere.

Tandem enim clarè mihi affulsit Cartesiana Lux, (i. e.) libera, distincta, sibi que constans Ratio, quæ Naturam pariter ac paginas tuas mirifice collustravit; ita ut aut nullæ aut paucissimæ supersint latebræ, & loci quos non patefecit nobilis illa fax, aut saltem vel levissimo negotio, mihi cum libitum fuerit, mox sit patefactura. Omnia profectò tam concinna in tuis Philosophiæ Principiis, Dioptricis & Meteoris, tamque pulchrè sibi ipsis naturæque consona sunt, ut mens Ratioque humana jucundius vix optaret lætiùsve spectaculum.

In Methodo tua, lusorio quodam, sed eleganti lanè, modestiæ genere, talem te exhibes virum ut nihil indole genioque tuo suavius & amabilius, nihil excelsius & generosius vel fingi possit, vel expeti.

Quorsum autem hæc? Non quod putarem, Vir Clarissime, aut tuâ interesse aut Reipublicæ Literariæ ut hæc conscriberem; sed quòd mirabilis illius voluptatis ac fructûs quem ex scriptis tuis percepi conscientia extorqueret hoc quaecunque est animi in te grati testimonium. Præterea, ut certum te facerem, etiam apud Anglos esse qui te tuæque magni æstimaunt, divinæque animi tui dotes vehementer suspiciunt & admirantur: Neminem autem hominem meipso impenitus te amare posse, eximiâque tuam Philosophiam arctiùs implexari.

Sed

No-one but you alone, most distinguished Sir, can judge what pleasure I felt when reading your writings.

Indeed, I may well go so far as to say that I exulted as much in understanding and adopting your celebrated doctrines as you did in discovering them and that I hold these most beautiful children of your mind as dear as though my own mind had given birth to them. And in a way I do in fact view myself as their author, having reached and striven for those very same ideas and thoughts which  
237 your great mind had conceived and demonstrated before me. They correspond to my own thought and judgement so closely that I cannot possibly hope to find anything that accords more fully with my own mind, nor indeed can they be at odds with anyone else's unless they are estranged from right reason.

I shall freely tell you what I think. All past and present masters of the secrets of nature seem to me to be nothing but dwarfs and pygmies compared to your extraordinary genius. Ever since I turned the very first page of your philosophical writings, I have suspected that the most famous of your disciples, the most renowned Princess Elizabeth, has proved to be of far superior wisdom not only to all other European women, but also to all male philosophers [in fully appreciating the brilliance of your philosophy]. It became even clearer to me once I began studying and understanding your writings a little more deeply.

Thus, at last the Cartesian light, i.e. a free, distinct and self-consistent light that illuminates both nature and your pages in such a miraculous fashion, began to shine upon me with greater clarity. As a consequence, only a very few dark places, if any, remain which that noble torch of yours has not yet illuminated, but which it will soon illuminate with only a little effort on my part, if I may say so. Indeed, everything you write in your *Principles of Philosophy*, *Optics* and *Meteorology* is so consistent and so consonant with itself and nature that man's mind and reason could hardly wish for a more enjoyable spectacle.

That playful, yet deeply agreeable, kind of modesty which you display in your *Method* reveals you to be a person who is such that one can neither imagine nor wish for a more affable and lovable mind and character or one more sublime and generous.

Why am I writing this to you? It is not because I thought, most distinguished Sir, that either you or the republic of letters would benefit from it in any way. Instead, the knowledge of the extraordinary pleasure and gain which I had reaped from your writings compelled me to write to you and express my heartfelt gratitude to you in some way. Moreover, I wanted to let you know that there are some even amongst the English people who think very highly of your person and your work and who hold the divine gifts of your mind in the deepest admiration and respect. However, no-one can love you as sincerely or embrace your excellent philosophy as firmly as I do.

Sed revera illustrissime Cartesi, ut nihil diffimulem; quamvis pulcherrimum illud Philosophiæ tuæ corpus ac essentiam valde depeream, fateor tamen paucula excidisse in secunda Principiorum parte, quæ certè animus meus aut paulò habetior est quàm ut capiat, aut ut admittat, averfator.

Sed præclaræ tuæ Philosophiæ Summa nihil indè periclitatur, cùm hujusmodi ista sint, ut cùm aut falsa meritò aut incerta judicari possint, ità nihil ad essentiam Philosophiæ tuæ ac fundamenta pertinere, illaque sine istis optimè possit constare. Quæ verò ea sint, si tibi non sit tædio, breviter nunc exponam.

Primò, definitionem Materiæ seu Corporis instituis multò quàm par est latiore. Res enim extensa Deus videtur esse, atque Angelus, imò verò res quælibet per se subsistens; ità ut eisdem finibus claudi videatur extensio atque essentia rerum absoluta, quæ tamen variari potest pro essentiarum ipsarum varietate. Atq; equidem quòd Deus extenditur suo modo, hinc arbitror patere, nempe quòd sit omnipræsens, & universam mundi machinam singulâque ejus particulas intimè occupet. Quomodo enim motum imprimeret materiæ, quod fecisset aliquando, & etiamnum facere, ipse fateris, nisi proximè quasi attingeret materiam universi, aut saltem aliquando attigisset? Quod certè nunquam fecisset nisi adfuisset ubique, singulâque plagas occupasset. Deus igitur suo modo extenditur atque expanditur, ac proindè est res extensa.

Neque tamen ille corpus istud est, five materia, quam ingeniosa illa Artifex, Mens scilicet tua, in globulos striatâque particulas tam affabrè tornavit. Quamobrem res extensa latior corpore est.

Animùmque mihi ulteriùs addit ut à te hac in re dissentiam, quòd ad confirmationem hujusce tuæ definitionis *tam scævum adhibes argumentum, & ferme Sophisticum*. Quòd utique corpus possit esse corpus sine mollitie, vel duritie, vel pondere, vel levitate, &c. illis enim aliis-que omnibus qualitatibus quæ in materia corporea sentiuntur ex ea sublatis, ipsam integram remanere. Quod perinde est ac si dixeris, libram Cerae, cùm possit esse libra cerae, quamvis spoliatur figurâ sphaericâ, vel cubicâ, vel pyramidalî, &c. sub nulla figura posse remanere integram cerae libram. Quod tamen impossibile est. Quamvis enim hæc vel illa figura non tam arctè cohæreat cum cera quin illam exuere possit, ut tamen cera semper sit figurata necessitas summa est & arctissima. Ità quamvis materia non sit necessariò mollis, nec dura, nec calida, nec frigida, ut tamen sit *sensibilis* est summè necessarium; vel, si malles, *tangibilis*, prout optimè definit Lucretius,

*Tangere enim, & tangi, nisi corpus potest nulla res.*

Quæ certè notio minùs debet à tua mente abhorrere, cùm Philosophia tua omnem sensum, cum antiquis illis apud Theophrastum *αἰσθήσεως*, tactum planissimè constituat. Quod vero verius esse ipse facillimè admittam. Sed si minùs placet *Corpus definire ab habitudine ad sensus nostros*, Tangibilitas hæc latior sit ac diffusior, & significet mutuum illum contactum tangendique potentiam inter corpora quælibet, five animata five inanimata fuerint, estoque superficierum duorum pluriùve corporum immediata juxtapositio. Quod & aliam innuit materiæ

However, my most illustrious Monsieur Descartes, I do not want to pass over in silence that, whilst I love your most beautiful philosophical system, I must confess that there are some minor details put forth in the second part of your *Principles* which my mind is apparently a bit too dull to grasp or deviates from too much to accept.

Yet, these aspects do not pose any danger to your philosophy as a whole. For they are such that, regardless of whether they may be rightly judged to be false or uncertain, they do not affect either the essence or the foundations of your philosophy so that the latter can stand quite well without them. However, if you will not mind, I shall briefly expound these aspects to you.

Firstly, the definition which you give of matter or body is far broader than is warranted. For God also seems to be an extended substance, as do angels and indeed every thing subsisting through itself. Hence, extension is apparently coterminous with the absolute essence of things, although the latter may differ according to the differences between the essences themselves. I view God as being extended in his own way on account of his omnipresence, occupying as he does the whole fabric of the world and each of its particles in an intimate fashion. How else could he impress motion upon matter, which, as you yourself concede, he did at some point and which he does to this day, unless he touches, or had at least at some point touched, the matter of the universe from close up? He could not have done so at any time had he not been present everywhere and occupied every single place. Hence, God is extended and expanded in his own way, and therefore is an extended substance.

Nor does it follow from this that he is a body or matter which your mind, that ingenious artist, has so skillfully formed into little orbs and grooved particles. For this reason, "extended substance" is broader than "body".

Your argument to support this definition of yours is so misguided and downright sophistical that I am further encouraged to disagree with you in this matter. A body, you argue, would be a body even if it were deprived of its softness and hardness as well as its heaviness or lightness. Thus, it would continue to be a body if all those together with all the other qualities perceived in a material body were to be removed from it. It is as though you were to say that a waxen pair of scales could be such without having a round, cubic or pyramidal shape, or that it could remain a complete waxen pair of scales without any shape at all, which is impossible. For even though neither this nor that figure is tied to the wax so closely that it could not cast off one or the other of them, it is nevertheless an absolute and inescapable necessity that wax should always have a shape. Thus, even though matter is not necessarily soft or hard and hot or cold, it is absolutely necessary that it is sensible or, if you will, tangible according to that most apposite definition of Lucretius:

*For nothing, if it be not body, can touch and be touched.*

Certainly, this notion need not at all be at odds with your views, since your philosophy most clearly follows those ancient philosophers mentioned in Theophrastus' *Περὶ αἰσθήσεως*, in making all sensation consist in touch, which I most willingly accept as perfectly true. However, should you take exception to body being defined by its relationship to our senses, I allow for this tangibility to be broader and more general, signifying the mutual contact between bodies and their power of touching one another, whether they are animate or inanimate. Let it be defined then as the surfaces of two or more bodies being situated immediately adjacent to each other. And this reveals another property of matter or body



materiæ five corporis conditionem, quam appellare poteris *impenetrabilitatem*; nempe quod nec penetrare alia corpora, nec ab illis penetrari possit. Unde manifestissimum est discrimen inter Naturam divinam ac corpoream; cum illa hanc penetrare, hæc verò se ipsam penetrare non possit. Unde sanè felicius mihi videtur cum Platoniciis fatis Virgilius philosophari, quam Cartesius ipse, cum ex illorum sententia sic cecinerit,

————— *Totamque infusa per artus*

*Mens agitat molem, & magno se corpore miscet.*

Mitto alias insigniores Divinæ extensionis conditiones, cum non opus sit hoc loco explicare. Vel hæc pauca suffecerint ad demonstrandum multò tutius fuisse materiam definivisse substantiam *tangibilem*, vel modo suprâ explicato *impenetrabilem*, quam Rem extensam. Dicta enim vel *Tangibilitas*, vel *Impenetrabilitas*, competit corpori adæquatè; tua autem definitio peccat in legem *καθόλου πρῶτον*, neque enim est reciproca cum definito.

Secundò, Quando innuis *ne virtute quidem divinâ fieri posse ut propriè dictum existat vacuum*, &, si omne corpus ex vase tolleretur, quoddam latera necessario coirent; ista profectò mihi videntur non solum falsa, sed minùs consona antecedentibus. Si enim Deus motum materiæ imprimit, quod suprâ docuisti, annon ille potest contrà obniti, & inhibere ne coeant vasis latera? Sed contradictio est distare vasis latera, & tamen nihil interjacere. Idem non sensit literata Antiquitas, Epicurus, Democritus, Lucretius, alique. Sed ut leviusculum illud argumenti genus missum faciam; divinam contendo interjacere extensionem, tuumque hîc suppositum esse infirmum, materiam solummodo extendi: Latera tamen ut antea coitura non necessitate Logicâ sed naturali; Deumque solum hanc coitionem inhibere posse. Cum enim particulæ, primi præsertim secundique Elementi, tam furibundo motu agitentur, necesse est quâ ceditur, eò ruant præcipites, aliâque sibi contiguas secum abripiant.

Infelicitè igitur successit, quod tam bellum Theorema de modo Rarefactionis & Condensationis, quod certè ego aliis de causis verissimum esse senteo, tam lubrico suffulcias fundamento.

Tertiò, Singularem illam subtilitatem non capio, quâ atomos, id est, particulas suâ naturâ indivisibiles, non dari evincas. Ut enim, inquis effecerit Deus eas particulas à nullis creaturis dividi posse, non certè sibi ipsi easdem dividendi facultatem potuit adimere, quia fieri non potest ut propriam suam potentiam imminuat. Eodem argumento probaveris, Deum nunquam fecisse ut hesternus oriretur Sol, quoniam potentia ejus jam efficere non potest ut Sol hesternus non esset ortus; nec vilissimam posse muscam occidere,

*Si modo qui periit, non periisse potest,*

quod scitè de seipso Ovidius; materiam non creâsse, cum sit divisibilis in semper divisibilia, ac proinde Deus nunquam posset absolvere ac perficere hanc divisionem. Pars enim restat indivisa, quamvis divisibilis, atque ita perpetuò eluditur potentia divina, nec plenè se exerere potest, finemque sortiri.

Quartò, Indefinitam tuam mundi extensionem non intelligo. Extensio enim illa indefinita vel simpliciter infinita est, vel tantum quoad

E e

nos.

which we could call “impenetrability”: one body cannot penetrate or be penetrated by another body. From that the difference between the divine and the corporeal nature becomes quite clear: the former is able to penetrate the latter, while the latter cannot penetrate itself. Hence, Virgil, following his Platonists, seems to argue altogether more felicitously than Descartes himself, singing the following song in accordance with their views:

*The spirit within nourishes, and mind instilled throughout the living parts activates the whole mass, and mingles with this vast body.*

I omit other more remarkable properties of the divine extension because it is not necessary to expound them here. These few should suffice to demonstrate that it is much safer to define matter as a tangible or, as I have explained above, an impenetrable substance than as an extended thing. For the tangibility or impenetrability mentioned can be attributed to body universally. Your definition, by contrast, infringes the law of *καθόλου πρῶτον*, as it is not reciprocal with the thing defined.

241 Secondly, you imply that it is not possible even by divine power that there could exist a vacuum in the proper sense of the word. Thus, for example, if every body were to be removed from a vessel, its sides would necessarily meet. However, this seems to me to be both wrong and at odds with what you have said before. For if God impresses motion upon matter, as you have shown earlier, can he not press against it, preventing the sides of the vessel from meeting? However, it is a contradiction to say [you argue,] that the sides of a vessel are distant from one another without there being anything between them. Moreover, the learned ancients Epicurus, Democritus, Lucretius and others also took a different view. However, let us not dwell on that slight kind of argument any further. I contend that the divine extension lies between them, that your supposition that only matter is extended is ill-founded, and that, as I have said before, the sides will approach each other not by logical, but by natural necessity, and God alone can prevent them from meeting again. For since the particles, notably those of the first and second elements, are impelled forward in such violent motion, it is necessary that they rush to the vacated place, forcing those adjacent to them with them.

Thus, it is very unfortunate that you should rest such a beautiful theory as that of the different modes of rarefaction and condensation, which I judge for other reasons to be most true, upon such a frail foundation.

Thirdly, I fail to understand the incomparable subtlety of your proof that there are no atoms or particles that are indivisible by their very nature. For while, you say, God may have created such particles as cannot be divided by any of his creatures, he could certainly not have deprived himself of the ability to divide them because it is impossible for him to limit his own power. By this same argument you might as well prove that God could never have made yesterday's sun rise because his power cannot cause yesterday's sun not to have risen. Nor could the vilest fly die

*If only he who has died may not have died,*

242 as Ovid says so elegantly about himself. Nor could God have created a matter that is divisible into ever more divisible parts because he could not then ever complete and perfect this division. For in this case one part, though capable of division, would always remain undivided, thus always preventing God from fully exercising his power and achieving his end.

Fourthly, I do not understand your notion of the indefinite extension of the world. For that indefinite extension is either infinite in itself or in relation to

nos. Si intelligis extensionem infinitam simpliciter, cur mentem tuam obscuras vocabulis nimium suppressis ac modestis? Si tantum quoad nos infinitam, revera erit finita extensio; neque enim mens nostra aut rerum aut veritatis mensura est. Ac proinde, cum alia sit simpliciter infinita expansio, divinæ utique essentiae, materia tuorum vorticum à centrīs suis recedet, totaque mundi machina in dissipatas atomos vagosque abibit pulvisculos.

Atque sanè eò magis hīc admiror modestiam tuam atque metum, quod adeò tibi caves à materiæ infinitudine, cum particulas actu & infinitas & divisas ipse agnoveris Art. 34, & 35. Quod certè si non fecisses, extorqueri tamen posse videtur hoc modo. Nam cum quantum sit in infinitum divisibile, partes actu infinitas habere oportet. Ut enim cultello aliòve quovis instrumento corpus in partes palpabiles, quæ non actu sunt tales, mechanicè diffecare prorsus est ἀδύνατον, sive impossibile; ita vel mente quantitatem dividere in partes toti realiter actūque non inexistentes, planè ἀλογον est ac rationi absconum.

Quibus insuper adjungi potest, hypothesis hanc, quod mundus simpliciter ac revera sit infinitus, æqualem vim habere ad explicandam juxta ad confirmandam rationem rarefactionis & condensationis, quam supra proposuisti Art. 6, 7. atque istud principium, *solum corporis esse extensionem, & nihilum non posse extendi*. Quod enim ibi præstat Logica seu contradictoria necessitas, idem hīc necessitas Physica vel Mechanica certissimè præstabit.

Cum enim omnia in infinitum usque materiā seu corporibus sint plena ac referta, penetrationis lex impedit ne fiat ulla distantia in rarefactione corporibus nuda, aut accessio partium ad se invicem in condensatione, sine interjacentium particularum expulsionē.

Atque hæcenus quæ à me dicta sunt rationi mentique meæ maximè videntur perspicua, tuisque placitis longè longèque certiora.

Cæterum à nulla tuarum opinionum animus meus, pro ea quæ est molliet ac teneritudine, æquè abhorret, ac ab internecina illa & jugulatrice sententia, quam in Methodo tulisti, brutis omnibus vitam sensumque eripiens, dicam, an potius præripiens? neque enim vixisse unquam pateris. Hīc non tam suspicio rutilantem tui ingenii aciem, quam reformido, utpote de animantium fato te sollicitas, acumenque tuum non subtile solum agnosco, sed chalybis instar rigidum ac crudèle, quod uno quasi ictu universum ferme animantium genus vitam ausit sensumque spoliare in marmora & machinas vertendo.

Sed videamus obsecro quid in causa est quod in brutas animantes quicquam tam severiter statuas. Loqui utique non possunt, causamque suam apud judicem dicere, & quod crimen aggravat, cum ad loquendam organis satis sint instructæ, ut patet in Picis & Psittacis. Hīc vitam sensumque mulcandæ sunt.

Verum enimverò quomodo fieri possit ut aut Psittaci aut Picæ voces nostras imitentur, nisi audirent, sensumque perciperent quid loquimur? Sed non intelligunt, inquis, quid sibi volunt istæ voces quas effutiant imitando. Quidni tamen ipsi quid volunt satis intelligant, cibum scilicet quem à Dominis hoc artificio acquirunt? putant igitur se cibum mendicare, quod ista loquacitate toties voti compotes fiunt.

Et

us. If you conceive extension to be infinite [sc. in itself], why do you obscure your view with such overly restrained and moderate words? If you believe it infinite in relation to us only, extension will in reality be finite, for our mind is neither the measure of truth nor reality. And therefore, since there is another expansion that is infinite itself, namely that of the divine essence, the matter of your vortices will move away from its centres and the whole fabric of the world will dissipate into wandering particles and atoms.

Indeed, I find your modesty and restraint in not subscribing to the infinity of matter all the more surprising seeing that you yourself acknowledge the particles to be both infinite and divided in actuality in Articles 34 and 33. But even if you had not done this, you can still be shown to be committed to matter's infinity in the following fashion. If a quantity is infinitely divisible, it must actually have infinite parts. Therefore, just as it is completely ἀμέχανον or impossible to take a small knife or some other instrument and mechanically cut a body into visible parts which are not actual parts, so it is likewise completely ἀλογον and contrary to reason, even notionally, to divide a quantity into parts which are not actual real parts of this whole.

Moreover, you may add to this the fact that the hypothesis that the world is simply and truly infinite can explain and prove the modes of rarefaction and condensation propounded in Articles 6 and 7 above, as well as your principle "that only body is extended and an extension cannot be of nothing". Thus, what is established by the necessity of logic or contradiction in the one case is established with utmost certainty by the necessity of physics and mechanics in the other.

Thus, if everything is infinitely filled with matter or bodies, the law of penetration makes it impossible that there should be any space without bodies in rarefaction or that their parts should approach one another in condensation without expelling the particles between them.

And what I have said so far seems most clear to my reason and intellect and far more certain than your doctrines.

However, amongst all your doctrines there is not a single one that I, for all my sweet and gentle temper, find more abhorrent than the harmful and obnoxious view put forth in your Method, in which you rob all animals of life and sense or rather, I should say, you do not grant either of these to them in the first place, since you do not accept that they have ever been alive! Here, the splendour of your sharp intellect instils me not with admiration, but repulsion as I am concerned about the fate of animals. Indeed, I find your acumen here not only subtle but, rather, as rigid and cruel as iron, since in one fell swoop, as it were, you manage to deprive all animate beings of both life and sense, turning them instead into marble and machines.

However, let us, I pray you, review the reason why you pass so severe a sentence upon living animals. They cannot speak and plead their cause before their judge, even though – which makes their crime worse! – they possess adequate organs for speech, as is apparent in woodpeckers and parrots. Hence, life and sense must be taken away from them.

Yet, how is it possible for parrots or woodpeckers to imitate our voices if they do not hear and perceive with their senses what we speak? But, you reply, they do not understand the meaning of those words which they mutter in imitation. However, why should they not have a sufficient understanding of their own wishes, as when they use this skill to ask their masters for food? This shows that they believe that they are begging for food, as their wish is so frequently fulfilled when they speak.



Et quorsum, quæso, illa attentio est & auscultatio in avibus cantatoriis, quam præ se ferunt, si nullus sit in ipsis sensus nec animadversio? Unde illa vulpium canumque astutia & sagacitas? Qui fit ut minæ & verba ferocientes cohibeant belluas? Canis famelicus cum furtim quid abstulit, cur quasi facti conscius clam se furripit, & meticolose ac diffidenter incedens nemini occurrenti gratulatur, sed averso pronoque rostro suam ad distans pergit viam, suspiciose cautus ne ob patratum scelus poenas luat? Quomodo ista fieri possunt sine interna facti conscientia? Copiosa ista historiolarum congeries, quibus nonnulli conantur demonstrare rationem inesse animalibus brutis, hoc saltem evincet, sensum ipsis memoriâque inesse. Sed infinitum esset tales narratiunculas hic attexere. E quibus scio bene multas istius modi esse, ut earum vim vel subtilissimum acumen haud possit eludere.

Sed video planè quid te huc adegit, ut bruta pro machinis habeas; Immortalitatis utique animarum nostrarum demonstrandæ ratio, quæ cum supponat corpus nullo modo cogitare posse, concludit, ubicumque est cogitatio, substantiam à corpore realiter distinctam adesse oportere, adeoque immortalem. Unde sequitur, bruta, si cogitent, substantias immortales sibi annexas habere.

Atqui obsecro te, Vir perspicacissime, cum ex ista demonstrandi ratione necesse esset bruta animantia aut sensu spoliare, aut donare immortalitate, cur ipsa malles inanimes machinas statuere quàm corpora animabus immortalibus actiata? præsertim cum illud ut naturæ phænomenis minime consonum, ita planè sit inauditum hætenus; hoc verò apud sapientissimos veterum ratum sit ac comprobatum, Pythagoram putà, Platonem, aliosque. Et certè animos hoc adderet Platonis omnibus persistendi in sua de brutorum immortalitate sententia, cum tam insigne ingenium eo augustiarum redactum sit, ut si animas brutorum immortales esse non concedatur, universa bruta insensatas machinas necessario statuat.

Hæc sunt pauca illa (magne Cartesi) in quibus mihi fas esse putabam à te dissentire. Cætera mihi adeo arident atque adblandiuntur, ut nihil illis habeam magis in deliciis; adeoque intimis animi mei sensibus consona sunt atque cognata, ut non solum tardioribus commodè explicare, sed etiam contra pugnacissimos quosque feliciter, si opus esset, defendere me posse confidam.

Quod reliquum est, exorandus es, Vir illustrissime, ut hæc nostra boni consulas, nec me ullius levitatis vanæque ambitionis suspectum habeas, quasi affectarem Clatissimorum virorum familiaritates ac amicitias, cum & ipse si possem, haud cuperem, inclarescere, rem turbulentam famam judicans, privatoque otio valde inimicam.

Neque profecto quatinus animo sim in te admodum prono ac proclivi, id unquam tibi significassem, nisi ab aliis instigatus; sed te tuæque amore latenti tacitæque veneratione prosequi contentus fuissim.

Nec obnixè à te efflagito ut rescribas, utpote quem contemplationibus summè arduis, vel experimentis faciundis maxime utilibus pariter ac difficilibus, occupatissimum autumo.

E c 2

Per-

237

And to what end, I pray, should songbirds, as we see them do, listen so attentively if they possess neither sense nor perception? What is the origin of the astuteness and cunning of foxes and dogs? How come that threats and words constrain raging beasts? Why does a dog which is hungry and steals something hide itself so furtively as though aware of what it has done, moving carefully and apprehensively without welcoming anyone approaching it? Why does it turn away instead, its nose directed towards the ground, cautious and suspicious that it may be punished for the offence perpetrated? How could it possibly do all of this without an inner awareness of what it has done? At the very least this copious collection of little tales by which many have sought to demonstrate that brute animals possess reason proves that they possess sense and memory. However, it would take too long to add more stories of this sort here, although I know many of them to be such that one cannot but admit these animals' extraordinary wit and acumen.

However, I see clearly that the reason why you feel compelled to consider brutes machines is your proof of the immortality of our souls. Assuming that a body cannot think in any way, you conclude that where there is thought there must also be a substance really distinct from the body and therefore immortal. Hence it follows that if brutes think, they also possess immortal substances.

And still, I beseech you, you most astute of men, if it is necessary according to this proof either to deprive animate brutes of sense or endow them with immortality, why would you rather make them inanimate machines than bodies actuated by immortal souls? The former is completely at odds with the phenomena of nature and completely unheard of till now, whereas the latter is the approved opinion of the wisest of the old philosophers, i.e. Pythagoras, Plato and the others. And it will certainly encourage all the Platonists to hold on to their view about the immortality of brutes if such an ingenious mind as yours is forced into the aporia that you must pronounce all brutes to be insensible machines if the immortality of their souls is not admitted.

These are the minor things, my great Monsieur Descartes, on which I believed I might rightly disagree with you. All your other doctrines are so delightful and appealing to me that there is nothing I could take more pleasure in. And they are so consonant and consistent with the most inward ideas of my own mind that I am not only confident that I can readily explain them to slower wits, but also, should the need arise, successfully defend them from their sharpest critics.

It remains for me to beseech you, most illustrious Sir, that you are lenient toward what we have said above. And please do not suspect me of any levity or vainglory in seeking the friendship and acquaintance with the most distinguished of men. For even if I could, I would not seek any fame as I judge it to be a thing most adverse to my own private peace and quiet.

And however deep is the esteem and admiration in which I hold you, I would never have told you this had it not been for others asking me to. Instead, I would have been content to love and worship you silently and in private.

246 Nor would I ever be so bold as to ask you to answer me since I suspect you will be engaged in the highest of contemplations or in the most useful and the most difficult of experiments.

Permitto igitur hîc tibi tuo jure uti, nè sim in publicum injurius. Quòd si tamen hæc nostra, qualia qualia fuerint, responsione quâlibet-  
cunque cohonestare dignatus fueris, rem sanè non ingratham præsta-  
bis,

Cantabrigiæ, à Collegio Christi,  
Idus Decembris, anno 1648.

Singularis tue sapientiæ  
cultori devotissimo,

HENRICO MORO.

## SCHOLIA

In Epist. I. H. MORI.

**D**ifficult. 4. Nam cum quantum sit in infinitum divisibile, &c. Satis  
argutus equidem hic gryphus est, sed minus solidus, Facile enim ex-  
tricare te poteris si negaveris quantum Physicè esse divisibile in infinitum,  
partesque infinitas Physicas toti realiter actuque inexistere, sed Materiam con-  
tenderis interim ex Monadibus, quas vocant, Physicis constare, in easque Di-  
vinâ Virtute posse dissolvi; nec mente in has partes jure dividi, nisi Divinâ  
saltem virtute sic possent dissecari. Mathematicam vero Divisibilitatem, quæ  
ad has Monadas etiam pertinere possit, ad hunc locum non spectare.

Doctissimo & Humanissimo Viro

HENRICO MORO

RENATUS DES-CARTES.

**L**AUDES quas in me congeris, Vir humanissime, non tam ullius  
mei meriti, utpote quòd eas æquare nullum potest, quàm tuæ  
erga me benevolentiae testes sunt. Benevolentia autem ex sola scrip-  
torum meorum lectione contracta candorem & generositatem animi  
tui tam apertè ostendit, ut totum me tibi, quamvis antehac non noto,  
devinciat. Ideoque perlibenter iis qui ex me quæris respondebo.

1. Primum est, cur ad corpus definiendum dicam illud esse substan-  
tiam extensam potius quàm sensibilem, tangibilem, vel impenetrabi-  
lem. At res te monet, si dicatur substantia sensibilis, tunc definiri ab  
habitudine ad sensus nostros, quâ ratione quædam ejus proprietas duntax-  
at explicatur, non integra natura, quæ cum possit existere, quamvis  
nulli homines existant, certè à sensibus nostris non pendet. Nec pro-  
inde video cur dicas, esse summè necessarium ut omnis materia sit  
sensibilis. Nam contrà, nulla est quæ non sit planè insensibilis, si tan-  
tùm in partes nervorum nostrorum particulis multò minores, & singulas  
seorsim satis celeriter agitata, sit divisa. Meum-

I thereby propose to you that you make use of this good right of yours so that you do not offend the  
public. However, should you deign to honour these questions of ours, as they stand, with some  
answer, you will do no little favour to that most devout admirer of your inimitable wisdom

Henry More

Christ's College, Cambridge, 11th December 1648.

OO, 237

### Scholia on Henry More's First Letter

Difficulty 4: "For if a quantity is divisible in infinity", etc. This riddle is certainly very astute, but  
hardly sound. One can easily evade it by denying that a physical quantity is divisible in infinity and  
that there are a real and actual infinity of physical parts in a whole. Instead, one could claim that  
matter consists of so-called physical monads and that it could be dissolved into these parts by God's  
power. Nor could we even justifiably effect a notional division of matter into the said parts without  
God's power at least being capable of splitting it up in this manner. However, mathematical  
divisibility, which might also pertain, to these monads is not relevant here.

CSMK, 360

OO, 238 AT V, 267

### Rene Descartes to the most erudite and learned Henry More

The praises which you heap upon me, most learned Sir, bear witness less to my merit which can  
never equal them than to your kindness towards me. Your kindness, however, based only on the  
268 reading of my writings, displays the sincerity and generosity of your mind so clearly that I am all  
yours without any prior acquaintance. And therefore, it is with great pleasure that I answer the  
questions which you have posed to me.

The first is why I define body as an extended substance rather than a sensible, tangible or  
impenetrable substance. However, as is clear from the matter, if it is called a sensible substance,  
then "it is defined by its relationship to our senses", and thus only one of its properties would be  
explained, rather than its whole nature which could exist even if no human being existed; therefore,  
the definition of body certainly does not depend upon our senses. And hence I fail to understand  
why you say that it is absolutely necessary that all matter should be sensible. Quite the reverse: all  
matter is completely insensible if it is divided into parts much smaller than the particles of our  
nerves and if each single one of them moves at a sufficient velocity.



Meumque illud argumentum quod scævum & ferme Sophisticum appellas, adhibui tantum ad eorum opinionem refutandam, qui tecum existimant omne corpus esse sensibile, quam, meo iudicio, aperte & demonstrative refutat. Potest enim corpus retinere omnem suam corporis naturam, *quamvis non sit ad sensum molle*, nec durum, nec frigidum, nec calidum, nec denique habeat ullam sensibilem qualitatem.

Ut verò inciderem in eum errorem quem videris mihi velle tribuere, per comparisonem ceræ, quæ quamvis possit non esse quadrata, nec rotunda, non potest tamen non habere aliquam figuram, debuissim, ex eo quod iuxta mea principia omnes sensibiles qualitates in eo solo consistant quod particulae corporis certis modis moveantur, vel quiescant, debuissim inquam, concludere, corpus posse existere, quamvis nullæ ejus particulae moveantur, nec quiescant; quod mihi nunquam in mentem venit. Corpus itaque non rectè definitur substantia sensibilis.

Videamus nunc an fortè aptius dici possit substantia impenetrabilis, vel tangibilis, eo sensu quem explicuisti.

Sed rursus ista tangibilitas & impenetrabilitas in corpore, est tantum *ut in homine risibilitas, proprium quarto modo*, juxta vulgares Logicæ leges, non vera & essentialis differentia, quam in extensione consistere contendo; atque idcirco, ut homo non definitur animal risibile, sed rationale, ita corpus non definivi per impenetrabilitatem, sed per extensionem. Quod confirmatur ex eo, quod tangibilitas & impenetrabilitas habeant relationem ad partes, & præsupponant conceptum divisionis vel terminationis. Possimus autem concipere corpus continuum indeterminatæ magnitudinis sive indefinitum, in quo nihil præter extensionem consideretur.

Sed, inquis, Deus etiam & Angelus, resque alia quælibet per se subsistens est extensa, ideoque latius patet definitio tua quam definitum. Ego verò non soleo quidem de nominibus disputare, atque ideo si ex eo quod Deus sit ubique, dicat aliquis eum esse quodammodo extensum, per me licet. *Atqui nego veram extensionem*, qualis ab omnibus vulgò concipitur, vel in Deo, vel in Angelis, vel in mente nostra, vel denique in ulla substantia quæ non sit corpus, reperiri. Quippe per ens extensum, communiter omnes intelligunt aliquid imaginabile, (sive sit ens rationis, sive reale, hoc enim jam in medium relinquo;) atqui in hoc ente varias partes determinatæ magnitudinis & figuræ, quarum una nullo modo alia sit, possunt imaginatione distinguere, unaqueque in locum aliarum possunt etiam imaginatione transferre, sed non duas simul in uno & eodem loco imaginari: Atqui de Deo, ac etiam de mente nostra, nihil tale dicere licet; neque enim est imaginabilis, sed intelligibilis duntaxat, nec etiam in partes distinguibilis, præsertim in partes quæ habeant determinatas magnitudines & figuras. Denique, facile intelligimus & mentem humanam, & Deum, & simul plures Angelos in uno & eodem loco esse posse. Unde manifestè concluditur, nullas substantias incorporeas propriè esse extensas; sed eas intelligo tanquam virtutes aut vires quasdam, quæ quamvis se applicent rebus extensis, non idcirco sunt extensæ; ut quamvis in ferro candenti sit ignis, non ideo ignis ille est ferrum. Quod verò nonnulli substantiæ notionem cum rei extensæ notionem confundant, hoc fit ex falso præ-

E e 3

judicio,

CSMK, 361

Also, I only adduced the argument which you call "misguided and downright sophistical" to refute the opinion of those who agree with you that every body is sensible. I think this view is clearly and plainly refuted by it.

269 You apparently want to attribute to me an error in your comparison with wax which, while neither square nor round, may not for all that lack any shape altogether. In order to fall into this error, however, I would have had to suppose that a body could exist without any of its particles being either in motion or at rest, since (I say), according to my principles, all sensible qualities consist solely in certain modes of rest and motion in corporeal particles. However, no such thought has ever entered my mind. It is therefore wrong to define body as a sensible substance.

Let us see next whether it may more aptly be called "impenetrable or tangible substance" in the sense in which you have explained it.

But again that tangibility and impenetrability in a body, like "risibility" in man, is only "a property in the fourth degree", as the general laws of logic have it, rather than a true and essential difference which, I contend, consists in extension. And therefore, just as man is not defined as a risible, but as a rational animal, so have I defined body not by impenetrability, but by extension. This is confirmed by the fact that tangibility and impenetrability are related to parts, and presuppose the concept of division and limit. By contrast, we could conceive a continuous body either of indeterminate size or altogether indefinite in which we consider nothing but extension.

270 But, you say, God and an angel as well as every other thing subsisting through itself are extended, and therefore your definition is broader than the thing defined. I, for one, am not inclined to quarrel about words. Thus, if someone should say that God is extended in a certain way, because he is everywhere, I do not mind at all. And yet, I do deny that there is in God, in angels, in our mind or, finally, in any other substance that is not a body a real extension such as is generally conceived by everybody. For by an extended being we generally understand something imaginable, regardless of whether it is a being of reason or a real one, which I leave open for now. And yet in our imagination we may distinguish in such a being different parts of determinate size and shape, none of which are in any way identical with one another. In our imagination, we may transfer the one to the place of another, but we cannot imagine any two of them to occupy one and the same place at the same time. However, nothing of that sort can be said about God (or our mind either), since he is not imaginable, but solely intelligible. Nor is he divisible into parts, let alone parts which have determinate sizes and shapes. Lastly, we can understand with ease that the human mind, God and several angels may all simultaneously occupy one and the same place. From that we can clearly infer that no incorporeal substances are extended in the proper sense of the word. Instead, I conceive of them as powers or forces which, while attaching themselves to extended things, are not as a consequence of this extended – just as fire, while being present in white-hot iron, is not by this fact iron itself. However, the fact that some confuse the notion of substance with that of an extended thing is due to a false prejudice,

239

CSMK, 362

judicio, quia nihil putant existere, vel esse intelligibile, nisi sit etiam imaginabile, ac revera nihil sub imaginationem cadit, quod non sit aliquo modo extensum. Jam verò quemadmodum dicere licet sanitatem soli homini competere, quamvis per analogiam & Medicina, & aer temperatus, & alia multa dicantur etiam sana; ita illud solum quod est imaginabile, ut habens partes extra partes, quæ sint determinatæ magnitudinis & figuræ, dico esse extensum, quamvis alia per analogiam etiam extensa dicantur.

2. Ut autem transeamus ad secundam tuam difficultatem; si examinemus quodnam sit ens extensum à me descriptum, inveniemus planè idem esse cum spatio, quod vulgus aliquando plenum, aliquando vacuum, aliquando reale, aliquando imaginarium esse putat. In spatio enim, quantumvis imaginario & vacuo, facile omnes imaginantur varias partes determinatæ magnitudinis & figuræ, possuntque *unas in locum aliarum imaginatione transferre*; sed nullo modo duas simul se mutuo penetrantes in uno & eodem loco concipere, quoniam implicat contradictionem ut hoc fiat, & spatii pars nulla tollatur. Cùm autem ego considerarem tam reales proprietates non nisi in reali corpore esse posse, ausus sum affirmare, nullum dari spatium prorsus vacuum, atque omne ens extensum esse verum corpus: *nec dubitavi à magnis viris, Epicuro, Democrito, Lucretio hac in re dissentire*; vidi enim illos non firmam aliquam rationem esse secutos, sed falsum præjudicium, quo omnes ab ineunte ætate fuimus imbuti. Quippe quamvis sensus nostri non semper nobis exhibeant corpora externa qualia sunt omni ex parte, sed tantum quatenus ad nos referuntur, & prodesse possunt aut nocere, ut in Art. 3. partis 2. præmonui; judicavimus tamen omnes, cùm essemus adhuc pueri, nihil aliud in mundo esse quàm quod à sensibus exhibebatur, ac proinde nullum esse corpus nisi sensibile, locaque omnia in quibus nihil sentiebamus vacua esse. Quod præjudicium cùm ab Epicuro, Democrito, Lucretio non fuerit unquam rejectum, illorum Authoritatem sequi non debeo.

Miror autem virum cætera perspicacissimum, cùm videat se negare non posse quin aliqua in omni spatio substantia sit, quoniam in eo omnes proprietates extensionis revera reperiuntur, malle tamen dicere divinam extensionem implere spatium in quo nullum est corpus, quàm fateri nullum omnino spatium sine corpore esse posse. Etenim, ut jam dixi, prætenfa illa Dei extensio nullo modo subjectum esse potest verarum proprietatum, quas in omni spatio distinctissimè percipimus. Neque enim Deus est imaginabilis, nec in partes distinguibilis quæ sint mensurabiles & figuratæ.

Sed facile admittis nullum vacuum naturaliter dari. Sollicitus es de potentia divina, quam putas tollere posse id omne quod est in aliquo vase, simulque impedire nè coeant vasis latera. Ego verò cùm sciam meum Intellectum esse finitum, & Dei potentiam infinitam, nihil unquam de hac determino, sed considero duntaxat quid possit à me percipi vel non percipi, & caveo diligenter nè iudicium ullum meum à perceptione dissentiat. Quapropter audacter affirmo, Deum posse id omne quod possibile esse percipio; non autem è contra audacter nego, illum posse id quod conceptui meo repugnat, sed dico tantum implicare contradictionem. Sic quia video conceptui meo repugnare ut omne

namely that they believe that nothing exists, or is intelligible, unless it is also imaginable. And indeed everything that is the object of the imagination is also extended in some way. But just as one may say that health can be attributed to human beings, even though medicine, mild air and many other such things are also called healthy by analogy, so I say that only that which is imaginable is extended, since it has parts external to each other which are of determinate sizes and shapes, even though other things may likewise be called extended by analogy.

271 2. Let us pass to the second of your difficulties. If we examine what that extended thing that I am describing is, we shall find that is completely identical with space which people sometimes imagine to be full and sometimes empty, sometimes real and sometimes imaginary. For in space, however imaginary and empty, we can easily imagine all sorts of parts of determinate sizes and shapes, and we can in our imagination transfer one to the place of another. However, we cannot in any way conceive two to mutually penetrate each other in one and the same place because it implies a contradiction that something like this should happen and that a part of space should be removed. However, when I considered that such real properties could only exist in a real body, I dared to affirm that there was no space completely empty and that every extended being was a real body. Nor did I hesitate to dissent from such great men as Epicurus, Democritus and Lucretius, since I realized that they had not followed firm reason, but instead those false prejudices which we all acquired at a very early age. Indeed, as I have warned in part 2, art. 3, our senses do not always show us external bodies exactly as they are, but only insofar as they are related to us and insofar as they are either useful or harmful. Notwithstanding this, when we were still young, we all judged that there was nothing in the world save only what our senses showed us. Hence, we believed that there was no imperceptible body and that all places in which we did not perceive anything were empty. Since Epicurus, Democritus and Lucretius never overcame this prejudice, I must not follow their authority.

272 I am surprised, though, that you, a man otherwise so sharp-sighted, seeing that you cannot deny that there is some substance in all space – since it really possesses all the properties of extension – should want to say that the divine extension fills the space in which there is no body, rather than admit that there can be absolutely no space without a body. For, as I have said above, God's alleged extension can in no way be the subject of real properties, which we can perceive most distinctly in any space. For God is not imaginable or distinguishable into parts of any shape or measure.

However, you seem quite willing to admit that there cannot naturally be a vacuum. Your concern is with God's power, which you think can remove everything in a vessel while at the same time preventing the vessel's sides from meeting. I, for my part, am well aware that my intellect is finite and God's power infinite. Therefore, I should never pretend to settle this question. The only thing I consider is what I can and cannot perceive, and I am cautious that none of my judgments should contradict my perception. Hence, I am bold enough to say that God can do everything that I perceive to be possible, though not so bold as to claim that he cannot do such things as contradict my way of conceiving of them. All I say is that this claim of yours implies a contradiction. I perceive, then, that it is contradictory to my way of conceiving that



omne corpus ex aliquo vase tollatur, & in ipso remaneat extensio, non aliter à me concepta quàm priùs concipiebatur corpus in eo contentum; dico implicare contradictionem, ut talis extensio ibi remaneat post sublatum corpus, ideòque debere vasis latera coire: Quod omnino consonum est meis cæteris opinionibus. Dico enim alibi *nullum motum dari nisi quodammodo circularem*; unde sequitur non intelligi distinctè, Deum aliquid corpus ex vase tollere, quin simul intelligatur, in ejus locum aliud corpus, vel ipsa vasis latera motu circulari succedere.

3. Eodem modo etiam dico implicare contradictionem, ut aliquæ dentur atomi, *quæ concipiantur extensæ ac simul indivisibiles*; quia quamvis Deus eas tales efficere potuerit ut à nulla creatura dividantur, certè non possumus intelligere ipsum se facultate eas dividendi privare potuisse. Nec valet tua comparatio de iis quæ facta sunt, quòd nequeant infecta esse. Neque enim pro nota impotentiae sumimus, quòd quis non possit facere id quod non intelligimus esse possibile; sed tantum quòd non possit aliquid facere ex iis quæ tanquam possibilia distinctè percipimus. At sanè percipimus esse possibile ut atomus dividatur, quandoquidem eam extensam esse supponimus; atque ideo si judicemus eam à Deo dividi non posse, judicabimus Deum aliquid non posse facere, quod tamen possibile esse percipimus. Non autem eodem modo percipimus fieri posse, ut quod factum est sit infectum, sed è contrà, percipimus hoc fieri planè non posse; ac proinde non esse ullum potentiae defectum in Deo, quòd istud non faciat. Quantum autem ad divisibilitatem materiæ, non eadem ratio est: etsi enim non possim numerare omnes partes in quas est divisibilis, earumque idcirco numerum dicam esse indefinitum; non tamen possum affirmare illarum divisionem à Deo nunquam absolvi, quia scio Deum plura posse facere quàm ego cogitatione meâ complecti; atque istam indefinitam quarundam partium materiæ divisionem revera fieri solere in Artic. 34. concessi.

4. Neque verò affectatæ modestiæ est, sed cautelæ, meo judicio, necessariæ, quòd quædam dicam esse indefinita potius quàm infinita; solus enim Deus quem positivè intelligo esse infinitum: de reliquis, ut de mundi extensione, de numero partium in quas materia est divisibilis, & similibus, *an sint simpliciter infinita necne, profiteor me nescire*; scio tantum me in illis nullum finem agnoscere, atque idcirco respectu mei dico esse indefinita.

Et quamvis mens nostra non sit rerum vel veritatis mensura, certè debet esse mensura eorum quæ affirmamus aut negamus. Quid enim est absurdius, quid inconsideratius, quàm velle judicium ferre de iis ad quorum perceptionem mentem nostram attingere non posse confitemur?

Miror autem te non modò id velle facere videri, cum ais, *si tantum quoad nos sit infinita, revera erit finita, extensio, &c.* sed præterea etiam divinam quandam extensionem imaginari, quæ latius pateat quàm corporum extensio, atque ità supponere Deum partes habere extra partes, & esse divisibilem omnemque prorsus rei corporeæ essentiam illi tribuere.

CSMK, 364 240

once every body is removed from a vessel, there should still remain in it an extension which I do not conceive differently from the way I previously conceived the body contained in it. Therefore, I say that it implies a contradiction that such an extension should remain there after the removal of the body. Instead, the vessel's sides must meet. And this is in complete accordance with all my other opinions. Thus, I say elsewhere that there is no other motion than the one that is somehow circular. Hence it follows that we cannot have a distinct understanding of how God should remove a body from a vessel without assuming at the same time that either another body, or the sides of the vessel, should take its place in circular motion.

3. In the same way, I say, it also implies a contradiction that there should be atoms conceived of as extended and indivisible at the same time. For, though God could have made them such that they cannot be divided by any creature, we cannot by any means believe that he should have deprived himself of the ability to divide them. Nor is it apt to compare this to the fact that that which has been done cannot be undone. For we do not believe it to be a mark of impotence if someone cannot do that which we do not consider possible, but only if someone cannot do that which we distinctly see is possible. However, we see quite clearly that it is possible that an atom may be divided, since we assume it to be extended. And if we therefore judge that it cannot be divided by God, we shall judge that God cannot do something that we nevertheless see is possible. We do not, by contrast, view it as possible in the same way that something that has been done can be undone. On the contrary, we see that this is clearly impossible. Therefore it does not in any way reduce God's power that he does not do this. However, as regards the divisibility of matter, the case is different. For even though I cannot count all the parts into which it is divisible, saying therefore that their number is indefinite, I do not affirm that their division cannot be completed by God because I know that God can do more than I can comprehend in my thought. And I admitted in article 34 that an indefinite division of certain particles of matter sometimes happens in reality.

4. Nor, in my view, is it affected modesty, but a necessary precaution that I call some things "indefinite" rather than "infinite", for I understand God alone to be positively infinite. As to other things, like the extension of the world, or the number of particles into which it can be divided and the like, I admit that I do not know whether they are absolutely infinite or not. The only thing I know is that I do not see any end in them and therefore I say that, from my point of view, they are indefinite.

And while "our mind is neither the measure of truth nor reality", it must certainly be the measure of what we affirm and deny. For what could be more absurd or rash than if one were to pass judgement on things of which, as we admit, our mind cannot attain a perception?

However, I am surprised that not only do you seem to assume this when you say that if "extension is infinite in relation to us only, it will in reality be finite", etc., but you also imagine that there is some kind of divine extension which goes further than the extension of bodies. And therefore you assume that God has parts external to each other and is divisible, attributing to him the whole essence of a corporeal thing.



Nè verò quis scrupulus hîc supersit; Cùm dico extensionem materiæ esse indefinitam, sufficere hoc puto ad impediendum nè quis extra illam locus fingi queat, in quem meorum vorticum particulæ abire possint. *Ubicumque enim locus ille concipiatur, ibi, jam juxta meam opinionem, aliqua materia est*; quia dicendo eam esse indefinitè extensam, dico ipsam latius extendi quàm omne id quod ab homine concipi potest.

*Sed nihilominus existimo maximam esse differentiam inter amplitudinem istius corporeæ extensionis, & amplitudinem divinæ, non dicam extensionis, utpote quæ propriè loquendo nulla est, sed substantiæ vel essentiæ; ideoque hanc simpliciter infinitam, illam autem indefinitam appello.*

Cæterum non admitto quod pro singulari tua humanitate concedis, nempe reliquas meas opiniones posse constare, quamvis id quod de materiæ extensione scripsi refutetur: *unum enim est ex præcipuis, meoque judicio certissimis, Physica mea fundamentis, profiteorque mihi nullas rationes satisfacere in ipsa Physica, nisi quæ necessitatem illam, quam vocas Logicam sive contradictoriam, involvant; modò tantum ea excipias quæ per solam experientiam cognosci possunt, ut quod circa hanc terram unicus sit Sol vel unica Luna, & similia. Cùmque in reliquis à meo sensu non abhorreas, spero etiam his te faciliè assensurum, si modò consideres præjudicium esse quòd multi existiment ens extensum, in quo nihil est quod moveat sensus, non esse veram substantiam corpoream, sed spatium vacuum duntaxat; quòdque nullum sit sensibile, atque nulla substantia nisi quæ sub imaginationem cadat, ac proinde sit extensa.*

5. *Sed nulli præjudicio magis omnes assuevimus quàm ei, quod nobis ab ineunte ætate persuasit bruta animantia cogitare. Quippe nulla ratio nos movit ad hoc credendum, nisi quòd videntes pleræque brutorum membra in figura externa & motibus à nostris non multum differe, unicumque in nobis esse credentes istorum motuum principium, animam scilicet, quæ eadem moveret corpus & cogitaret, non dubitavimus quin aliqua talis anima in illis reperiretur.*

Postquam autem ego advertissem distinguenda esse duo diversa motuum nostrorum principia, unum scilicet planè mechanicum & corporeum, quod à sola spirituum vi & membrorum conformatione dependet, potestque *anima corporea* appellari; aliud incorporeum, *mentem* scilicet, sive animam illam quam definis substantiam cogitantem; quæ si diligentius an ab his duobus principiis orirentur animalium motus, an ab uno duntaxat. Cùmque clarè perspexerim posse omnes oriri ab eo solo quod corporeum est & mechanicum, pro certo ac demonstrato habui, nullo pacto à nobis probari posse, aliquam esse in brutis animam cogitantem. Nec moror astutias & sagacitates canum & vulpium, nec quæcunque alia quæ propter cibum, venerem, vel metum à brutis fiunt. *Profiteor enim me posse perfaciliè illa omnia ut à sola membrorum conformatione profecta explicare.*

Quamvis autem pro demonstrato habeam, probari non posse aliquam esse in brutis cogitantem; non ideo puto posse demonstrari nullam esse, quia mens humana illorum corda non pervadit. Sed examinando quidnam sit hac de re maximè probabile nullam video rationem

CSMK, 365

240

275 However, when, to dispel any doubts in this matter, I say that the extension of matter is indefinite, I believe this is sufficient to stop anybody from imagining a place beyond it into which the particles of my vortices might vanish. For wherever that place is conceived to be, according to my view there is already some matter, since in saying that it is extended indefinitely, I say that it extends further than anything that can be conceived by man.

Nevertheless, I believe there is a very great difference between the amplitude of that corporeal extension and the amplitude of the divine – I do not say extension, because, properly speaking, there is none, but rather – substance or essence. And therefore, I call the latter absolutely infinite, and the former indefinite.

Moreover, I do not admit what you grant me in your extraordinary kindness, namely that my other opinions might well stand even if those about the extension of matter were refuted. For it is one of the principal and, in my view, most certain foundations of my physics, and I confess that no other reasoning could ever satisfy me in physics proper than one involving a so-called logical or contradictory necessity (with the sole exception of those things which can be known from experience alone, such as the fact that there is only one sun and one moon orbiting this earth and the like). And since you do not disagree with my views in other matters, I hope that you will readily give your assent to this one as well, provided only that you recognize it to be a prejudice that many believe an extended being in which there is nothing affecting our senses to be no real corporeal substance, but only empty space, or that there is no insensible body and no substance that is not an object of the imagination and therefore extended.

276 5. But there is no prejudice that we are all more accustomed to than the one which has persuaded us from our early childhood that brute animals think. No other reason moves us to this belief but that, seeing that most animal body-parts do not differ much from ours in their external forms and motions, and believing that there is in us but one single principle of these motions, namely a soul which both moves the body and thinks, we do not doubt that there is such a soul in them as well.

However, I came to realize that we must distinguish between two different principles of our motions. The one is purely mechanical and corporeal and depends solely upon the power of the animal spirits and the structure of our body parts. It might be called a corporeal soul. The other is incorporeal, i.e. the mind or soul which I have defined as a thinking substance. After that, I enquired more thoroughly whether the motions of animals proceeded from these two principles or from one of them alone. And when I saw clearly that all of them could proceed from one alone, namely the corporeal and mechanical one, I considered it to be certain and proved that we could not demonstrate in any way that there was any thinking soul in brutes. Nor do I hesitate over the astute and shrewd behaviours of dogs and foxes and all the things which brutes do for food, intercourse or apprehensiveness. For I hold that I can very easily explain all of that as arising from the structure of their body parts alone.

277 However, even though I consider it certain that it cannot be proved that there is any thought in brutes, I do not therefore think that it can be proved either that there is none in them, since the human mind does not reach into their hearts. But on examining what, then, seems the most probable assumption in this connection, I see no other reason

rationem pro brutorum cogitatione militare præter hanc unam quod quæ habeant oculos, aures, linguam, & reliqua sensuum organa sicut nos, verisimile sit illa sentire sicut nos; & quia in nostro sentiendi modo cogitatio includitur, similem etiam illis cogitationem esse tribuendam. Quæ ratio cum sit maxime obvia, mentes omnium hominum à prima ætate occupavit. Sunt autem aliæ rationes multò plures & fortiores, sed non omnibus ita obviæ, quæ contrarium planè persuadent. Inter quas suum quidem locum obtinet, quod non sit tam probabile omnes vermes, culices, erucas, & reliqua animalia immortalis animæ prædita esse, quàm machinarum instar se movere.

CSMK, 366

Primò, quia certum est in corporibus animalium, ut etiam in nostris, esse ossa, nervos, musculos, sanguinem, spiritus animales, & reliqua organa ita disposita, ut se solis absque ulla cogitatione omnes motus quos in brutis observamus cieri possint. Quod patet in convulsionibus, cum mente invitâ machinamentum corporis vehementius sæpe ac magis diversis modis solum se movet, quàm ope voluntatis soleat moveri.

Deinde, quia rationi consantaneum videtur, cum ars sit naturæ imitatrix, possintque homines varia fabricare automata in quibus siæ ulla cogitatione est motus, ut Natura etiam sua automata, sed arte factis longè præstantiora, nempe bruta omnia, producat, præsertim cum nullam agnoscamus rationem propter quam, ubi est talis membrorum conformatio qualem in animalibus videmus, cogitatio etiam debeat adesse; atque ideo majori admiratione dignum sit, quod mens aliqua reperiatur in unoquoque humano corpore, quàm quod nulla sit in ullis brutis.

Sed rationum omnium quæ bestias cogitatione destitutas esse persuadent meo iudicio præcipua est, quod quamvis inter illas unæ aliis ejusdem speciei sint perfectiores, non secus quàm inter homines, ut videre licet in equis & canibus, quorum aliqui cæteris multò feliciter quæ docentur addiscunt; & quamvis omnes perfacile nobis impetus suos naturales, ut iras, metus, famem, & similia, voce vel aliis corporis motibus significant; nunquam tamen hæc fuerit observatum, ullum brutum animal eo perfectionis devenisse ut verà loquelam uteretur, hoc est, ut aliquid vel voce vel nutibus indicaret, quod ad solam cogitationem, non autem ad impetum naturalem, posset referri. Hæc enim loquela unicum est cogitationis in corpore latentis signum certum, atque ipsa utuntur omnes homines, etiam quàm maxime stupidi & mente capti, & linguâ vocisque organis destituti, non autem ullam brutum; eamque idcirco pro vera inter homines & bruta differentia fumere licet.

Reliquas rationes cogitationem brutis adimentes brevitatis causâ hîc omitto. Velim tamen notari me loqui de cogitatione, non de vita vel sensu: vitam enim nulli animali denego, utpote quam in solo cordis calore consistere statuo; nec denego etiam sensum quatenus ab organo corporeo dependet. Sicque hæc mea opinio non tam crudelis est erga belluas, quàm pia erga homines, Pythagoreorum superstitioni non addictos, quos nempe à criminis suspitione absolvit quoties animalia comedunt vel occidunt.

Hæc

to claim thought for brutes but the following: possessing eyes, ears, a tongue and other sense organs, such as we do, they are likely to have feelings such as we do and since our mode of feeling also includes thinking, thought similar to ours must be attributed to them as well. This argument is obvious enough, and hence it has won over the minds of all men from an early age. However, there are arguments much more numerous and far stronger, which, though not so obvious to everybody, manifestly prove the opposite. One of them is that it is less probable that all worms, gnats and caterpillars and other animals should possess an immortal soul than that they move about after the fashion of machines.

Firstly it is certain that there are bones, nerves, muscles, blood, animal spirits and other organs in animal bodies, as in ours, which are arranged in such a way that they can, by themselves and without the aid of any thought, cause all the motions which we observe in brutes. We can see this in convulsions, when often the bodily machine, alone and involuntarily, moves more violently and in ways other than it usually does by the aid of the will.

Secondly, it accords well with reason that, since art imitates nature and man can produce automata in which there is motion without any thinking, nature should also be able to produce its own automata which are far superior in their workmanship, to wit, animals. This is all the more reasonable as we do not know any reason why thought must always accompany the sort of arrangement of body parts that we see in animals.

And therefore it is more astonishing that we should find a mind in every human body than that there is none in any brutes. However, the principal argument for animals lacking thought, in my view, is the following: Among them, just as among human beings, some are more perfect than other members of their species. We can see this in horses or in dogs, some of which are much more successful in learning what they are taught than others. Moreover, all of them can very easily make known to us their natural impulses such as anger, fear, hunger and the like by voice or other bodily motions. Yet, despite that, no brute animal has ever been seen to attain such heights of perfection that it can make use of real speech, that is to say, that it can either by its voice or by some gesture indicate something that might point to thought alone, rather than a natural impulse. For language is the only undeniable sign of thought hidden in a body, and all human beings, even if they are utterly dumb and mentally deranged or deprived of their tongues or vocal organs, make use of it, but no brute does. And therefore, we may take this as the undeniable difference between men and animals.

I omit here, for brevity's sake, other arguments for depriving brutes of thought. However, I should like to note that I am speaking about thought, not about life or sense. For I do not deny life to any animal, as I consider it to consist in the heat of the heart alone. I do not even deny them sensation insofar as it depends upon bodily organs. Therefore, my opinion is not cruel to wild beasts, but rather favourable to men, whom, unless they are followers of the superstition of the Pythagoreans, it absolves of the suspicion of crime in eating or killing animals.



Hæc autem omnia fortasse prolixius scripsi quàm acumen ingenii tui requirebat; volui enim hoc pacto testari paucissimorum objectiones mihi hætenus æquè gratas fuisse ac tuas, humanitatèmq; & candorem tuum maxime tibi devinxisse

Egmondæ prope Alchmariam,  
Nonis Februarii 1649.

Omnium vera sapientiæ studiosorum  
cultorem observantissimum,

RENATUM DES-CARTES,

## SCHOLIA

### IN RESPONSUM ad EPIST. I.

**D**ifficult. 1. Si ex eo quòd Deus sit ubique, dicat aliquis eum esse quodammodo extensum, per me licet. Atqui nego veram extensionem qualis ab omnibus vulgò concipitur, &c. Hoc in loco manifestum est Cartesium talem solummodo extensionem de Deo negare qualem omnes concipiunt in corpore, hoc est, corpoream. Metaphysicam verò extensionem, qualem in nostro Enchiridio descripsimus, nequaquam repudiare. Unde observare licet quantum Cartesiani Nullibistæ ab Authore suo Cartesio degeneraverint, qui Deum & ubique agnoscit, & aliquo modo extensum, dum illi è contra, nec extensum nec ullibi esse contendunt.

Nullas substantias incorporeas propriè esse extensas, sed eas intelligo tanquam virtutes aut vires quasdam quæ quàmvis se applicent rebus extensis, non idcirco sunt extensæ; ut quàmvis in ferro candenti sit ignis, non ideo ignis ille est ferrum. At verò per ferrum ignis extensus est tamen. Quod mihi satis est. Sed ingenue fateor locum hunc esse paulò obscuriorem, nec sat scio quid hic subinsinuare velit Philosophus ubi ait, sed eas intelligo tanquam virtutes ac vires quasdam, cum ignis non solum per ferrum extensus sit, sed illius etiam sit Modificatio. Nollem enim id subindicari quod tam aperte profitetur in Posthumis suis Operibus, ille Cartesii discipulus Spinozius, Deum nempe, Angelos, Mentis humanas omnesque, quæ vulgò putantur, substantias incorporeas nihil aliud esse nisi virtutes virèsvæ Materie Mundanæ, quippe unica illius in universo substantia.

Difficult. 2. Mallè tamen dicere Divinam Extensionem implere spacium in quo nullum est corpus, &c. Equidem illud optimo jure dico, ubicunque scilicet imaginarium spacium esse fingitur, illic reverà esse Divinam Amplitudinem, nosque in Enchiridio Metaphysico, evidentia, si fieri potest, plusquam Mathematica, Immobile quoddam Extensum à mobili materia distinctum demonstravimus.

Et in ipso remaneat Extensio non aliter à me concepta quàm prius concipiebatur corpus in eo contentum, &c. At enim falsam hanc esse conceptionem ex eis quæ in dicto Enchiridio occurrunt clarè constat, ubi demonstratur Extensum quoddam Immobile, à mobili Materia distinctum & cui Attribute competunt Materie Attributis contraria. Vide Enchirid. Metaphys. cap. 6, 7, 8.

Difficult.

However, I may have talked about this in more detail than the sharpness of your intellect required, but I wanted to show you in this way that so far very few people have proposed objections to me that I found as agreeable as yours. Your erudition and honesty have won you the most sincere friendship of

that most ardent admirer of all those who seek true wisdom,

Rene Descartes.

Egmond near D'Almarch, 5<sup>th</sup> February 1649

OO, 241

### Scholia on the Answer to the First Letter

First difficulty: "If someone should say that God, because he is everywhere, is extended in a certain way, I do not mind at all. And yet, I do deny ... a real extension, such as is generally conceived by everybody", etc. It is evident in this place that Descartes only denies that extension to God which everybody conceives to be in a body, i.e., corporeal extension. He does not by any means deny to him the metaphysical extension as described in our *Enchiridium*. We may observe here how far the Cartesian nullibists diverge from Descartes, their founder, who acknowledges that God is everywhere and extended in some way, whereas they contend that he is neither extended nor anywhere.

"No incorporeal substances are extended in the proper sense of the word. Instead, I conceive them as powers or forces which, while attaching themselves to extended things, are not therefore extended themselves - just as fire, while being in white-hot iron, is not therefore iron itself." And yet the fire is extended throughout the iron, which I find sufficient. I must admit openly, though, that I find this place a bit obscure, nor is it clear to me what the philosopher wants to insinuate when he says: "Instead, I conceive them as powers or forces", since the fire is not only extended throughout the iron, but it is also a modification of it. For I do hope that this is not meant to imply what Descartes' pupil Spinoza states so bluntly in his *Posthumous Works*, namely that angels, human minds and all so-called "incorporeal substances" are nothing other than powers and forces of worldly matter, the latter being the only substance in the universe.

Second difficulty: "Should rather want to say that the divine extension fills the space in which there is no body", etc. However, I am perfectly correct in stating that wherever we picture that there is imaginary space, in reality it is the divine amplitude. In the *Enchiridium Metaphysicum*, we have with more than mathematical evidence - if this is possible! - proved that there is an immobile extended thing distinct from mobile matter.

"And there should still remain in it an extension which I do not conceive differently from the way I previously conceived the body contained in it", etc. But, for all that, it is absolutely clear from what I have shown in the said *Enchiridium* that this conception is false. In this work, I demonstrate that there is an extended immobile thing distinct from mobile matter which possesses attributes opposite to the attributes of matter. See Ench. Met., chs. 6-8

*Difficult. 4. Solus enim Deus est, quem positivè intelligo esse infinitum, &c. Hac de re, modò seriò hic agat Cartesius, optimè inter nos convenit. Et certè mihi videor in dicto Enchiridio Mundum, quantumlibet indefinitus sit, satis solidè demonstrasse non posse esse Infinitum, adeò ut nuda Divinitas extra Mundi limites (ut corpus Aaronis extra Stolum sacerdotalem, quantum ad caput, manus pedesque) extendatur. Vide Enchirid. Metaphys. cap. 10. sect. 8, 9, &c.*

Dico ipsam latius extendi quam omne id quod ab homine concipi potest, &c. Et paulò post, Amplitudinem Divinae Essentiae simpliciter Infinitam, corpoream autem extensionem Indefinitam appellat. Quae quidem indefinita Mundi corporei Extensio, si sic intelligatur ac si Imaginatio humana eam exhaustire vel comprehendere non possit, rationi satis consentanea est. Ratio verò recta necessariò nobis dictabit Divinam Amplitudinem infinitò eam excedere & circumcingere quasi vel coronare; unde & Kether apud Cabbalistas dicitur.

*Clarissimo Viro, Nobilissimoq; Philosopho,*  
**RENATO DE S-CARTES,**  
*HENRICUS MORUS ANGLUS.*

**O**PINIONIS quam de te concepi, nuperisque meis literis apud te testatus sum, quanta quanta sit (Vir illustrissime) me non poenitet, nec unquam, sat licio, poterit poenitere. Quin & adauget plurimum tui apud me existimationem, quòd ad stupendam illam mentis tuae amplitudinem divinumque acumen, suavitas tanta morum accesserit & humanitas. Quam certè ut nunquam suspectam habui, ita nunc sanè eruditissimas tuas literas habeo pro certissimo illius argumento. Cæterum nè tanti favoris te poeniteat, quasi in servum caput collati, nè vilescat meum erga te studium, atque amor, tanquam ab abjecto jacentique animo profectus, quo tandem modo responsa tua mihi satisfecerint, palam, uti hominem liberum decet, apertèque profitebor. Quod tamen nè nimium tibi vel mihi ipsi negotium facessat, fusiores orationis texturas missas faciens, rem totam in Instantias quasdam brevès, aut saltem notatiunculas super singulis responsorum tuorum particulis, compingam.

**Ad Responsum circa primam Difficultatem**

**Instantia I.**

*Definiri ab habitudine ad sensus nostros, &c.*

Hic regeri potest; Cum radix rerum omnium ac essentia in æternas defossa lateat tenebras, rem quamlibet necessariò definiri ab habitudine aliqua. Quæ habitudo proprietas dici potest in substantiis, cum non sit substantia; quamvis agnoscam libenter proprietates alias aliis esse

Fourth Difficulty: "For I understand God alone to be positively infinite", etc. Assuming Descartes is serious here, we perfectly agree about this matter. And it certainly seems to me that I have given sufficiently sound evidence in said *Enchiridium* that the world, however indefinite, cannot be infinite, so that the pure divinity extends beyond the limits of the world (like Aaron's body whose head, hands and feet extended beyond the priestly garment). See Ench. Met., ch. 10. sect. 8–9, etc.

"I say that it extends further than everything that can be conceived by man", etc. And a little latter he calls the amplitude of the divine essence "absolutely infinite", the corporeal extension "indefinite". If that indefinite extension of the corporeal world is to be understood in the sense that the human imagination cannot exhaust or comprehend it, it accords well with reason. However, right reason dictates to us by necessity that the divine amplitude exceeds it to an infinite degree, lying around it like a crown, as it were. This is why it is called Kether among the Cabbalists.

OO, 242 AT V, 298

**Henry More, an Englishman, to that most distinguished gentleman and most noble philosopher Rene Descartes**

299 I do not feel ashamed of the high opinion which I have formed of you and which I have expressed in my letter to you, most noble Sir, and I know that I shall never feel ashamed of it. Indeed, it adds considerably to the admiration I feel for you that the extraordinary breadth and divine sharpness of your intellect is accompanied by so warm and affable a character. Whilst I never cherished any doubt about it, your most learned letter has now furnished me with the most certain proof. Moreover, lest you regret that you have bestowed such a great favour upon what may otherwise appear to be a servile head, and lest my fervent love for you may seem vile as though proceeding from a base and abject mind, I shall, as befits a free man, declare openly and publicly in what ways your answers have satisfied me. However, in order that this should not cause either you or me too much work, I shall forgo all longwinded rhetorical expressions. Instead, I shall lay down the whole of the matter in some brief *instantiae* or at least notes on certain details of your answers.

243

*Concerning the Answer to the First Difficulty*

*Instance I*

*"It is defined in reference to its relationship to our senses", etc.*

Here one may reply the following: since the root and essence of all things lies hidden deep in eternal darkness, everything must of necessity be defined in reference to some relationship to other things. This relationship can be called 'property' in substances, since it is not a substance itself, although I admit freely that "some properties are earlier than others".



esse priores; hoc autem tantum me voluisse, Satiis nimirum esse per adequatam quamlibet proprietatem, quam per formam, quam vocant, definito latiore, rem definivisse. Porro, cum ipse corpus definis rem extensam, ipsam illam extensionem insuper adnoto consistere in habitudine quadam partium ad se invicem, quatenus aliæ extrinsecus productæ sunt. Quam habitudinem non esse rem absolutam manifestum est.

## II.

*Quamvis nulli homines existant.*

Si omnes mortales conniverent, Sol tamen non exueret suam videnti aptitudinem, quamprimum oculos aperuerint denuò; ut neque securis, secandi, quamprimum ligna aut lapides oblatis fuerint.

## III.

*Nervorum nostrorum particulis multò minores.*

Deum tamen artificem adaptare posse credo nervos satis exiguos exiguas istis materiae particulis, ac proinde sensibilitatem materiae hoc modo comminutæ integram manere. Porro, hæ particule à motu cessare possunt, atque coalescere, nostrisque hoc modo nervis sensibiles denuò evadere, quod de substantia incorporea nullo modo verum est.

## IV.

*Quamvis non sit ad sensum molle, &c.*

Certum est ad nervos nostros sensorios durum fore vel molle, &c. aut saltem ad istiusmodi nervos, quales, si vellet, Deus fabricare poterit, ut modo monuimus; atque hoc satis est, quamvis Deus nunquam fabricaturus sit istiusmodi nervos. Ut revera partes terræ versus centrum sunt ex se visibiles, quamvis nunquam extrahendæ sint in Solis conspectum, nec eo descensurus sit quisquam cum lychno vel lampade.

## V.

*Est tantum, ut in homine risibilitas, proprium quarto modo.*

Quod si ratio etiam aliis competeret animalibus, rectius definiretur homo animal risibile quam rationale. Nondum autem à quopiam demonstratum est tangibilitatem aut impenetrabilitatem proprias esse substantiæ extensæ affectiones, quamvis corporis esse merito quivis agnoverit. Equidem possum clare concipere substantiam extensam quæ nullam ullo modo habeat tangibilitatem vel impenetrabilitatem. Igitur tangibilitas vel impenetrabilitas non immediate substantiam extensam consequitur, quatenus extensa est.

## VI.

*Atqui nego veram extensionem, &c.*

Per veram extensionem intelligis quam tangibilitas & impenetrabilitas comitatur. Hanc ipse etiam nego in Deo, nudisve vel mente vel Angelo reperiri. Interea tamen assero aliam esse extensionem æquè veram, quamvis non æquè vulgarem Scholisque tritam, quæ in Angelis mentisque humana ut terminos, ita & figuram habet, sed pro imperio Angelis mentisque variabilem; Mentisque sive animas nostras atque Angelos, eadem prorsus manente substantiâ, contrahere se posse, & certos denuò ad limites se expandere.

## VII.

The only thing I wanted to point out was that it is obviously better to define something by some adequate property than by a so-called form that is broader than the thing defined. Furthermore, when you yourself define body as an extended substance, I must also note that this extension itself consists in some mutual relationship among its parts, insofar as they are created external to each other. However, it is obvious that this relationship is not something absolute.

## II

*"Even if no human being existed."*

Even if all mortals were to close their eyes at once, the sun would not lose its capacity for being seen once they reopened them, just as an axe would not have lost its capacity for cutting once it was applied to pieces of wood or stone again.

## III

*"Parts which are much smaller than the particles of our nerves."*

God, in my view, is a good enough craftsman to adapt even these minute nerves to the particles of matter, thereby leaving intact the perceptibility of the matter which is reduced in size in this way. Likewise, these particles might cease to move and coalesce, but again turn out to be perceptible to our nerves in the same way. However, this is in no way true of an incorporeal substance.

## IV

*"Without being soft ... to our senses", etc.*

It is certain that it may well be hard or soft or the like to our sensory nerves or at least to such nerves as God, had he wanted to, might have created, as we have remarked above. And this suffices, even though God might never create nerves of this kind. It is like those parts of the earth situated close to its centre. They may well be visible by themselves, even though they may never emerge into sunlight and even though no-one will ever descend there with a lamp or a torch.

## V

*"Like risibility in man, it is only 'a property in the fourth degree'."*

If reason belonged to other animals as well, it would be better to define man as a risible than as a rational animal. However, no-one has proved yet that tangibility or impenetrability is an immediate property of an extended substance, even though everyone rightly acknowledges it to be an immediate property of a body. I, for one, can clearly conceive an extended substance which has no tangibility or impenetrability at all. Therefore, tangibility or impenetrability does not belong to an extended substance as such, insofar as it is extended.

## VI

*"And yet, I do deny ... a real extension", etc.*

By real extension you understand that which accompanies tangibility and impenetrability. I agree with you that such an extension is not to be found either in God or in immaterial minds and angels. Notwithstanding, I hold that there is another equally real extension, which is not so well-known, let alone common knowledge in the schools. It possesses both different limits and shapes in angels and human minds, which the latter can change at will. While remaining one and the same substance, they can contract or re-expand within certain bounds.



## VII.

*Nihil esse intelligibile, nisi sit etiam imaginabile, &c.*

Equidem aliquantò sum pronior in illam Aristotelis sententiam, ὅτι ἀνὰ τὸ φαντασμάτων ἐκ ἐστὶ νοῦσαι. Sed hīc quisque mentis suæ vires experiatur.

## Ad Responsum circa secundam Difficultatem.

## Instantia I.

*Unas in locum aliarum imaginatione transferre.*

Mea quidem imaginatio non potest, nec concipere si transferantur, quin una vacui spatii partes absorbeant alteras, penitusque coincident & penetrent se invicem.

## II.

*Nec dubitavi à magnis viris, Epicuro, Democrito, &c.*

Nullus dubito quin optimo jure dissentias, cum non solum istis, sed universis Naturæ interpretibus longè major sis (meâ sententiâ) longèque augustior.

## III.

*Quin aliqua in omni spatio substantia sit, &c.*

Id fanè concessi pacis ergò. Sed clarè mihi non constat. Nam si Deus hanc mundi universitatem annihilaret, & multò post aliam crearet de nihilo, Intermundium illud, seu absentia mundi, suam haberet durationem quam tot dies, anni, vel secula mensurâssent. Non existentis igitur est duratio, quæ extensio quædam est. Ac proinde Amplitudo Nihili, putà Vacui, per ulnas vel orgyas mensurari potest, ut Non-existentis in sua non existentia duratio per horas, dies mensûsque mensuratur. Sed concedo, quamvis nondum vi coactus, in omni spatio aliquam substantiam inesse; neque tamen sequi eam esse corpoream, cum extensio sive præsentia divina possit esse subjectum mensurabilitatis, v. g. Præsentiam sive extensionem divinam occupare afferro unam alteramque orgyam in hoc vel illo vacuo; nec tamen omnino sequi Deum esse corporeum, ut patet ex suprâ dictis, Instantiâ 5. Sed super hac re est agendum alibi.

## IV.

*Dico implicare contradictionem, ut talis extensio, &c.*

Sed hīc libenter quærerem, numquid necesse sit ut aut talis extensio sit qualem in corpore concipis, aut nulla. Deinde, cum & alias res præter corpora extendi suo modo concesseris, annon analogica illa extensio quam vocas, vices obeat extensionis corporeæ, atque ità illam vim contradictoriam retundat. Præsertim cum analogica hæc extensio ad propriè dictam tam propè accedat, ut sit mensurabilis, certòsque pedum ulnarumve numeros occupet.

## V.

*Nullum motum dari, nisi quodammodo circularem.*

Hoc necessariò consequi concedo, necessitate putà Physicâ, supponendo duntaxat omnia corporibus plena, nullamque extensionem aliam integram mundi extensionem excedere: qua in parte ego fati sum

F f

se-

## VII

*"Nothing ... is intelligible unless it is also imaginable"*

I, for my part, am more inclined to the view of Aristotle ὅτι ἀνὰ τῶν φαντασμάτων οὐκ ἔστι νοῦσαι. But let everybody try the powers of his own mind here.

244

302

*Concerning the Answer to the Second Difficulty*

## Instance I

*"In our imagination, we may transfer one to the place of another."*

My imagination surely cannot, nor can it conceive how, in the case of any transfer, some parts of empty space could absorb other parts, so they would completely coincide with and penetrate each other.

## II

*"Nor did I hesitate to dissent from such great men as Epicurus, Democritus", etc.*

I do not doubt at all that you have every right to dissent, since you are, in my view, far superior and far more sublime than these and all other interpreters of nature.

## III

*"That there is some substance in all space", etc.*

I do fully admit this for the sake of peace and quiet, although it is not yet entirely clear to me. For if God were to annihilate the whole of this world, creating another one from nothing long after this one, that world in between, or absence of a world, would have its own duration measured in days, years or centuries. There is, hence, a duration of something non-existing which in turn is a kind of extension. And therefore, the amplitude of nothing, that is to say, of a vacuum, can be measured in spans and fathoms, just as the duration of something non-existing can in its non-existence be measured in hours, days and months. However, though not yet convinced by the strength of your argument, I do grant to you that there is some substance in the whole of space. However, it does not yet follow that this substance must be corporeal, since for instance the divine extension or presence might also be the subject of measurability; the divine presence or extension, I hold, occupies one fathom or another in a given vacuum. And yet again, as is clear from what we have said in reference to instance 5, it does not at all follow from this that God is corporeal. However, we must deal with this matter elsewhere.

## IV

*"I say that it implies a contradiction that such an extension", etc.*

Here, however, I should like to ask: is it really necessary that it must be either an extension such as we conceive in bodies or none at all? And since you have conceded that things other than bodies are also extended in their own way, could not that extension which you call analogical take the place of the corporeal extension, thereby solving the contradiction? After all, this analogical extension comes so close to extension in the proper sense that it is measurable, and occupies a certain number of feet or spans.

## V

*"There is no other motion than the one that is circular in a way."*

I admit that this follows necessarily, i.e. by physical necessity, at least once we assume that all things are filled with bodies and that there is no other extension exceeding the whole of the world's extension. While I am quite certain about that part,

securus ; sed inexpugnabilem hanc contradictionis vim fateor me nondum satis deprehendisse.

### Ad Responsum circa tertiam Difficultatem.

*Qua concipiantur extensa ac simul indivisibiles.*

Cum mentem tuam sic explicueris, nulla inter nos est controversia.

### Ad Responsum circa quartam Difficultatem.

#### Instantia I.

*An sint simpliciter infinita necne, profiteor me nescire.*

Haud tamen latere te potest, quin sint vel simpliciter infinita, vel revera finita, quamvis utrum horum sint tam facile statuere non possis. Quod autem vortices tui non disrumpantur & fatiscant, non obsecrum videatur indicium mundum revera esse infinitum. Ipse tamen interea libere profiteor, quamvis audacter possim assentire huic axiomati, *Mundus finitus est, aut non finitus*, vel, quod idem hic est, *infinitus*, me tamen non posse plene animo complecti rei cujusvis infinitudinem; sed illud imaginationi meae hic accidere, quod *Julius Scaliger* alicubi scribit de dilatatione & contractione Angelorum, non posse scilicet se in infinitum extendere, nec in puncti *idivirtuta* coangustare. Qui autem Deum positivè infinitum agnoscit (i.e. ubique existentem) quod tu merito facis, non video, si liberae rationi permittatur, quod habiter, quin continuo etiam admittat nullibi otiosum, sed eodem jure, eademque facilitate quâ hanc nostram, ubi nos degimus, vel quousque oculi, animusque noster pervadit, materiam ubique produxisse. Sed fustus acturus eram quam institui; hunc impetum suppresso; ne tibi sim molestior.

#### II.

*Cum ais, si tantum quoad nos sit infinita, revera erit finita.*

Aio, addoque insuper consequentiam esse manifestissimam, quoniam particula (*tantum*) plane excludit omnem infinitatem à re quâ tantum quoad nos dicitur infinita, ac proinde revera erit finita extensio; Mentem autem meam hic attingere ea de quibus pronuncio, cum planissime mihi constet, mundum aut finitum esse aut infinitum, ut paulo ante insinuavi.

#### III.

*Atque ita supponere Deum habere partes extra partes, & esse divisibilem, omnemque prorsus rei corporeae essentiam illi tribuere.*

Nullam tribuo. Nego enim extensionem corpori competere quatenus corpus est, sed quatenus ens, aut saltem substantia est. Praeterea cum Deus, quantum mens humana Deum capit, sit totus ubique, integraque sua essentia omnibus locis sive spatiis spatiorumque punctis adsit, non sequitur quod partes haberet extra partes, aut, quod consequens est, quod sit divisibilis, quamvis arcte confertimque loca omnia occupet, nullis relictis intervallis. Unde praesentiam, seu amplitudinem, ut ipse vocas, divinam, mensurabilem agnoscam, Deum autem ipsum divisibilem nullo modo.

Quod

I must confess that I fail to see that there is any sharp contradiction.

*Concerning the Answer to the Third Difficulty*

*"Which are conceived as extended and indivisible at the same time."*

If you explain your view in this way, there is no longer any controversy between us.

304

*Concerning the Answer to the Fourth Difficulty*

*Instance I*

*"I admit that I am ignorant whether they are absolutely infinite or not."*

And yet, it cannot be unknown to you that they are either absolutely infinite or in reality finite, even though it is far more difficult to decide whether they are the one or the other. However, the fact that your vortices are neither disrupted nor weakened seems to me to be quite a clear sign that the world is in reality infinite. Nevertheless, for all that, I do not mind admitting to you that while I do not hesitate to assent to the axiom that the world is either finite or not finite or, which is the same thing, infinite, I cannot bring myself to accept without qualms the infinity of any single thing whatsoever. Rather, *Julius Scaliger's* remarks about the dilation and contraction of angels come to my mind in this context, namely that they can neither extend themselves into infinity nor contract themselves into the οὐδενότης of a single point. However, once we grant that God is positively infinite (i.e. exists everywhere), as you rightly do, I cannot, if this be permitted to my free reasoning, understand why we should hesitate to admit at once that he has not been idle anywhere, but instead has created matter everywhere with the same power and ease with which he has created the matter here where we live, that is to say, wherever our eyes and mind reach.

#### II

"When you say that if 'extension is infinite in relation to us only, it will in reality be finite', etc.

305

I agree and should like to add that this is a most obvious consequence, since the particle "only" clearly rules out all infinity in a thing which is only called "infinite" in reference to us, and must therefore in reality be a finite extension. However, my mind perceives perfectly what I have pointed out here, since it is most obvious to me that the world, as I have said a little earlier, is either finite or infinite.

#### III

*"And therefore you assume that God has parts external to each other and is divisible, attributing to him the whole essence of a corporeal thing."*

I do not attribute to him any such essence. For I deny that extension belongs to a body, insofar as it is a body, but rather insofar as it is a being or at least a substance. Besides, God, insofar as the human mind comprehends God, is everywhere in his entirety. He is present in all places and all spaces as well as in each point of space in his whole essence. However, it does not follow that he has parts external to each other or that, by implication, he is divisible, even though he occupies all places very closely and tightly without leaving any gaps in between. Hence, I acknowledge the divine presence or amplitude, as you call it, to be measurable, but I deny that he is divisible in any way.



Quòd autem Deus singula mundi puncta occupet, fatentur ad unum omnes tam Idiotæ quàm Philosophi, ipsèque clarè & distinctè animo percipio & complector. Jam verò eodem modo se habeat essentia divina intra atque extra mundum, ita ut si fingamus mundum claudi cœlo stellato visibili, centrum divinæ essentiæ, totalisque ejus præsentia, eodem modo repeteretur extra cœlum stellatum, quo intra clarè concipimus repeti atque reiterari. Hanc autem repetitionem centri divini, quæ mundum occupat, ulteriùs productam, infinita par est extra cœlum visibile spatia secum expandere; quam nisi comitetur materia tuâ indefinita, actum erit de tuis vorticibus. Atque ut hæc molliora videantur, experiamur assensus nostros in successiva Dei duratione.

Deus est æternus, *h. e.* vita divina omnes seculorum evolutiones rerumque rationes, præteritarum, futurarum & præsentium, simul comprehendit. Hæc tamen vita æterna singulis etiam temporis insidet quasi atque inequitat momentis; ita ut rectè verèque dicamus Deum per tot dies, menses, horasve suâ æternitate fretum. Exempli causâ, si supponamus mundum ante centum annos conditum, annon integra illa omniâque complectens Dei æternitas per horas, dies, menses & annos, (putà centum) succedentes ad hunc usque diem duravit? At verò nihilo aliter est Deus à mundo condito ac fuit ante mundum conditum.

Manifestum igitur est, præter æternitatem infinitam, in Deum etiam cadere durationis successionem. Quod si admittimus, cur non extensionem etiam infinita spatia adimplentem pariter ac infinitam durationis successionem illi tribuamus?

Imò verò quoties altius & anquisitiùs istis de rebus mecum cogito, ea sum in sententia, quòd utraque extensio, tam spatii quàm temporis, Non-entibus juxta atque Entibus competere possit; suspicorque æquè ex præjudicio fieri posse, cum omnia ea quæ sensu manibùsque usurpamus, utpote crassa & corporea, semper sint extensa, quòd è contra omnia extensa protinus concludimus corporea; quàm quòd ullum sensus præjudicium facit ut putemus aliqua quæ non sunt corporea extendi.

Quòd autem extensio cadat in non-ens, ex eo conjecturam capimus quòd *extendi* nihil aliud innuit nisi *partes extare extra partes*. Pars autem & totum, *subiectum & adjunctum, causa & effectum, adversa & relata, contradicentia & privantia*, & id genus universa, notiones Logicæ sunt, easque tam non entibus quàm entibus applicamus: Unde non sequitur, quòd quicquid concipimus partes habere extra partes, ens sit reale concipiendum.

Sed quoties hîc colluctantur mentes humanæ cum propriis umbris, aut, lascivientium catulorum instar, propriis ludunt cum caudis? Nam istiusmodi profectò pugnæ atque lusus sibi instituuntur à mente nostra, dum rationes modòsque Logicos, juxta quos res externas considerat, non advertit suos duntaxat esse cogitandi modos, sed putans eos esse aliquid in rebus ipsis a se distinctum, suam captando quasi caudam, ad lassitudinem usque luditur miserèque illaqueatur. Sed plura quàm vellem imprudens hîc effutii: Ad reliqua propero.

However, absolutely everybody – fools as well as philosophers – agree, and I too perceive and assent in my mind to the truth that God occupies every single point of the world. Now the divine essence is the same both inside and outside the world. Thus, if we envisage the visible starry sky as the boundary of the world, the centre of the divine essence and its total presence replicates itself outside the world in the same way as we clearly conceive it to replicate and reiterate itself inside it. However, it is appropriate that this reproduction of the divine centre which occupies the world continues beyond it, expanding with itself the infinite spaces outside the visible heavens. And if it is  
306 not accompanied by your indefinite matter, your vortices will be lost. In order to make this more acceptable, let us test our conclusions with regard to God's successive duration.

God is eternal, i.e. the divine life comprehends at once all ages as they pass and all the things past, future and present as they unfold. Still, this eternal life is present to every single point of time and, as it were, astride every single moment, so that we can rightly and truly say that God rests in his eternity for so many days, months or hours. If, for instance, we assume that the world was created 100 years ago, has not the one whole and all-embracing eternity of God then lasted for so many hours, days, months and years up to this very day, i.e. 100 years? And yet, God's existence after the world's creation does not differ from that before the world's creation.

Hence, it is obvious that God not only possesses infinite eternity, but also a temporal succession of infinite duration. If we admit this, why should we not likewise attribute to him an extension that also fills infinite spaces as well as a temporal succession of infinite duration?

Indeed, when (as I do often) I think about these things more deeply and more diligently by myself, I take the view that we may attribute both extensions, that of space and that of time, to non-beings and beings alike. And I suspect that both views might have equally well arisen from prejudice. Since all things we perceive by sense and touch are solid and corporeal and, therefore, always extended, conversely we jump to the conclusion that all corporeal things must be extended; and similarly some prejudice originating in the senses could in principle lead us to believe that incorporeal things are likewise extended.

However, what has led me to assume that non-being also possesses extension is the fact that being  
307 "extended" means only that there exist parts external to each other. However, "part" and "whole", "subject" and "predicate", "cause and effect", "contraries" and "relatives", "contradictories" and "privatives" and other such universals are logical notions which we apply to non-beings as well as beings. From this it does not follow that whatever we conceive as having parts external to each other must be conceived as a real being.

But how often does the human mind here struggle with its own shadow, or rather, like a foolish dog, plays with its own tail? For it is our own mind that makes us engage in such playful struggle, while it reflects upon those logical notions and modes according to which it considers external things, not merely as its own modes of thought, but as though they were something in the things themselves distinct from it [i.e. the mind itself]. Reaching for them as for its tail, it is teased to exhaustion and ensnared in deep misery. But I have imprudently babbled more than I had originally intended to. I therefore hasten to move on.

## IV.

*Ubi cumque enim locus ille concipiatur, ibi aliqua materia est.*

Næ tu hic cautus homo es, & eleganter modestus; admittis tamen tandem mundum esse infinitum, si Aristoteles infinitum rectè definivit, Phys. I. 3. ὅτι αἰ τὶ ἔξω ἐστίν, *cujus aliquid semper est extra.* Nihil tunc est ulterius quod diffideamus.

## V.

*Sed nihilominus existimo maximam esse differentiam inter amplitudinem istius corporea extensionis, &c.*

Et ipse pariter existimo immane quantum differre divinam amplitudinem & corpoream. Primum, quod illa sub sensum cadere non possit, hæc possit sub sensum cadere. Deinde, quod illa sit increata & independens, hæc dependens & creata. Illa potè penetrabilis, per omnia pervadens, hæc crassa & impenetrabilis. Denique, quod illa ex totalis & integræ essentiae repetitione ubiquitaria, hæc ab externa, sed immediata, partium applicatione & juxtapositione orta sit; ita ut nemo, nisi plumbeus planè sit atque insigniter hebes, suspicari possit,

*Impia nos rationis inire elementa, viamque  
Indogredi sceleris, (ut & ille loquitur.)*

Præsertim cum ex Theologis sint, iisque aliis fortasse sat scrupulosis, qui tamen agnoscunt Deum, si voluisset, potuisse mundum ab æterno creare. Et tamen æquè absurdum videtur infinitam durationem, ac magnitudinem infinitam mundo tribuere.

## VI.

*Unum enim est ex præcipuis, meoque iudicio certissimis, Physicæ meæ fundamentis.*

Quod sit materia indefinite saltem extensa, nullumque vacuum, fundamentum esse Physicæ tuæ apprimè necessarium sat intelligo, & certè nullus dubito quin verum sit; sed an veram demonstrandi rationem insequutus sis, id equidem ambigo: Cum principium illius demonstrationis sit, *omne extensum esse reale ac corporeum*; quod mihi fateor nondum constare, ob rationes à me supra datas. Imò verò, ut ingenuè fatear quod mihi jam in mentem venit, si neque nudum spatium, prout postulat tua demonstratio, nec Deus omnino extenditur, nè indefinita quidem materiâ opus est tuæ Philosophiæ, *certus finitusque stadiorum numerus suffecerit.* Mundi enim hujus finiti latera non habebunt quod recedant, nec dehiscere poterunt medii vortices, nè intermedium spatium extendatur, novæque non-ens induat dimensiones. Sed tamen naturalis impetus aliò me præcipitat, in hanc utique fidem, fecunditatem nempe divinam, cum nullibi sit otiosa, ubique locorum materiam produxisse, nullis vel augustissimis prætermisissis intervallis.

Quæ tam facile cum admitto, Philosophia tua apud me non corruebat ob defectum dicti fundamenti. Planèque video Physicæ tuæ veritatem non tam apertè & offensivè se exerere in hoc vel illo articulo, quam ex universo omnium filo & textura elucescere, ut ipse rectissime mones Part. 4. Artic. 225. Quod si quis integram tuæ Philosophiæ faciem simul contueretur, tam concinna est, sibi que juxta ac rerum phænomenis

## IV

*"For wherever that place is conceived to be, there is already some matter according to my view."*

Truly, you show yourself to be a cautious and superbly humble person in this question. And yet you, too, admit that the world is infinite, provided Aristotle's definition of the infinite in Phys. III is correct: οὐ αἰ τὶ ἔξω ἐστίν. "There is always something beyond." There is, then, nothing more on which we disagree.

## V

*"Nevertheless, I believe there is a crucial difference between the amplitude of that corporeal extension", etc.*

308 I, too, am equally convinced that there is a major difference between the divine and corporeal amplitudes. Firstly, the former is not an object of sense, whereas the latter is. Secondly, the former is uncreated and independent, the former dependent and created. The former, moreover, is penetrable and pervades all things, while the latter is solid and impenetrable. Finally, the former proceeds from the ubiquitous reiteration of its complete and total essence, the latter from the external position of its parts lying immediately adjacent to each other, so that nobody, if he is not completely dumb and utterly stupid, could suspect that

*We are entering on impious elements of reason,  
and embarking on a course of crime, as the poet puts it.*

There are, after all, theologians, and ones for that matter who are perhaps sufficiently cautious in other fields, who, for all that, acknowledge that God, had he wanted to, could have created the world from all eternity. And yet, it seems equally absurd to attribute to the world either an infinite duration or an infinite size.

## VI

*"For it is one of the principal and, in my view, most certain foundations of my physics."*

I well understand that it is the absolutely necessary foundation of your physics that matter is extended at least indefinitely and that there is no vacuum. Nor do I doubt at all that it is true. However, I do question whether you have pursued a true way of demonstrating it, since your demonstration rests upon the principle that "everything extended is real and corporeal". For the reasons given above, this is not yet clear to me. Indeed, I must confess to you quite frankly that the following thought has already crossed my mind: if neither bare space, as is required by our demonstration, nor God is extended it all, your philosophy does not even require an indefinite matter either. Instead, a certain finite number of stades would suffice. For neither will the sides of this finite world have any place to vanish into, nor will the vortices in the middle divide. Consequently, the space in between will not extend, nor will non-being take on new dimensions. And yet, a natural inclination drives me elsewhere and to another faith, namely that the divine fecundity is not idle anywhere, and it has produced matter in all places without leaving even the minutest of gaps.

Even though I readily admit this, your philosophy will not break apart for me because of the defect in the said foundation. And I see clearly that the truth of your physics does not manifest itself so clearly and openly in this or that article, but rather shines forth from the well-woven overall texture of all of them, as you yourself point out most appositely in Part 4, art. 225. If one contemplates the whole face of your philosophy at once, it is so consistent and so consonant with itself as well as with the phenomena of nature



nomenis consona, ut merito imaginetur, se Naturam ipsam opificem vidisse ab hoc polito speculo enitentem.

### Ad Responsum circa Difficultatem ultimam.

#### Instantia I.

*Sed nulli præjudicio magis omnes assuevimus, &c.*

Quod mihi de me ipso constat plus quam satis, ab hujusce enim præjudicii laqueis sentio me expediri non posse ullo modo.

#### II.

*Profiteor enim me posse perfacile illa omnia ut à sola membrorum conformatione profecta explicare.*

Læta sane & jucunda Provincia! Hoc si præstiteris, (& credo quantum ingenium humanum poterit te hac in re præstiturum in quinta sextave parte Physices tuæ; quas, ut audio ferè à te perfectas jam esse & absolutas, ita avidè expecto effluamque rogo, ut quamprimum possit fieri lucem videant, vel potius ut nos in ipsis ulteriorem naturæ lucem videamus: fed ad rem redeo) Hoc, inquam, si præstiteris, agnosco te demonstrasse in brutis animantibus inesse animam, neminem demonstrare posse: Sed interea loci, quod & ipse submones, quod non sit anima in brutis, te nec dum demonstrasse, nec demonstrare posse ullo modo.

#### III.

*Præter hanc unam, quod cum habeant oculos, aures, &c.*

Maximum, meo judicio, argumentum est, quod tam subtiliter sibi præcaveant & prospiciant; ut narratiunculis veris pariter ac mirandis, si otium esset, demonstrare possem. Sed credo te in consimiles historias incidisse, meæ autem in nullis extant libris.

#### IV.

*Quod non sit tam probabile omnes vermes, calices, erucas, &c.*

Nisi fortè imaginemur istiusmodi animas, *Mundi Vita*, quem appellat *Ficino*, arenam quasi esse ac pulverem, & infinita ferè ex isto penario animarum agmina fatali quodam impetu in præparatam materiam semper prolabi. Sed concedo hæc citius dici posse quam demonstrari.

#### V.

*Ut aliquid voce vel nutibus indicaret, &c.*

Annon canes annunt caudis, ut nos capitibus? annon brevibus latratibus cibum sæpius ad mensam mendicant? Imò verò aliquando Domini cubitum pede, qua possunt cum reverentia, tangentes, quasi sui oblitum, blando hoc eum signo commonefaciunt.

#### VI.

*Quàm maximè stupidi ac mente capiti, &c. non autem ullum brutum, &c.*

Nec infantes ulli per aliquam multa saltem mensium spatia, quamvis plorent, rideant, irascantur, &c. Nec diffidis tamen, opinor, quin infantes sint animati, animamque habeant cogitantem.

Ff 3

Re-

that one may rightly imagine that one has seen nature itself the creator reflected in all its splendour in such a polished mirror.

### Concerning the Answer to the Final Difficulty

#### Instance I

*"But there is no prejudice that we have grown more accustomed to," etc.*

But this is plainly true, as far as I am concerned. For I, too, feel that I cannot rid myself from the snares of this prejudice in any way.

#### II

*"For I hold that I can very easily explain all of that as arising from the structure of their body parts alone."*

310 That is quite a joyous task indeed! If you manage to do this (and I believe that in this matter you will achieve whatever the human mind is capable of in the fifth or sixth part of your Physics. Not only have I heard that you have already all but completed them, but I also hope and beseech you most fervently that you will publish them as soon as possible so that we may contemplate in them the highest light of nature, but I should return to our subject). If you manage to do this, I say, I shall gladly recognize that you have demonstrated that no-one can ever demonstrate that there is a soul in brute animals. Until then, however, as you yourself point out, neither you nor anyone else has or ever can demonstrate that there is no soul in brutes.

#### III

*"No other reason ... but the following: Possessing eyes, ears, a tongue, etc."*

In my view, the principal proof is the way they watch over themselves with such shrewd foresight, as I could demonstrate by little stories as true as they are astonishing. I trust, though, that you have come across very similar tales. Mine, however, are not to be found in any books.

#### IV

*"That it is less probable that all worms, gnats and caterpillars", etc.*

Unless perhaps we were to imagine that such souls which are, as it were, the dust and sand of the "world's life", to use Ficino's phrase, like those almost endless multitudes of other souls, always follow some fatal impulse in gliding from that storehouse into the matter prepared for them. But I admit that stating this is easier than demonstrating it.

311

#### V

*"That it can either by its voice or by some gesture indicate," etc.*

Do not dogs nod "yes" with their tails, just as we do with our heads? Do they not frequently beg for food at the table with short barks? Nay more, do they not also sometimes nudge their master's elbow with their paw as respectfully as they can, reminding him by this gentle sign that he has forgotten them?

#### VI

*"Even if they are utterly dumb and mentally deranged", etc. "But no brute does", etc.*

Nor do infants for some few months at least, even though they cry, laugh, get angry, etc. And still you do not doubt, I trust, that infants are ensouled and have a thinking soul.



Responſa hæc ſunt (Vir illuſtriſſime) quæ tuis præclaris Reſponſis mihi viſum eſt reponere. Quæ an æquè grata futura ſint ac nuperæ meæ objectiones, ſanè præſagire non poſſum.

Humanitas tua quam verſus iſtas perſpexi, & diuturnior cum ſcriptis tuis conſuetudo, audentiorem me fecerunt; vereor nè fuerim prolixus nimium ac moleſtus.

Equidem ferme obliſus eram potiſſimi mei inſtituti, quod non fuit æternas tecum altercationes reciprocæ; ſed cum hanc opportunitatem ſim naſtus, tanti viri de rebus quæ ſe obtulerint Philoſophicis iudicium placide experiri, & præcipuè ſi qua difficultas emerſerit inter legendos tuos libros, teipſum audire interpretantem. Quam profeſſo gratiam ſi lubens facilisque conceſſeris, ſummopere me tibi devincies.

Et ſanè quam lubenter eximæ tuæ artis ac peritiæ mihi copiam feceris, certum eſt jam nunc in paucis quibuſdam periculum facere.

Primo igitur quæro, An à Deo ita ſtatui, aut alio quovis modo fieri potuiſſet, ut mundus eſſet finitus, id eſt, certo aliquo milliarium numero circumſcriptus. Non leve enim argumentum videtur mundum poſſe eſſe finitum, quod plerique omnes impoſſibile putent eſſe infinitum.

Secundo, Siquis mundi huius finibus propè aſſideret, quæro an poſſit gladium per mundi latera ad capulum uſque tranſmittere, ita ut totus fere gladius extra mundi mœnia emeret. Quod enim nihil extra mundum ſit quod reſiſtat, videtur facta facile; quod autem nihil extenſum ſit extra mundum quod recipiat, videtur ex ea parte impoſſibile.

Tertiò, (ad Artic. 29. Part. 2.) Si A B corpus transferatur à corpore C D, quæro qui conſtat tranſlationem eſſe reciprocam. Putemus enim C D turrim eſſe, & A B ventum occidentalem per latera turris tranſeuntem. Turris C D aut quieſcit, aut ſaltem non recedit à vento A B. Si recedit, vel, quod ais, motu tranſfertur, utique verſus occidentem movetur. Sed non fertur verſus occidentem, cum & terra & ventus ferantur verſus orientem. Videtur igitur reſpectu venti quieſcere, cum nullum motum ap ipſo ſuſpiciat. Dicis tamen tranſlationem (quæ quidem tranſlatio motus eſt) ipſius turris & venti eſſe reciprocam. Turris igitur reſpectu euſdem venti & moveretur & quieſceret, quod maxime abeſt à contradictione. Signum autem eſt, cum ille qui à me ſedente reſceſſit ambulando, putà mille paſſus, rubuerit vel laſſus fuerit, ego verò ſedens nec ruborem contraxerim nec laſſitudinem, illum ſolum motum fuiſſe, me verò per id temporis quieviſſe. Notionalem igitur duntaxat variatæ diſtantiæ reſpectum illius motu ſuſcipio, nullum motum realem & Phyſicum.

Quartò, Artic. 149. Part. 3. Sicque etiam efficiet ut terra circa ſuam axem gyret, &c. Quomodo efficiet Luna ut terra uno die gyros ſuos abſolvat, cum ipſa 30 fere dies in ſuas abſumat periodos? Quæ vero ſcribuntur Artic. 151 hanc quæſtionem, opinor, non attingunt.

Quintò, de particulis iſtis contortis, quas ſtriatas vocas, Quomodo ita contorqueri potuerunt, & eo ipſo in infinita fragmina & atomos non diſjungi? Quem lentorem, quam tenacitatem in prima illa materia, ſibi ubique ſimili & homogenea, imaginari poſſumus? Unde molleſcebant iſtæ particulæ primum, indeque obduruerunt?

Sexto,

These are the answers, most distinguished Sir, which I have taken the liberty of giving to those excellent answers of yours. I cannot tell, of course, whether you will find my objections as agreeable as my last ones.

The kindness which you have displayed to these last ones, and my longer acquaintance with your writings have made me bolder, although I still fear I may have proved overly-loquacious and troublesome.

Indeed, I almost forgot my primary intent, which was not to prolong our exchanges of objections and answers indefinitely. Instead, having been granted this opportunity, I wanted to listen quietly to a great man's judgements on philosophical questions as they came up and, above all, have you yourself as the interpreter of your own works wherever I encountered difficulties when reading them. If you would indeed grant me this favour, I should be beholden to you in the highest possible degree.

312 And certainly my eagerness to put your excellent skill and knowledge to the test in a few questions is as great as your kindness in offering me the opportunity of availing myself of it.

1. I wonder whether it would be possible by God's decree or in some other fashion that the world was finite, that is to say, enclosed within confines, however large. For it seems to be quite a considerable argument for a finite world that almost everybody believes it is impossible that it should be infinite.

2. If someone were to sit near the edge of this world, I wonder whether he could thrust his sword up to its hilt through the world's side so that most of the sword would stick out of the world's outer walls. On the one hand, there is nothing left outside the world, so it might seem easily feasible. On the other, it seems impossible since there is nothing extended outside the world to receive it.

3. Regarding Part 2, Art. 29: If body AB moves away from body CD, I wonder why it should be so clear that this motion is reciprocal. Assuming that CD is a tower and AB the western wind going past the sides of the tower, the tower CD either rests or at least does not move away from wind AB. If it moves away, or, as you put it, is transferred in its motion, it must be moving westwards.

However, it does not move westwards, since both the earth and the wind head eastwards. It therefore seems to be at rest in relation to the wind, since it receives no motion from it. And still you say that the transfer of the tower itself and the wind, a transfer which surely is motion, is reciprocal. They would, therefore, simultaneously be in motion and at rest in relation to the same wind, which strikes me as quite a contradiction. Let us assume someone walks away from me, say by a thousand feet, while I am sitting. While he will be red with sweat, there will be neither redness nor sweat on my

313 face because all along I have been sitting. This shows that he alone has been in motion, while I have been at rest the whole the time. It is therefore only in my mind that I experience a change of distance between him and myself in his movement, rather than a real and physical motion.

4. Regarding Part III, art. 149: "And so it will make the earth turn on its axis," etc. How will the moon make the earth complete its orbit in one day, even though it needs almost thirty days itself to complete its own revolutions? However, what you write in art. 151 is not relevant to this question, I think.

5. Regarding those little orbs or "grooved particles", as you call them, how did they receive their round shape without breaking into infinite fragments and atoms as a consequence? What pliancy and tenacity are we to imagine exists in this first matter, on the assumption that all its parts are completely homogenous and alike? How do these particles first soften and then harden again?

Sexto, Artic. 189. Part. 4. *Animam sive mentem intimè cerebro conjunctam.* Perlubenter equidem hîc audirem sententiam tuam de conjunctione animæ cum corpore: An cum toto corpore jungatur, an cum cerebro solo, an verò in solum conarium, tanquam in parvulum aliquod ergastulum, compingatur. Id enim sedem suam communem, animæque ἀκρόπολιν, à te monitus agnosco. Dubito tamen annon per universum corpus anima pervadat. Deinde quæro ex te, cum anima nullas habeat, nec ramosas nec hamatas particulas, quomodo tam arctè unitur cum corpore. Sciscitorque subindè, annon aliquid exerit se in natura, cujus nulla ratio Mechanica reddi potest. Illud αὐτεξέσιον, cujus in nobis conscii sumus, quo oritur modo? Quæque ratio sit imperii animæ nostræ in spiritus animales, quâ potest eos amandare in quamlibet corporis partem? Quomodo sagarum spiritus, quos vocant familiares, materiam tam aptè sibi adaptant atque constringunt, ut visibiles & palpabiles se exhibeant execrandis vetulis? Hoc autem fieri non solum vetulæ, sed juvenes sagæ, nullâ vi coactæ, sponte mihi falsæ sunt non paucæ. Porro, annon & ipsi hoc ipsum aliquo modo in animabus nostris experimur, dum pro arbitrio nostro spiritus nostros animales ciere & sistere, exerere & revocare possumus? Quæro igitur, numquid decederet hominem Philosophum in rerum universitate substantiam aliquam agnoscere incorpoream, quæ tamen possit aut omnes, aut saltem plurimas, affectiones corporeas, non secus ac ipsa corpora in se mutuo, in corpus aliquod imprimere, quales sunt motus, figura, situs partium? &c. Imò verò, cum fermè constet de motu; sine mora superaddere etiam quæ motus consequentia sunt, ut dividere, conjungere, dissipare, vincire, figurare particulas, figuratas disponere, dispositas rotare, vel quovis modo movere, rotatas continere, & id genus alia; unde lumen, colores, & reliqua tensus objecta prodire necesse est, juxta eximiam tuam Philosophiam.

Præterea, cum nihil nec corporeum neque incorporeum potest agere in aliud nisi per applicationem suæ essentia, necesse insuper ducere, ut, five Angelus sit, five Dæmon, five anima, five Deus, qui agat prædictis modis in materiam, essentia cujuslibet inequitet quasi illis materiæ partibus in quas agit, ut aliquibus aliis quæ in has ipsas agant per motus transmissionem, imò ut integræ aliquando adsit materiæ quam gubernat & modificat; ut constat in Geniis, five bonis five malignis, qui se humanis oculis patefecerunt: Aliter enim quî poterant constringere materiam, & in hac vel illa figura continere?

Postremò, Cum tam stupendam virtutem habeat substantia incorporea, ut per nudam sui applicationem, sine funiculis aut uncis, sine fundis aut cuneis, materiam constringat, explicet, dividat, projiciat, & simul retineat, annon verisimile videatur ut in seipsam se possit colligere, cum nulla obstat impenetrabilitas, & diffundere se denuò & similia?

Hæc abs te peto, Vir doctissime, quantum per otium licebit, ut digneris exponere, utpote quem scio tam intima quàm extima Naturæ mysteria rimatum esse, commodèque interpretari posse.

Septimò, de globulis æthereis quæro; Si Deus mundum ab æterno condidisset, annon multis abhinc annis comminuti & confracti fuissent isti globuli in partes indefinitè subtiles, mutuis collisionibus vel attritionibus,

6. Regarding Part 4, art. 189: "The soul or mind is intimately linked to the brain." Here I should very much like to hear your opinion about the soul's union with the body. Is it joined to the whole body or to the brain alone? Or is it in fact confined to the pineal gland as though to some very little prison cell? For I follow you in believing that it is the seat of the common sense and the ἀκρόπολις of the soul. However, I suspect that the soul might in fact pervade the whole body. Furthermore, I ask you how the soul can join so closely with the body, lacking as it does particles shaped like hooks or branches. And I should also like to know whether there might not be some power in nature which cannot be explained mechanistically in any way. How does the αὐτεξούσιον of which we are  
314 conscious in ourselves, come to be? And how can our souls command the animal spirits and send them into this or that part of the body? How can the spirits of witches, commonly called familiars, form and compress matter for their purposes so ably that they can assume visible and palpable shapes for those execrable old hags? Not only old hags, but quite a few young witches have told me freely and without compulsion that this is true.

Further, is it this very power that we ourselves experience in our souls in some way when we set our animal spirits in motion or make them stop, send them somewhere and call them back at our own discretion? I wonder, therefore, whether a philosopher should not acknowledge that there is in the whole fabric of things some incorporeal substance which can nevertheless, as bodies do on one another, impress on some body all or at least most corporeal properties such as motion, shape and the structure of its parts. Nay more, since this clearly holds true of motion and rest, may this incorporeal substance not also add to a body whatever is consequent upon motion? May it not divide and join, disperse and bind together, give shape to particles and then arrange them, make them rotate or move in any other way and stop them again, as well as all other such things as necessarily give rise to light, colour and other sense impressions of that kind, as your excellent philosophy has shown?

Moreover, nothing either corporeal or incorporeal can act on any other thing in any other way than by applying its essence to it. I also deem it necessary, therefore, that, whether it is an angel, a demon, a soul or God who acts on matter in the modes mentioned above, their essence is, as it were, riding on either those parts of matter upon which they act or some others acting upon them through the transfer of motion. Consequently, they must at some point be present to the whole of the matter  
315 which they control and modify. This can be seen in genii both good and evil who have appeared to the eyes of men. For how else should they have compressed matter and kept it in their respective shapes?

Finally, an incorporeal substance possesses such an extraordinary power that it can contract, dilate, divide and simultaneously projecting and retaining matter simply by applying itself to it, without ropes or hooks, nets or wedges. Does it not seem probable then that it can also contract itself into itself, since there is no impenetrability to hinder it, and then expand itself again and many more such things?

These are my questions. I beseech you, most learned Sir, whom I know to have studied the inner and outer mysteries of nature and to be able to answer them with ease, that, time permitting, you may do me the favour of explaining all of this to me.

7. As regards the ethereal globules, I wonder: if God has created the world from all eternity, would not collisions and frictions have broken up these globules, reducing them into indefinitely tiny parts a long time ago?



tionibus, primique Elementi faciem jam olim induissent, ita ut universus mundus in unam immensam flammam multa ante secula abisset?

Octavo, de particulis tuis aqueis, longis, teretibus, & flexibilibus, Numquid habent poros? Id sane mihi non videtur probabile, cum sint simplicia corpora, particulæque primæ ex nullis aliis particulis complicatæ, sed fragmina ex integra primæque materia elisa, ac proinde planè homogenea. Hinc dubito, qui poterunt flecti sine penetratione dimensionum. Putemus enim aliquando ad annuli instar incurvari; Superficies concava minor erit convexa, &c. Rem probè tenes. Non est quod hic immorer.

Nec tamen si poros habere contenderes, quod nunquam opinor facies, difficultatem tollet. Quippe quod quæstio tunc institueretur de pororum labris vel lateribus: Necessario enim aliquid flectetur quod non habet poros.

Atque hæc difficultas pertinet non solum ad oblongas tuas particulas, sed etiam ad ramosas illas, aliasque ferme omnes, quas flecti necesse est, & tamen non disrumpi.

Nono, & ultimo, Utrum materia, five æternam fingamus five hesternæ die creatam, sibi liberè permessa, nullumque aliunde impulsu suscipiens, moveretur, an quiesceret. Deinde, an quies sit modus corporis privativus, an verò positivus. Et five positivum malles five privativum, unde constet utrumlibet. An denique ulla res affectionem ullam habere possit naturaliter & à se, quæ penitus potest destitui, vel quam aliunde potest adsciscere.

Hactenus ferè circa generalia præclaræ tuæ Physices fundamenta lusi, dicam, an potius laboravi? progressurus posthac ad specialiora, si facilitas tua atque comitas eò me invitaverit, aut salem permiserit. Et æquiori sanè animo feres, cum hic de primis agatur principiis, si superstitiosè omnia examinavi, viamque quasi palpando, singulaque curiosius tractando, lentè me promovi & testudineo gradu. Video enim ingenium humanum ita comparatum esse, ut facilius longè quid consequens sit dispiciat, quàm quid in natura primò verum; nostramque omnium conditionem non multum abludere ab illa Archimedis *δὲς πρὸς τῷ, καὶ κινήσω τὴν γῆν*. Ubi primum figamus pedem invenire multò magis satagimus, quàm ubi invenimus ulterius progredi.

Quod ad mirificas illas structuras attinet quas ex illis principiis generalibus erexisti, quamvis primà fronte adeò sublimes & ab aspectu nostro remotæ viderentur, ut omnia apparerent nubibus tenebrisque obvoluta, dies tamen difficultates comminuit, paulatimque evanuerunt istæ obscuritates, adeò ut perpauca, præ quod tum factum est, in conspectum jam veniant.

Hoc autem necesse duxi ut profiterer, nè æternum à me expectes tibi creatum iri negotium, sed lubentius mihi rescribas, partique humanitate hæc sciscitationes meas accipias quæ primas quas mihi objectiones. Quod si feceris (clarissime Cartesi) supra quàm dici potest tibi obstrictum dabis

Cantabrigiæ, à Christi Collegio,  
3 Nonarum Martii, 1649.

Humanitatis tuæ ac Sapientiæ  
admiratorem religiosissimum,  
HEN MORUM.  
SCHOLIA

249

Would they not long since have adopted the appearance of the first element so that the whole world would have exploded many centuries ago into one gigantic flame?

8. As regards your watery, long, smooth and flexible particles, would they have pores? This strikes me as rather improbable, since they are simple bodies and first particles which are not composed of any other particles, but cut out of untouched first matter. And therefore all of them are completely homogenous. Hence, I cannot see how they could have been bent without their dimensions penetrating each other. For let us suppose for a moment that they were curved into something like a ring. The inside curved surface would be smaller than the outside one, etc. But you will certainly understand my point, and there is no reason for me to dwell on it any longer.

316 Nor would the difficulty be resolved if you were to contend that they had pores, which, I assume, you do not. For the question would then turn on the edges or sides of these pores, since it would necessarily follow that something without pores was bent.

And this difficulty pertains not only to your oblong particles, but also to those branchlike ones and nearly all those others which must be bendable without breaking.

9. Finally, regardless of whether we believe it to be eternal or to have been created yesterday, would matter, freely left to itself and receiving no impulse from without, be in motion or at rest? Moreover, is rest a privative or a positive mode of the body and, regardless of whether you prefer it to be positive or privative, how can we know which of them is true? And lastly, can a thing possess any property in a natural way and from itself which it can also lack altogether or acquire from another source?

So far I have played, or rather struggled, almost exclusively with the general foundations of your excellent *Physics*. If you will be so kind as to encourage or at least allow me to, I should now like to move on to more particular aspects. And you will certainly bear with me if, since this is about your first principles, I have examined all things very scrupulously and, taking one step at a time, as it were, and attending to certain details with due care, I have moved on rather gently and at a tortoise's pace. For such, I know, is the human mind that it can understand inferences far more easily than it can understand what is the first truth in nature. In fact, our condition does not differ much from that of Archimedes' *Δὲς πρὸς τῷ, καὶ κινήσω τὴν γῆν*. Finding the place from where we can make the first step is much more difficult for us than progressing on from it once we have found it.

As regards those admirable structures which you have erected upon your general principles, they may at first sight seem so high and so far removed from our sight that everything may appear covered in clouds and darkness. However, the break of day has reduced the difficulties and the obscurities have gradually vanished so that we now see only a few obscurities compared to what it was like previously.

317

However, I deemed it necessary to tell you all of this so that you do not fear that I shall never cease to cause you more and more labour and that you will write back to me all the more willingly, answering these questions of mine with the same kindness as you did the first objections which I sent you. If you will do that, most distinguished Monsieur Descartes, I shall be more beholden to you than words can possibly express, being

the most ardent admirer of your learning and wisdom,

Henry More

Cambridge, Christ's College, 5<sup>th</sup> March 1649



## S C H O L I A

IN EPIST. II. H. MORI.

**D**ifficult. 1. Instant. 5. Equidem possum clarè concipere substantiam extensam, &c. Immo verò necessario & inevitabiliter talem concipio dum mentis aciem conjicio in Immobile illud extensum à mobili materia distinctum, quod simul concipio nullam habere tangibilitatem aut impenetrabilitatem.

Difficult. 2. Instant. 3. Intermundium aliud sive Absentia Mundi suam haberet durationem, &c. Multò rectius concluditur Durationem illam quam non possumus non concipere existere, ut & Amplitudinem immensam aeternamque ac necessariam, ad Divinam Essentiam esse referendam, (quemadmodum in Scholiis in *Enchiridium Metaphysicum* monuimus) Illiusque Axiomatis Authoritatem ubique factam testem esse conservandam, Nihil nullam esse affectionem.

Sed concedo, quamvis nondum vi coactus, in omni spatio aliquam substantiam inesse, Immo ipsam illud quod vulgus Philosophorum, spacium imaginarium esse fingunt, in *Enchiridio Metaphysico* substantiam incorpoream esse demonstro, cap. 6, 7, 8.

Instant. 5. Qua in parte ego satis sum securus, &c. Equidem tunc fui hac in parte nimis quam securus. Quae autem rationes hanc mihi securitatem excusserint, Vide *Enchirid. Metaphys.* cap. 10. sect. 6, 7, &c.

Difficult. 4. Instant. 1. Nec obscurum videatur indicium Mundum reverà esse infinitum, &c. Sic certè videretur si motus Materiae Mundanae esset Mechanicus, nunc verò cum Vitalis sit & à Spiritu Naturæ profectus, Mundus licet finitus sit, Vortices non disrumpentur nec fatiscunt.

Materiam ubique produxisse. Id quod valde rationi consentaneum est dum Divinam Omnipotentiam & Fecunditatem respicimus; naturam verò Creaturae dum consideramus, & hujus Infinitudinis quam incapax sit, admodum absolum videtur & ab omni ratione alienum: quemadmodum videre est in dicto *Enchiridio*, cap. 10.

Instant. 3. Præterea cum Deus, quantum mens humana Deum capit, sit totus ubique, &c. Sic certè solet Philosophorum vulgus loqui. Quantum verò ad me, cum Deus partes Physicas & propriè dictas non habeat, equidem valde improprie existimo Deum dici posse totum esse ubique: sed praesentiam illius agnosco ubique aequè efficacem esse ac si totus intelligatur ubique adesse. Et quae mox occurrit Centri Divini Repetitio symbolice tantum intelligenda est & negativè, quatenus Essentiam Divinam innuit ubique homogeneam esse & autovv, nec aliunde derivatam, sed unam quasi infinitam esse Lucem sive Solem.

Præter Aeternitatem infinitam in Deum etiam cadere Durationis successionem, &c. Non quòd successiva Duratio formaliter Deo competat, sed quòd eminenter in illius stabili Duratione contineatur; qua de re vide *Dialogos Divinos*, Dialog. 1. Sect. 15, 16, 17. Ut verò Aeternitas Divina singulis cujusvis Durationis successivae momentis praesens est, ita & infinita Divina Essentiae plenitudo & Exuberantia singulis cujusvis corporeae Extensionis punctis adesse intelligitur.

Quod

OO, 249

## Scholia on H. More's Second Letter

Difficulty 1. Instance 5: "I, for one, can clearly conceive an extended substance", etc. Nay more, I conceive such an extension necessarily and inevitably when I direct my mind and attention to that immobile extended thing distinct from mobile matter which I simultaneously conceive to have neither tangibility nor impenetrability.

Difficulty 2. Instance 3: "That world in between, or absence of a world, would have its own duration", etc. It is much more appropriate to conclude that the duration which we cannot not conceive is an eternal and necessary immense amplitude, and must therefore be referred to the divine essence, as we have pointed out in the scholia on the *Enchiridium Metaphysicum*. And we must in all cases preserve perfectly intact the authority of the axiom that there is no property of nothing.

"However, though not yet convinced by the strength of your argument, I do grant to you that there is some substance in all space." Indeed, I have demonstrated in the *Enchiridium Metaphysicum*, chs. 6–8, that that which most philosophers believed to be imaginary space is in fact an incorporeal substance.

Instance 5: "While I am certain about that part," I was in fact more than certain about this. See the reasons for my certainty about this point provided in *Ench. Met.*, ch. 10, sect. 6–7, etc.

Difficulty 4. Instance 1: "The fact ... seems to be quite a clear sign that the world is in reality infinite," etc. It would certainly seem so if the motion of worldly matter were mechanical, whereas in fact it is vital and proceeds from the spirit of nature. Therefore, even though the world may be finite, the vortices will be neither disrupted nor weakened.

"He has ... created matter everywhere." This seems very consonant with reason as far as God's omnipotence and fecundity is concerned. However, once we consider the nature of creation and how incapable it is of this infinity, it seems highly absurd and indeed at odds with all reason, as you can see in the said *Enchiridium*, ch. 10.

Instance 3. "Besides, God, insofar as the human mind comprehends God, is everywhere in his entirety," This is certainly the way most philosophers put it. However, God does not have physicals parts or parts in the proper sense. As far as I am concerned, I believe that it is a very improper figure of speech if we say that God can be everywhere in his entirety. I do acknowledge, though, that his presence is as efficacious everywhere as if he were understood to be present everywhere in his entirety. And the reiteration of the divine centre mentioned a little later must be solely understood in a symbolical and negative fashion, insofar as it shows that the divine essence is homogeneous and αὐτοφύης everywhere, not derived from anything else, but one infinite light or sun, as it were.

"God not only possesses infinite eternity, but also a temporal succession of infinite duration", etc. Successive temporal duration belongs to God not formally, but as contained eminently in his unchanging duration (on that see *Div. Dial.* I, sects. 15–17). Just as the divine eternity is present to each single moment of any successive temporal duration, so the infinite fullness and exuberance of the divine essence is to be understood to be present to each single point of any corporeal extension.

Quod utraque Extensio tam Spacii quàm Temporis Non-Entibus juxta atque Entibus competere possit, &c. Multo verò nunc consultius existimo, quod & suprâ innui, Spacium illud immensum & Tempus infinitum, quæ mentibus nostris tam importunè obversantur, ad Divinam Essentiam & Aeternitatem, tanquam umbras quasdam earum obscuriusculas, referre. Vide Scholia in Enchiridium Metaphysicum.

Notiones Logicæ sunt, easque tam Non-Entibus quàm Entibus applicamus, &c. Esto, sed applicando eas Non-Entibus, eadem Entia non efficiamus. Adeò ut, quando Non-Enti alicui partes attribuimus, cum partes ista etiamnum Non-Entia sunt, aut Non-Entibus tribui possunt, Non-Ens cui ista attribuuntur, adhuc reverà nullas partes habeat, ac proinde reverà sit Non-Extensum; nec hinc constare possit, Extensionem cadere in Non-Ens.

Instant. 5. Immane quantum differre Divinam Amplitudinem & corpoream. Hic tantum obiter, contra Cartesianos Nullibistas Divinæ Essentiæ Amplitudinem à suo Cartesio admitti, quamvis Extensio repudietur, ut videre est hoc in loco illius Epistolæ.

Instant. 6. Et certè nullus dubito quin verum sit, &c. Vide quæ diximus in Instantiam primam.

Fecunditatem nempe Divinam, cum nullibi otiosa sit, ubique locorum Materiam produxisse, &c. Vide quæ notavimus in Instantiam primam eodem in loco.

Clarissimo Doctissimoque Viro,  
HENRICO MORO,  
RENATUS DES-CARTES.

VIR clarissime, gratissimas tuas literas 3 Non. Mart. datas eo tempore accipio quo tam multis aliis occupationibus distrahor, ut cogar vel hâc ipsâ horâ festinantissimè rescribere, vel responsum in multas hebdomadas differre. Sed vincet ea pars quæ festinationem persuadet; malo enim minùs peritus quàm minùs officiosus videri.

### Ad Instantias primas.

Proprietates alias aliis esse priores, &c. Sensibilitas nihil mihi videtur esse in re sensibili, nisi denominatio extrinseca. Nec etiam rei est adæquata: nam si referatur ad sensus nostros, non convenit tenuissimis materiæ particulis: si ad alios imaginarios, quales vis à Deo posse fabricari, forsitan etiam Angelis & Animabus conveniet; non enim faciliùs intelligo nervos sensorios adeò subtiles, ut à quam minutissimis materiæ particulis moveri possint, quàm aliquam facultatem cujus ope mens nostra possit alias mentes immediate sentire sive percipere. Quamvis autem in extensione habitudinem partium ad invicem facile comprehendamus, videor tamen extensionem optimè percipere, quamvis de habitudine partium ad invicem planè non cogitem: Quod debes

“That we may attribute both extensions, that of space and that of time, to non-beings and beings alike”, etc. Now, however, as I have pointed out above, I deem it much more sensible to refer the immense space and infinite time, which we find so difficult to grasp in our minds, to the divine essence and eternity, viewing both as the somewhat darker shadows of the latter (see the scholia on the *Enchiridium Metaphysicum*).

“They are logical notions which we apply to non-beings as well as beings”, etc. I agree. However, by applying these notions to non-beings we do not turn the latter into beings. Therefore, when we attribute parts to a non-being, since these parts are still non-beings or possible attributes of non-beings, that non-being to which they are attributed still does not have any parts and is in reality not extended. Nor can it be concluded from that that non-being possesses extension.

Instance 5: “There is a major difference between the divine and corporeal amplitudes.” I should like to point out in passing that here, as against the Cartesian nullibists, Descartes himself admits the amplitude of the divine essence, while repudiating its extension, as can be seen from this place in his letter.

Instance 6: “Nor do I doubt at all that it is true”, etc. See what have said on instance 1.

“The divine fecundity is not idle anywhere. It has produced matter in all places”, etc. See our note on instance 1 in the same place.

OO, 250 AT V, 340

Rene Descartes to the most distinguished and learned gentleman Henry More

CSMK, 371

341

Most distinguished Sir, I have just received your very kind letter of 5<sup>th</sup> March at a time when I am distracted by so many other obligations that I am compelled either to answer you in haste this very hour or postpone my response for several weeks. However, that part must prevail which advises haste since I should much rather seem lacking in skill than in courtesy.

### On the First Instances

“Some properties are earlier than others”, etc. Being sensible seems to me to be nothing in the sensible thing itself but rather an extraneous description of it, nor is it an adequate one at that. For if it refers to our senses, it does not apply to the smallest particles of matter. If it refers to other imaginary senses such as, in your view, God might have created, it might apply to angels and souls as well. For sensory nerves so subtle that they can be moved by the most minute particles of matter is no more intelligible to me than is some faculty by which our mind can immediately sense and perceive other minds. However, even though we easily comprehend in extension a relationship of its parts to each other, I nevertheless seem to understand extension perfectly well without thinking at all of the relation of its parts to each other.



bes etiam potiori jure quam ego admittere, quia extensionem ita concipis ut Deo conveniat, & tamen in eo nullas partes admittis.

*Nondum demonstratum Tangibilitatem aut Impenetrabilitatem proprias esse substantiæ extensæ affectiones.* Si concipis extensionem per habitudinem partium ad invicem, non videris negare posse quia unaquæque ejus pars alias vicinas tangat, hæcque tangibilitas est vera proprietas, & rei intrinseca, non autem ea quæ a sensu tactus denominatur.

Non potest etiam intelligi unam partem rei extensæ aliam sibi æqualem penetrare, quin hoc ipso intelligatur mediam partem ejus extensionis tolli vel annihilari; quod autem annihilatur aliud non penetrat: sicque meo judicio demonstratur impenetrabilitatem ad essentiam extensionis, non autem ullius alterius rei, pertinere.

*Affero aliam esse extensionem æquè veram.* Tandem igitur de re convenimus superest quaestio de nomine, an hæc posterior extensio æquè vera sit dicenda. Quantum autem ad me, nullam intelligo nec in Deo nec in Angelis vel mente nostra extensionem substantiæ, sed potentiae duntaxat; ita scilicet ut possit Angelus potentiam suam exerere nunc in majorem nunc in minorem substantiæ corporeæ partem: nam si nullum esset corpus, nullum etiam spatium intelligerim cui Angelus vel Deus esset coextensus. Quod autem quis extensionem, quæ solius potentiae est, tribuat substantiæ, ejus præjudicii esse puto, quo omnem substantiam, & ipsum Deum, supponit imaginabilem.

### Ad secundas Instantias.

*Una vacui spatii partes absorbeant alteras, &c.* Hic repeto, si absorbeantur, ergo media pars spatii tollitur & esse definit; quod autem esse definit aliud non penetrat; ergo impenetrabilitas in omni spatio est admittenda.

*Intermundium illud suam haberet durationem, &c.* Puto implicare contradictionem, ut concipiamus aliquam durationem intercedere inter destructionem prioris mundi & novi creationem. Nam si durationem istam ad successionem cogitationum divinarum vel quid simile referamus, erit error intellectus, non vera ullius rei perceptio. Ad sequentia jam respondi, notando extensionem quæ rebus incorporeis tribuitur esse potentiae duntaxat, non substantiæ; quæ potentia cum sit tantum modus in re ad quam applicatur, sublato extenso cui coexistat, non potest intelligi esse extensa.

### Ad penultimas Instantias.

*Deum positivè infinitum, id est, ubique existentem, &c.* Hoc ubique non admitto. Videris enim hic infinitatem Dei in eo ponere, quod ubique existat: cui opinioni non assentior; sed puto Deum ratione suæ potentiae ubique esse, ratione autem suæ essentiae nullam planè habere relationem ad locum. Cum autem in Deo potentia & essentia non distinguantur, satius esse puto in talibus de mente nostra vel Angelis, tanquam perceptioni nostræ magis adæquatis, quam de Deo, ratiocinari. Sequentes difficultates ex eo præjudicio mihi videntur omnes ortæ, quod nimis assueverimus quolibet substantias, etiam in eas quas

cor-

And you should admit this even more readily than I do, because you conceive extension in such a way that it applies to God as well, while denying that there are any parts in him.

“No-one has proved yet that tangibility or impenetrability is an immediate property of an extended substance.” If you conceive extension by the relation of its parts to each other, it seems that you cannot deny that each of its parts touches the others adjacent to itself and that this tangibility is a real property intrinsic to the thing itself, as opposed to the one designated by our sense of touch.

Nor can we understand how one part of an extended thing should penetrate another of equal size without also seeing at the same time that the middle part of this extension is removed or annihilated. However, that which is annihilated does not penetrate anything else and so, in my opinion, it has been proved that impenetrability belongs to the essence of extension, not any other thing.

“I hold that there is another equally real extension.” It seems that we have finally agreed on the matter itself. There remains only the question of the designation, whether we may call this other extension “equally real”. However, as far as I am concerned, I see that there is no extension of substance in God, in angels or in our minds, but only one of power. Consequently, an angel may exercise his power upon a larger part of corporeal substance at one time and upon a smaller part at another. For if there were no body, I could not see how there would be any space with which an angel or God might be coextensive. Attributing this extension which is solely one of power to a substance, in my view, arises from the same prejudice which supposes all substance, including God himself, to be imaginable.

### On the second instances

“One part of empty space would absorb another”, etc. I say once again here that if they are absorbed, then the middle part of space is removed and ceases to be. However, what ceases to be cannot penetrate another thing. Therefore, impenetrability is to be admitted in all space.

“That world in between ... would have its own duration,” etc. In my view, it implies a contradiction to conceive a kind of duration intervening between the destruction of one world and the creation of another. For if we refer this duration to the succession of God’s thoughts or something similar, it will be an error of the intellect, rather than a true perception of anything. I have already responded to what you say next by noting that the extension attributed to incorporeal things is one of power only, not of substance. Since this power is only a mode in the thing to which it is applied, it cannot be understood as extended once the extension with which it coexists is removed.

### On the penultimate instances

“God is positively infinite (i.e. exists everywhere),” etc. I do not grant this “everywhere”. For you seem to make God’s infinity consist in his existing everywhere, a view to which I do not assent. Instead, I believe that God is everywhere in respect of his power, whereas he has no relation to space whatsoever in respect of his essence. However, since there is in God no distinction between power and essence, I think it is preferable that in these matters we should rather reason about our minds or about angels, which are more adequate objects of our understanding, than about God. The following difficulties all seem to me to arise from the prejudice that we all too often tend to imagine substances, including those to which



corpora esse negamus, tanquam extensas imaginari; & de entibus rationis intemperanter Philosophari, *entis sive rei proprietates non enti tribuendo*. Sed rectè meminisse oportet, non entis nulla esse posse vera attributa, nec de eo posse ullo modo intelligi *partem & totum, subjectum, adjunctum*, &c. Ideoque optimè concludis cum propriis umbris mentem ludere, cum entia Logica considerat.

*Certus finitusque stadiorum numerus suffecerit*, &c. Sed repugnat meo conceptui ut mundo aliquem terminum tribuam, nec aliam habeo mensuram eorum quæ affirmare debeo vel negare quàm propriam perceptionem. Dico idcirco mundum esse indeterminatum vel indefinitum, quia nullos in eo terminos agnosco; sed non ausim vocare infinitum, quia percipio Deum esse mundo majorem, non ratione extensionis, quàm, ut sæpe dixi, nullam propriam in Deo intelligo, sed ratione perfectionis.

### Ad ultimas Instantias.

*Hoc si præstiteris*, &c. Non certus sum meæ Philosophiæ continuationem unquam in lucem prodituram, quia pendet à multis experimentis, quorum faciendorum nescio an copiam sim unquam habiturus; sed spero me hâc ætate brevem tractatum de Affectibus editurum, ex quo apparebit quo pacto in nobis ipsis omnes motus membrorum, qui affectus nostros comitantur, non ab anima, sed a sola corporis machinatione peragi existimem. Quod autem *Canes annuant caudis*, &c. Sunt tantum motus qui comitantur affectus, eosque accuratè distinguendos puto à loquela, quæ sola cogitationem in corpore latentem demonstrat. *Nec infantes ulli*, &c. Dispar est ratio infantum & brutorum: Nec judicarem infantes esse mente præditos, nisi viderem eos esse ejusdem naturæ cum adultis: bruta autem eousque nunquam adolescunt, ut aliqua in iis cogitationis non certa deprehendatur.

### Ad Quæstiones.

*Ad primam*. Repugnat conceptui meo, sive, quod idem est, puto implicare contradictionem, ut mundus sit finitus vel terminatus, quia non possum non concipere spatium ultra quoslibet præsuppositos mundi finales; tale autem spatium apud me est verum corpus: nec moror quod ab aliis imaginarium vocetur, & ideo mundus finitus existimetur; novi enim ex quibus præjudiciis error iste profectus sit.

*Ad secundam*. Imaginando gladium trajicii ultra mundi fines, ostendis te etiam non concipere mundum finitum, omnem enim locum ad quem gladius pertingit revera concipis ut mundi partem, quamvis illud quod concipis vacuum voces.

*Ad tertiam*. Non melius possum explicare vim reciprocam in mutua duorum corporum ab invicem separatione, quàm si tibi ponam ob oculos navigiolum aliquod hærens in luto juxta fluminis ripam, & duos homines, quorum unus stans in ripa navigiolum manibus pellat, ut illud à terra removeat, eodémque prorsus modo alius stans in navigio ripam manibus pellat, ut illud idem à terra removeat. Si enim horum hominum vires sint æquales, conatus ejus qui terræ insistit,

CSMK, 374

252

we deny corporeality, as being extended and that we philosophize rather rashly about beings of reason, attributing properties of a being or a thing to non-being. However, we are well-advised to keep in mind that a non-being cannot have any real attributes, nor can we in any way conceive in it “part” and “whole”, “subject” and “predicate”, etc. And therefore your conclusion is very apt that “the mind plays with its own shadows” when considering logical beings.

“A certain finite number of stades would suffice”, etc. However, it is repugnant to my way of conceiving to attribute a limit to the world, and my only yardstick for what I must affirm or deny is my own perception. I hold, therefore, that the world is indeterminate or indefinite, because I do not see any limits in it. Yet, I would not dare to call it infinite because I see that God is greater than the world, not in respect of extension which, as I have frequently said, does not apply to him in the proper sense in any way, but in respect of his perfection.

### On the final instances

“If you manage to do this,” I am not sure whether the continuation of my Philosophy will ever see the light of day, because it depends on a number of experiments and I do not know whether I shall be given the opportunity of conducting them. But I do hope to publish a short treatise on the passions this summer. It will shed light on how I believe that all the motions of our members which accompany our passions are not caused by the soul, but by the machinery of the body alone.

As to the fact that “dogs nod ‘yes’ with their tails”, etc., however, those are only motions which accompany certain passions. Still, I think we must distinguish them carefully from speech which is the sole proof of thought hidden in a body.

“Nor do infants”, etc. The case of infants is different from that of brutes. I would not judge that infants possessed minds if I did not see that they had the same nature as adults. By contrast, brutes never develop to a point where we perceive any certain marks of thought in them.

### On the questions

*On the first question*. It is repugnant to my way of conceiving, or, what means the same, I think it implies a contradiction, that the world should be finite or bounded because I cannot but conceive some space beyond those supposed boundaries. However, on my view, such space is a real body. Nor do I care that others call it “imaginary” and therefore believe the world to be finite. For I know which prejudices gave rise to this error.

*On the second question*. By imagining a sword to pierce beyond the boundaries of the world, you show that you, too, do not conceive the world to be finite. For in reality you conceive all the space into which the sword reaches as a part of the world even if you call that which you conceive a vacuum.

*On the third question*. I cannot explain the reciprocal power involved in the mutual separation of two bodies from one another any better than by putting before your eyes a small boat off the river bank which is stuck in the mud. There are two men. The one, standing on the bank, is pushing the boat with his hands so as to move it away from land. In the very same way, the other is standing in the boat and pushing against the bank with his hands to move the very same boat away from land. Thus, assuming that the powers of these two men are equal, the endeavour of the one who stands on land,

CSMK, 375

344

345

346

terræque idcirco conjunctus est, non minùs confert ad motum navigii quàm conatus alterius qui cum navigio transfertur. Unde patet actionem quâ navigium à terra recedit non minorem esse in ipsa terra quàm in navigio. Nec est difficultas de eo qui à te sedente recessit; cum enim de translatione hîc loquor, intelligo tantùm eam quæ fit per separationem duorum corporum se immediatè tangentium.

*Ad quartam.* Motus Lunæ determinat materiam cœlestem, & ex consequenti etiam terram in ea contentam, ut versùs unam partem potius quàm versùs aliam, nempe in figura jbi posita, ut ab A versùs B, potius quàm versùs D, flectatur; non autem dat ei celeritatem motùs: & quia hæc celeritas pendet à materia cœlesti, quæ præter propter eadem est juxta Terram ac juxta Lunam, deberet Terra duplo celerius convolvi quàm convolvitur, ut circiter sexagies circulum suum absolveret eo tempore quo Luna semel percurrit suum sexagies majorem, nisi obstaret magnitudo, ut in *Artic. 151. p. 3.* dictum est.

*Ad quintam.* Nullum suppono esse lentorem nullamque tenacitatem in minimis materiæ particulis, nisi quemadmodum in sensibilibus & magnis, quæ nempe ex motu & quiete partium dependet. Sed notandum est, ipsas particulas striatas formari ex materia subtilissima, & divisa in minutias innumerabiles vel numero indefinitas, quæ ad ipsas componendas simul junguntur, adeò ut plures diversas minutias in unaquaque particula striata concipiam quàm vulgus hominum in aliis corporibus valde magnis.

*Ad sextam.* Conatus sum explicare maximam partem eorum quæ hîc petis in tractatu de Affectibus. Addo tantùm, nihil mihi hæcenus occurrisse circa naturam rerum materialium cujus rationem mechanicam non facillimè possim excogitare. Atque ut non dedecet hominem Philosophum putare Deum posse corpus movere, quamvis non putet Deum esse corporeum; ita etiam eum non dedecet aliquid simile de aliis substantiis incorporeis judicare. Et quamvis existimem nullum agendi modum Deo & creaturis univocè convenire; fateor tamen me nullam in mente mea ideam reperire quæ repræsentet modum quo Deus vel Angelus materiam potest movere, diversam ab ea quæ mihi exhibet modum quo ego per meam cogitationem corpus meum movere me posse mihi conscius sum.

Nec verò mens mea potest se modò extendere, modò colligere, in ordine ad locum, ratione substantiæ suæ, sed tantùm ratione potentia, quàm potest ad majora vel minora corpora applicare.

*Ad septimam.* Si mundus ab æterno fuisset, proculdubio hæc Terra non mansisset ab æterno, sed aliæ alibi productæ fuissent, nec omnis materia abiisset in primum Elementum: ut enim quædam ejus partes uno in loco comminuuntur, ita aliæ in alio loco simul coalescunt; nec plus est motùs sive agitationis in tota rerum universitate uno tempore quàm alio.

*Ad octavam.* Particulas aquæ, aliàsque omnes quæ sunt in terra, poros habere sequitur evidentè ex modo quo terræ productionem descripsi, nempe à particulis materiæ primi elementi simul coalescentibus: cum enim hoc primum Elementum nullis constet particulis nisi indefinite divis, hinc sequitur concipiendos esse poros usque ad ultimam possibilem divisionem in omniibus corporibus ex eo conflatis.

and is therefore connected with the land does not contribute less to the motion of the boat than does the endeavour of the other moving along with the boat. Hence it is clear that the action by which the boat moves away from land is not smaller on the land itself than in the boat. Nor does your example of a person moving away from you while you are sitting pose any difficulty. For when I talk about a transfer, I only understand that which happens through the separation of two bodies immediately touching each other.

*On the fourth question.* The motion of the moon determines the celestial matter and, consequently, the earth contained in it as well so that it turns towards one part rather than another. Thus, as you can see in the figure there, it turns from A towards B rather than D without bestowing on it any velocity of motion. And since this velocity depends upon celestial matter, a velocity roughly the same as its motion near the earth and near the moon, the earth would have to orbit twice as fast. As a consequence, it would complete its orbit about sixty times in the same period of time in which the moon completes its own which is sixty times as large if it were not obstructed by its size (as it is said in art. 151, p. 3).

*On the fifth question.* I do not assume any other pliancy and tenacity in the smallest particles of matter than that in the sensible and large ones, namely one depending upon the motion and rest of its particles. But one must take note that the grooved particles themselves are formed from that matter which is very fine and divided into innumerable or indefinitely many minute parts coalescing to fashion them. Consequently, I conceive more different minute parts in every single grooved particle than most people do in other very large bodies.

*On the sixth question.* I have endeavoured to explain most of what you ask here in my treatise on the passions. I should only like to add that I have not yet come across anything about the nature of material things that I could not have explained with the greatest ease in a mechanistic fashion. And just as it is not unsuitable for a philosopher to believe that God can move a body without believing that God is corporeal, so it is not unsuitable for him to assume something similar with regard to other incorporeal substances. And while I think that there is no mode of action belonging to God and his creatures univocally, I must confess that I cannot find in my mind any other idea representing a mode in which God or an angel can move matter than the one exhibiting to me the mode in which I am conscious of being able to move my body by my thought.

Moreover, my mind cannot extend and contract in relation to space in respect of its substance, but solely in respect of its power which it can apply to larger bodies at one time and at smaller ones at another.

*On the seventh question.* If the world had been created from eternity, this earth would doubtless not have been from eternity. Instead, others would have been produced elsewhere. Moreover, not all matter would have changed into the first element by now. For just as some of its parts break up in one place, so others coalesce in another place without there being more motion or agitation in the whole of the universe at one time than another.

*On the eighth question.* That the particles of water and all the others on the earth have pores follows clearly from the way I have described the production of the earth, notably the coalescence of particles of first element matter. Since, then, the first element consists only of particles indefinitely divisible, it follows that we must conceive pores up to the last possible division in all the bodies composed of it.



*Ad nonam.* Ex iis quæ paulò antè dixi de duobus hominibus, quorum unus movetur unà cum navigio, alius in ripa stat immotus, satis ostendi me putare nihil esse in unius motu magis positivum quàm in alterius quiete.

Quid sibi velint hæc tua ultima verba, *An ulla res affectionem habere potest naturaliter & à se, quâ penitus potest destitui, vel quam aliunde potest adsciscere*, non satis percipio.

Cæterum velim ut pro certo existimes mihi semper fore gratissimum ea accipere, quæ de scriptis meis vel quæres vel objicies, & pro viribus responsurum esse.

Egmondæ, 17 Kalendis  
Maii, 1649.

Tibi addictissimum

RENATUM DES-CARTES.

## SCHOLIA

### IN RESPONSUM ad EPIST. II.

**I**NSTANT. 1. Sicque meo iudicio demonstratur Impenetrabilitatem ad Essentiam Extensionis, &c. Quia scilicet illa pars Extensionis quæ penetrat, tolleretur vel annihilaretur. At nulla pars substantia extensa hac penetratione perit. Alioquin omnes Spiritus, qui Spiritum Universi putà, penetrant, eo ipso perirent. Ipsaque Materia extensa in Extenso immobili aut periret, aut Extensi immobilis partes eis in locis ubi est, annihilaret. Si verò sit Essentia in Essentia, manifestum est esse Extensionem in Extensione, cum omnis Essentia sit aliquo modo extensa. Vide Enchirid. Metaphys. c. 28. sect. 6, 7.

Quòd autem quis extensionem quæ solius potentiae est, &c. Quòd solas potentias substantiarum incorporearum extensas asserit Cartesius, hinc Nullibistis rursus favere non immeritò conscribi potest eorumque esse Coryphaeus.

Instant. 2. Extensionem quæ rebus incorporeis tribuitur, esse Potentiae duntaxat, non Substantiae; Quæ Potentia cum sit tantum Modus in re ad quam applicatur, sublato extenso cui coexistit, non potest intelligi esse coextensa. Quod modò fecit, expressius profectò hic facit, apertius scilicet Nullibismo favet; quinimò & nullitati forteam rerum incorporearum, dum potentiam, quam nos supponimus in Spiritibus, Materia extensa modum esse subinsinuat, quemadmodum facit Spinozius. Vide quæ adnotavimus in Scholiis in Respons. ad Epist. 1. Difficult. 1.

Instant. 4. Hoc ubique non admitto. Videris enim hîc Infinitatem Dei in eo ponere quòd ubique existit, cui opinioni non assentior; sed puto Deum ratione suæ potentiae ubique esse, ratione autem suæ essentiae nullam planè habere relationem ad locum. Expressissimus hic Nullibismus est; unde me non immeritò Cartesium Nullibistarum Principem agnovisse, Enchirid. Metaphys. cap. 27. satis manifestum est. Sed malè interin-

*On the ninth question.* I have just talked about two men, one of them moving along with a boat, the other standing on the bank unmoved. This sufficiently illustrates my view that there is nothing more positive in the motion of the one than there is in the rest of the other.

I do not really understand the meaning of those final words of yours: "Can a thing possess any property in a natural way and from itself which it can also lack altogether or acquire from another source?"

Moreover, I want to assure you that I shall always listen with the greatest pleasure to your questions about and objections to my writings and that I shall always try to answer to the best of my abilities.

Yours most sincerely,

Rene Descartes

Egmond, 15<sup>th</sup> April 1649

OO, 253

### Scholia on the Answer to the Second Letter

Instance 1. "And so, in my opinion, it has been proven that impenetrability belongs to the essence of extension, not any other thing", etc., that is to say, because that part of extension which penetrates would be removed or annihilated. Yet, no part of an extended substance is destroyed in penetration. Otherwise, all spirits which penetrate, say, the spirit of the universe would be destroyed in the process. And extended matter itself would either be destroyed in the immobile extension or annihilate the parts of the immobile extension in those places where it is. However, if one essence is in another essence, it is obvious that there is an extension in extension, since all essence is extended in some way (see Ench. Met., ch. 28, sects. 6-7).

"Attributing this extension which is solely one of power", etc. By asserting that only the powers of incorporeal substances are extended, he can be rightly judged to promote the cause of the nullibists here once again, being their leader.

Instance 2: "The extension attributed to incorporeal things is one of power only, not of substance. Since this power is only a mode in the thing to which it is applied, it cannot be understood as extended once the extension with which it coexists is removed." Indeed, here he says more expressly what he has already said a little earlier, promoting openly the cause of nullibism, perhaps even that of the nullity of incorporeal things. After all, he implies that the power which we assume to be in spirits is a mode of extended matter, as Spinoza holds. See our notes in the scholia on his answer to the first letter, Difficulty 1.

Instance 4: "I do not grant this 'everywhere'. For you seem to make God's infinity consist in his existing everywhere, a view to which I do not assent. Instead, I believe that God is everywhere in respect of his power, whereas he has no relation to space whatsoever in respect of his essence." This is the most open statement of nullibism possible. Hence, it is beyond doubt that I have rightly called Descartes the "prince of nullibists" in my Ench. Met., ch. 27.

254



terim sibi constare videtur, si hac cum eis comparaveris quæ occurrunt in Responsio ad Epistolam meam primam Difficult. 1. Vide Scholia eum in locum.

Quæst. 1. Quia non possem non concipere spatium ultra quolibet præsuppositos Mundi fines. Tale autem spatium apud me est verum corpus, &c. Id verò quod non possumus non concipere quin existat, necessario, si proprias consulamus facultates, existit. Cum autem necessario & à se sic concipitur existere, (neque enim illius Idea cum cujusquam alius rei Idea in hac conceptione conjungitur) hac conceptio si in corpus definit, Existentiam Entis absolute perfecti planè subvertit. Quæ de re conquestus sum in Prefatione ad Enchiridium Metaphysicum, Sect. 4.

OO, 254 AT V, 376

Henry More to that most distinguished Gentleman and foremost philosopher  
Rene Descartes

*Illustrissimo Viro, Principique Philosofo,*  
**RENATO DES-CARTES,**  
**HENRICUS MORUS.**

**V**IX me abstinebam (Vir Clarissime) quin ab acceptis tuis literis continuò ad te rescriberem: quamvis profectò id à me factum fuisset incivilius; quippe quòd satis ex iisdem intelligerem te per septimanas bene multas negotiis fore districtissimum. Quin & mihi ipsi tunc temporis à patris obitu acciderunt multa quæ me aliò avocârunt, impediveruntque aded ut quod voluissem maximè præstare, haud commodè potuissem. Jam verò ad te tuâque reversus, satisque nactus otii, rescribo, gratiasque ago maximas, quòd quærendi de tuis scriptis quod lubet obijciendique plenum mihi jus tam liberè benignèque concesseris.

Cæterum, nè abuti videar hâc summâ humanitate tuâ ad prolixiores altercationes (nam hætenus eo in loco Philosophiæ versati sumus qui λογισμαχίαι lubricisque subtilitatibus opportunior extitit, in confiniis utique Physices, Metaphysicæ & Logicæ) ad ea propero quæ certum magis firmumque judicium capiunt.

Obiter tantum notabo, atque primò ad Responzionem ad Instantias primas; Quantum ad Angelos animasque separatas, si immediatè suas invicem deprehendant essentias, id non dici posse sensum propriè, si ipsos fingas penitus incorporeos. Me verò lubentem cum Platonis, antiquis Patribus, Magisque ferme omnibus, & animas & genios omnes, tam bonos quàm malos, planè corporeos agnoscere, ac proinde sensum habere propriè dictum (i. e.) mediante corpore, quo induuntur, exortum. Et profectò cum nihil non magnum de tuo ingenio mihi pollicear, perquam gratissimum esset, si conjecturas tuas, quas credo pro ea qua polles sagacitate ac acuminè fore ingeniosissimas, mecum breviter communices super hac re. Nam quòd quidam magnificè se efferunt in non admittendo substantias ullas quas vocant separatas, ut Dæmonas, Angelos, Animasque post mortem superstites, & maximopere hîc sibi applaudunt, quasi re bene gestâ, & tanquam eo ipso longè sapientiores

And yet, he seems to contradict himself in this matter if you compare this to what he says in his answer to my first letter, Difficulty 1. See the scholia on this place.

Question 1: "I cannot but conceive some space beyond those supposed boundaries. However, on my view, such space is real body", etc. Indeed, that which I cannot conceive as non-existent must exist by necessity if we consult our own faculties. It is, therefore, conceived to exist by necessity and from itself, for its idea is not conceived as being linked to the idea of any other thing here. However, this way of conceiving, if it ends in body, completely undermines the existence of an absolutely perfect being. I have criticized this matter in the preface to my *Enchiridium Metaphysicum*, sect. 4.

I found it almost impossible, most distinguished Sir, to restrain myself from writing back to you at once after I had received your letter, even though doing so would have indeed been discourteous on my part. After all, I knew from your letter how exceedingly occupied you would be for a good many weeks to come. Moreover, I, too, had many other things to which I had to attend in the aftermath of my father's death and they distracted me so much that I did not have the time to do what I wanted to do most of all. However, now that I have sufficient leisure, I can finally return to your letter and answer it. I am infinitely grateful to you for your generosity and greatness of spirit in allowing me to raise whatever questions and objections I have regarding your writings.

Nor do I want to appear to abuse your extraordinary kindness in order to prolong our exchanges of objections and answers (for up to this point we have dealt with parts of philosophy particularly well-suited to λογισμαχίαι and slippery subtleties, that is to say, the fields of physics, metaphysics and logic). Therefore, I hasten to those on which we may reach a more certain and definite judgement.

I shall start by commenting briefly upon your answer to my first instances. As to angels and separated souls, if they are capable of grasping each other's essence immediately, this cannot be called sensation in the proper sense if you believe them to be entirely incorporeal. I, for one, should much rather follow the Platonists, the ancient Church Fathers and almost everyone else in viewing souls and all genii, whether good or bad, as clearly embodied, and therefore as all possessing sensation in the proper sense, that is to say, sensation as it arises through the mediation of the body with which they are clothed. And since I could not be any more confident that only the greatest things will flow from your mind, you would do me the greatest of favours if you would in a few words share with me your speculations about these things. Judging from the brilliant intellect which you possess, I am sure these cannot fail to be ingenious. There are people who pride themselves exceedingly upon denying all so-called separated substances, whether demons, angels or souls, living after their death. Indeed, they applaud themselves profusely on this alleged feat and believe that they have thereby proved themselves to be far superior

evassissent ceteris mortalibus, id ego non huius æstimo. Nam quod sæpius observavi, hi sunt, ut plurimum, aut Taurini sanguinis homines, perditeque melancholici, aut immane quantum sensibus & voluptatibus dediti, Athei denique, saltem si permetteret religio, quâ solâ superstitione freti Deum esse agnoscunt. Me verò non pudet palam profiteri, me vel semoto omni Religionis imperio, meâ sponte agnoscere genios esse atque Deum; nec ullum alium tamen me posse admittere, nisi qualem optimus quisque ac sapientissimus exoptaret, si deesset, existere. Unde semper suspicatus sum, profligatissimæ improbitatis summæque stupiditatis triumphum esse Atheismum; Atheorumque gloriationem perinde esse ac si stultissimus populus de sapientissimi benignissimique Principis cæde ovarent inter se & gratularentur. Sed nescio quo impetu huc excursus est. Redeo,

Secundo, Quod ad demonstrationem illam tuam attinet, quâ concludis omnem substantiam extensam esse tangibilem & impenetrabilem; videor mihi hæc posse regerere: in aliqua scilicet substantia extensa partes extra partes esse posse, sine ulla *avversaria*, seu mutua resistentia; atque hinc perit proprie dicta Tangibilitas. Deinde, extensionem simul cum substantia in reliquam replicari extensionem & substantiam, nec deperdi magis quam illam substantiæ partem quæ retrahitur in alteram; atque hinc cadit illa Impenetrabilitas: quæ profiteor me clare & distincte animo concipere. Quod autem aliquod reale claudi possit (sine ulla sui diminutione) minoribus majoribusque terminis constat in motu, ex tuis ipsius principis. Nam idem numero motus tunc majus nunc minus subjectum occupat, juxta tuam etiam sententiam. Ego verò pari facilitate & perspicuitate concipio dari posse substantiam quæ sine ulla sui diminutione dilatari & contrahi possit, sive per se id fiat, sive aliunde.

Postremo igitur; Et demiror equidem quod ne intellectum tuum cadere possit, quod aut mens humana aut Angelus hoc ferme modo sint extensi, quasi implicaret contradictionem. Cum ego potius putarem implicare contradictionem quod potentia mentis sit extensa, cum mens ipsa non sit extensa ullo modo. Cum enim potentia mentis sit modus mentis intrinsecus, non est extra mentem ipsam, ut patet. Et consimilis ratio est de Deo: unde me consimilis ferit admiratio, quod in Responsione ad penultimas Instantias concedis eum ubique esse ratione potentia, non ratione essentia; quasi potentia Divina, quæ Dei modus est, extra Deum esset sita, cum modus realis quilibet intime semper insit rei cujus est modus: Unde necesse est Deum esse ubique, si potentia ejus ubique sit.

Neque suspicari possum per potentiam Dei intelligi te velle effectum in materiam transmissum. Quod si hoc intelligas, non video tamen quin eodem res recitat. Nam hic effectus non transmittitur nisi per potentiam Divinam, quæ attingit materiam suscipientem, hoc est, modo aliquo reali unitur cum ea, ac proinde extenditur, nec tamen interea separatur ab ipsa Divina Essentia. Videtur enim, ut dixi, conspicua contradictio. Sed hisce statui non immorandum.

Ad Quæstiones transvolo, postquam monuerim, quàm contristat animum continuationis tuæ Philosophiæ desperatio: Sed æquè refocillat tamen

to all other mortals. I, for one, do not think quite so highly of them. In fact, I have frequently  
378 observed that most of them are of a taurine temper, melancholic beyond rescue or wholly devoted to sensual pleasures. They would end up being outright atheists if their religion, or rather superstition, in which they acknowledge that God exists, allowed it to them. Personally, I have no problem whatsoever professing publicly that even if all the authority of religion were to be removed, I should nevertheless freely acknowledge at once the existence of genii and God. Nor can I acknowledge the existence of any other God than that one whose existence all the best and the brightest would wish for if he did not exist. Hence, I have always suspected that atheism is the triumph both of the deepest improbity and the worst stupidity. And the boasting of the atheists resembles the joy and exultation of the most stupid of people on putting to death the best and wisest of princes. But I do not know what impulse has driven me to say all of this here, so I shall return to the topic at hand.

Secondly, as regards your demonstration by which you conclude all extended substance to be tangible and impenetrable, I think I can reply as follows: there can be parts in some extended substance which are external to each other without any ἀντιπῆξις or mutual resistance, and in this case there will, therefore, be no tangibility in the proper sense. Further, a part of the extension and the substance, contracts itself into the rest of the extension and substance. However the rest is not destroyed in the process any more than is that part of the substance which contracts into it and therefore there is no impenetrability. I confess that I conceive all of this clearly and distinctly in my mind. However, that something real can be situated within narrower or broader bounds without losing anything of itself is obvious from motion, as is clear from your own principles. For one numerically identical motion, even according to your own view, occupies a larger part of a subject at one time and a smaller one at another. However, I, for one, can conceive as easily and as clearly that  
379 there can be a substance which, either by its own power or another's, is able to dilate and contract without any loss of itself.

Finally, then, I am utterly surprised that you fail to see that the human mind or an angel are extended in just this fashion as though this implied a contradiction. By contrast, I personally am more inclined to think that it implies a contradiction that the power of the mind is extended, while the mind itself is not in any way. For, since the power of the mind is an intrinsic mode of the mind, it obviously cannot be outside the mind itself. And the same argument applies to God. Hence, I am equally surprised that in your answer to the penultimate instances you admit that he is everywhere in respect of his power, but not in respect of his essence. How could the divine power, which is a mode of God, be outside God, even though every real mode always inheres most intimately in the thing of which it is a mode? Hence, it is necessary that God is everywhere if his power is everywhere.

And I cannot but suspect that by the power of God you want to understand an effect transferred into matter. However, if you understand it this way, I cannot see how that should not equally come to naught. For there is no other way for this effect to be transferred than by the divine power touching matter and matter receiving it; in other words, by some real mode united to the matter and, therefore, extended. Nor can it all the while be separated from the divine essence itself. There seems to be an obvious contradiction here, as I have said. However, I do not want to dwell on this any longer.

I shall pass to the questions. However, before that, I should like to point out how much it grieves me that we must not hope for a continuation of your Philosophy. But at the same time,



tamen certa spes Tractatus illius desideratissimi quem hæc ætas par-  
turit ; citò & feliciter in lucem prodeat exopto.

### Ad Respons. ad Quæstiones.

Ad primam & secundam respondes sanè constanter & convenienter  
tuis principiis, quod à quolibet, nisi sententia vicerit melior, & expecto,  
& laudo.

Ad tertiam ; Ex navigiolo illo tuo has mihi comparavi merces. 1. In  
motu esse mutuum eorum quæ moveri dicuntur renixum. 2. Quietem  
esse actionem, nempe renixum quandam, sive resistantiam. 3. Moveri duo  
corpora, esse immediate separari. 4. Immediatam illam separationem  
esse motum illum, sive translationem, præcisè sumptum.

Cum verò duo corpora se expediunt à se invicem, nisi vim in utro-  
que expeditricem, & avulsoriam adjeceris notioni translationis, seu  
motus, motus hic erit extrinsecus tantum respectus, aut aliquid fortasse le-  
vis. Separari enim vel significat, superficies corporum quæ se modò  
mutuò tangebant distare à se invicem, (distantia autem corporum ex-  
trinsecus tantum est respectus;) vel significat non tangere quæ modò  
tangebant, quæ privatio duntaxat est, vel negatio. Certè de sententia  
tua hæc in re non satis clarè mihi constat.

Ego verò, si mihi ipsi permitterer, judicarem motum esse vim illam  
vel actionem quæ se à se invicem mutuò expediunt corpora quæ dicis  
moveri ; immediatam autem illam separationem eorundem esse effectum  
dictorum motuum, quævis sit vel nudus duntaxat respectus, vel  
privatio. Sed aliter tibi visum est Philosophari in explicatione definitio-  
nis Motus, Artic. 25. Part. 2. ubi equidem mentem tuam non plenè  
capio.

Ad reliquas Quæstiones omnes quas proposui respondisti perspicuè &  
appositè. Sed ad pleniorè intelligentiam eorum quæ ad sextam ac-  
cumulavi, expecto dum prodeat exoptatissimus tuus libellus de Affe-  
ctibus.

Cæterum, quantum ad verba illa mea ultima, *An ulla res, &c.* partu-  
ribat profectò mihi mens evanidam aliquam subtilitatem, quæ jam ef-  
fugit, nec meâ interest revocare.

Hoc tantum quæram denud, *Utrum materia sibi liberè permissa, i. e.*  
*nullum aliunde impulsam suscipiens, moveretur, an quiesceret?* Si moveretur  
à se naturaliter, cum materia sit homogenea, & ea propter motus ubi-  
que esset æqualis, sequitur quòd tota materia simulac fuerit, disjcere-  
tur in partes tam infinitè exiles, ut nihil ullo modo ulterius abradi  
posset ab ulla particula. Quicquid enim abradendum imaginaris, jam  
disiectum est ac dissolutum, ob intimam vim motus per universam ma-  
teriam pervadentis, vel, si malles, insiti. Nec partium aliæ aliis magis  
mutuò adhærescent, aliòve cursum flectent quàm aliæ, cum sint omnes  
prorsus consimiles juxta quamlibet rationem imaginabilem. Nulla e-  
nim figuræ asperitas vel angulositas fingi potest, quæ non jam contusa  
sit ad ultimum quod motus poterit præstare ; nec ulla motus in æqua-  
litas in ullis particulis ponenda est, cum materia supponatur perfectè  
homogenea. Si naturaliter igitur moveretur materia, nec Sol, nec Cœ-  
lum, nec Terra esset, nec vortices ulli, nec heterogeneum quicquam,

G g 3

five

the certain hope for that most desirable treatise of yours which this summer will bring us consoles  
me. I heartily wish that it will see the light of day soon and successfully.

380

### On the Answers to the Questions

To the first and second questions you give answers that correspond perfectly to your principles  
throughout, as I should expect from and praise in anybody as long as no better view prevails.

As to the third, I have gained the following useful things from your example of the boat: 1. in  
motion there is a mutual resistance between the bodies that are said to be moving. 2. Rest is action,  
namely some resistance or opposition. 3. For two bodies to move means that they separate  
immediately. 4. That immediate separation is precisely that motion or transfer.

Indeed, when two bodies separate themselves from each other, this motion, unless you add to this  
notion of translation or motion some separating or parting power in the one or the other, will be  
nothing more than a wholly extrinsic relationship at best. Being separated either means that the  
surfaces of bodies which beforehand touched each other, distance themselves from each other (the  
distance between the bodies, however, being a wholly extrinsic relation) or it means that bodies no  
longer touch each other which did so previously. However, this is merely a privation or negation. I  
am obviously not yet sufficiently certain about your view on this matter.

Personally, however, I would, if I may, deem motion to be that power or action by which those  
bodies which, you say, are in motion separate themselves from each other. Their immediate  
separation is the effect of the said motion, even though it is either merely a bare relation or a  
privation. However, you yourself seem to have argued differently in your explanation of the  
definition of motion given in Part II, art 25, where, to tell you the truth, I do not yet fully understand  
your view.

381

You have answered all the other questions which I have raised with great clarity and precision. But  
for a fuller understanding of those numerous problems which I have raised with regard to the sixth  
question, I shall wait for the publication of your much-desired little book on the passions.

Moreover, as regards those final words of mine: "Can a thing", etc., it was some exceedingly subtle  
speculation coming to my mind which I have by now forgotten and which I have no interest in  
trying to recall.

There is only one question which I should like to ask again: did matter, freely left to itself, that is to  
say, without receiving any impulse from without, move or rest? Assuming it moves naturally by  
itself, matter being homogeneous and, consequently, motion being everywhere the same, it follows  
that the whole of matter, as soon as it came to exist, would have been divided into parts so infinitely  
small that nothing could any longer be scratched off any of these particles in any way. Whatever you  
may imagine to be scraped off would already have been divided and dissolved on account of the  
most inward power of motion pervading or, if you prefer, inserted into all matter. Nor will some  
parts stick to one another more than others or direct their course to another place more than others,  
since all of them are completely alike in every possible regard. For we cannot imagine any uneven  
or angular shape not already formed into whatever shape motion will eventually end up imposing on  
it. Nor must we assume that any of the particles differ in their motion, since matter is supposed to be  
perfectly homogeneous. If, therefore, matter were in motion by its nature, there would be no sun,  
sky, earth, vortices or anything heterogeneous

256



sive sensibile sive imaginabile, in rerum natura. Ideoque periret tuum condendi cœlos terraque, cæteraque sensibilia, mirificum artificium.

Quod si materiam quiescere dicis ex se nisi aliunde movetur, quodque hæc quies sit positivum quid, vim inde materia æternum pateretur, affectio naturalis destrueretur in perpetuum, ut contraria dominaretur: quod videtur duriusculum. Nec tamen tutius forsitan esset quietem statuere motus privationem, sive negationem; caderet enim omnis resistendi actio in materia quiescente, quam tamen agnoscis: Quamvis & id ipsum intellectui meo nonnihil negotii facessat. Dum enim quietem actionem statuis materiæ, motum etiam eandem esse statuas necesse est; siquidem materia non agit nisi movendo, aut saltem conando motum. Malè profectò me habent isti scrupuli, quos quam primum eximere mihi poteris, obsecro ut eximas.

Quinetiam adeò superstitiosè hæc prima principia pensito, ut nova jam mihi ingeratur difficultas de natura motus. Cum scilicet motus corporis modus sit, ut figura, situs partium, &c. quæ fieri possent, ut transeat ab uno corpore in aliud, magis quàm alii modi corporei? Et universim imaginatio mea non capit, quæ possit fieri ut quicquam quod extra subjectum esse non potest (cujusmodi sunt modi omnes) in aliud migret subjectum. Deinde quæram, cum unum corpus in aliud minus, sed quiescens, impingit, secumque defert, annon quies quiescentis corporis similiter transmigrat in deferens, æquè ac motus moventis in quiescens? Videtur enim quies res adeò otiosa ac pigra, ut eam tæderet itineris. Cum tamen æquè realis sit ac motus, ratio coget eam transire. Postremò, obstupesco planè, dum considero quod tam levicula ac vilis res ac motus, solubilis etiam à subjecto & transmigrabilis, adeoque debilis ac evanida naturæ, ut periret protinus nisi sustentaretur à subjecto, tam potenter tamen contorqueret subjectum, & hæc vel illac tam fortiter impelleret. Equidem pronior sum in hanc sententiam; quod nullus prorsum sit motuum transitus, sed quod ex impulsu unius corporis aliud corpus in motum quasi expergiscatur, ut anima in cogitationem ex hac vel illa occasione; quodque corpus non tam suscipiat motum, quàm se in motum exerat à corpore alio commonefactum; &, quod paulò antè dixi, eodem modo se habere motum ad corpus ac cogitatio se habet ad mentem, nimirum neutrum recipi, sed oriri utrosque ex subjecto in quo inveniuntur; atque omne hoc quod corpus dicitur, *stupidè & temulentè esse vivum, utpote quod ultimam infimamque Divinæ essentia, quam perfectissimam vitam autumo, umbram esse statuo* ac indolum, veruntamen sensu ac animadversione destitutam.

Cæterum transitus ille tuus motuum à subjecto in subjectum, idque à majori in minus, & vicissim, ut suprà monui, optimè repræsentat naturam meorum Spirituum extensorum, qui contrahere se possunt, & rursus expandere; penetrare facillimè materiam, & non implere; agitare quovis modo ac movere, & tamen sine machinis ullis & uncorum nexu. Verùm diutius in hoc loco hæsi quàm putàram: sed ad institutum propero, hoc est, ad novas Quæstiones proponendas, super singulis illis Articulis Principiorum tuæ Philosophiæ, quorum vim nondum satis intelligo.

Ad

in the fabric of things, whether sensible or imaginable. And so, your admirable art of creating the heavens, earths and all other sensible things must fail.

- 382 On the other hand, if as you say matter by itself is at rest unless it is moved from without and that this rest is something positive, then in this case matter would as a consequence suffer violence from eternity. Its natural property would be destroyed forever in order for the opposite one to prevail, a conclusion that seems somewhat harsh. Nor, for that matter, does it seem any safer to consider rest the privation or negation of motion, since one would in that case deprive matter at rest of all action of resisting, which you yourself acknowledge. I find all of this very difficult to understand. For, if you consider rest an action of matter, you must also assume motion to be the same action, since matter acts only by motion (or at least the endeavour to move). I pray that you resolve these doubts of mine as far as you can, since they prove a source of quite some concern for me.

Indeed, I have been thinking upon these first principles so rigorously that I am faced with another difficulty regarding the nature of motion. If the motion of a body is a mode like shape, the structure of its parts, etc., how is it any more possible for it to move from one body to another than for any other corporeal mode? And in general I cannot imagine how it is possible that anything that cannot exist outside a subject (which applies to all modes) might pass to another subject. Moreover, I have another question: when a body hits a smaller one that is at rest, pulling it with it, does the rest of the body that is at rest pass to the one in motion just as the motion of the one moving passes its motion to the one resting? For rest seems to be something so idle and indolent that it is loath to move. And yet, it is as real as motion and, therefore, reason forces us to suppose that it, too, is passed on.

- 383 Finally, I am completely baffled when I consider that a thing as tiny and as vile as motion, which is also capable of being separated from its subject and passing to another, and which is of so frail and so transient a nature that it would cease to be at once if it were not for a subject sustaining it, should nevertheless stir its subject up so potently and impel it here and there so forcefully. I, for one, am more inclined to assume that there is no transfer of motion whatsoever. Rather, on account of the impulse of one body, another body is, as it were, awakened into motion, just as the soul is awakened into thought on this or that occasion. Instead of receiving motion, a body stirs itself into motion on being alerted by another body. And, as I have said before, motion is to body what thought is to mind, that is to say, neither of them is received from without, but both proceed from within the subject in which they are to be found. And in fact every so-called body is also alive in a mindless and befuddled way, since in my view it is the last and lowest shadow and image of the divine essence which, I hold, is most perfect life. However, it is devoid of all sense and animadversion.

Moreover, as I have indicated above, your transfer of motion from one subject to another, from a larger to a smaller one and vice versa, is a very good illustration of my extended spirits which can contract and expand themselves again. These can penetrate matter with the greatest ease without filling it, and also stir it up and set it in motion without using any machinery or hooks to connect themselves to it. However, I have dwelt on this place longer than I had intended. Instead, I hasten to my original intent, namely that of asking new questions about those articles of your *Principles of Philosophy* whose meaning I do not yet understand.

- 384

## Ad Partis primæ Artic. 8.

*Perpicue videmus, &c.* Nec perpicue videmus extensionem, figuram, & motum localem, ad naturam nostram pertinere, nec videmus perpicue non pertinere. Utinam hic breviter demonstres, nullum corpus posse cogitare.

## Ad Artic. 37.

Annon major perfectio est id solum velle posse hominem quod sibi optimum esset, quam posse etiam contrarium; cum melius sit semper felicem esse quam vel summis aliquando efferri laudibus, vel etiam semper?

## Ad Artic. 54.

Hic rursus repeto, quod oportebat demonstrare, nihil extensum cogitare, aut, quod videbitur facilius, nullum corpus posse cogitare. Est enim dignum ingenio tuo argumentum.

## Ad Artic. 60.

Quamvis mens possit contemplari seipsam ut rem cogitantem, exclusâ omni corporeâ extensione in hoc conceptu, non tamen evincit quicquam aliud nisi quod mens possit esse corporea vel incorporea, non quod sit de facto incorporea. Iterum igitur rogandus es ut demonstres, ex aliquibus operationibus mentis humanæ quæ corporeæ naturæ competere non possunt, hanc mentem nostram esse incorpoream.

## Ad Partis secundæ Artic. 25.

*Non vim vel actionem que transfert, ut ostendam illum semper esse immobilem, &c.* Annon igitur vis ipsa atque actio motus est in re mota?

## Ad Artic. 26.

Estne igitur in quiescentibus perpetua quædam vis statoria, vel actio sistendi se, & corroborandi contra impetus omnes, quibus partes eorum divelli possint & disjici, vel totum corpus aliò abripi & transferri? Adeò ut Quies rectè definiri possit, Vis quædam vel actio interna corporis, quâ corporis partes arctè constringuntur ad se invicem & comprimuntur, adeoque à divisione vel dimotione per impulsu alieni corporis defenduntur? Hinc enim illud confurgeret, quod à meo intellectu minimè alienum est, Materiam utique vitam esse quandam obscuram (utpote quam ultimam Dei umbram existimo) nec in sola extensione partium consistere, sed in aliquali semper actione, hoc est, vel in quiete vel in motu, quorum utrumque revera actionem esse ipse concedis.

Ad

## On Part I, art. 8

"We see very clearly", etc. We do not see very clearly that extension, shape and locomotion belong to our nature, nor do we see very clearly that they do not belong to it. I should be much beholden to you if you could demonstrate in a few words that no body can think.

## On art. 37

Is it not a greater perfection that we can will only what is best for us than to be able to will the opposite as well? After all, being happy all the time is better than having fame, however great, at some or even all the time.

## On art. 54

Here I repeat once again that it would have required proof that nothing extended can think or, what will probably seem easier, that no body can think. For that would be a demonstration worthy of your genius.

## On art. 60

I grant that a mind may contemplate itself as a thinking thing without this concept involving any corporeal extension. However, this does not prove anything other than that the mind may be corporeal or incorporeal, not that it is in reality incorporeal. Hence, I beseech you once again, please provide evidence that this mind of ours is incorporeal from such operations of the human mind as cannot be attributed to corporeal nature.

## On Part II, art. 25

"It is neither the force nor the action which transfers to show that it [i.e. the motion] is always in the thing in motion." Is it, then, the power itself and the action of the movement which is in the thing moved?

## On art. 26

Is there, then, in a body at rest a certain enduring static power or action by which it perseveres in its place and resists all impulses from without which may either disjoin and separate its parts or dislodge and transfer the whole body to another place? Could not rest, therefore, be rightly defined as an internal force or power of the body by which the body's parts are tightly held together and compressed and by which they are protected from division and separation effected by impulses of other bodies? This corresponds with my view exactly, namely: matter is a kind of dark life, which, in my view, is the lowest shadow of God. It does not consist in the extension of its parts alone, but in some constant motion, that is to say, either in rest or motion, both of which, as you admit yourself, are instances of genuine action.

## Ad Artic. 36.

Hic articulus videtur continere demonstrationem evidentissimam, quod translatio five motus localis (nisi extrinsecus sit corporum respectus duntaxat) non sit reciprocus ullo modo.

## Ad Artic. 36.

Quæro, annon mens humana dum spiritus accendit attentius diutiusque cogitando, corpusque insuper ipsum calefacit, motum auget universi?

## Ad Artic. 55.

Numquid igitur cubus perfecte durus perfecteque planus motus super mensa, puta perfecte dura perfecteque plana, eo ipso instanti quo à motu sistitur æque firmiter coalescit cum mensa ac cubi vel mensæ partes cum seipsis; an manet divisus à mensa semper, aut ad tempus saltem, post quietem? Nulla enim est compressura cubi in mensam, cum hunc motum tanquam in vacuo factum imaginemur super mensam extra mundi parietes, si fieri posset, sitam, (ac proinde ubi nullus locus est gravitati vel levitati) motumque sisti ex ea parte ad quam tendit cubus. Videntur igitur ex lege naturæ, cum jam divisa sint cubus & mensa, & nulla actio realis detur quâ conjungantur, mansura semper actu divisa.<sup>n</sup>

## Ad Artic. 56, &amp; 57.

Non video quid sit opus ut tam amplos particularum gyros ac lusus circa corpus B describas. Videtur enim satis, si putemus singulas aquæ particulas simili impetu moveri a materia subtili, & æquales esse particularum magnitudines. Hinc enim, cum B à quolibet latere brevissimis gyris vel semigyris, (vel aliâ quacunque ratione) motus proximè adjacentium particularum contunditur, necessario quiescet, nec in unam partem magis quam in aliam promovebitur.

## Ad Artic. 57. linea 19.

*Nec Incident per lineas tam rectas, &c.* Quid? quod jam ad circula-rem magis accedunt, cum antea ovalem magis referebant figuram? Non plene capio.

## Ad Artic. 60.

*Sed ipsas quatenus celerius aguntur in quaslibet alias partes ferri.* Possuntne igitur celeritas motus & ejusdem determinatio divortium pati? Perinde enim videtur ac si fingamus viatorem currentem, cursum quidem dirigere Londinum versus, sed celeritatem cursus nihilominus ferri Cantabrigiam versus, vel Oxonium. Subtilitas quam neutra Universitas capiet, nisi fortè intelligas per ferri, motum moliri, vel niti ut aliquorsum fiat motus.

Ad

385

On art. 30

This article seems to provide a very clear demonstration that transfer or locomotion (unless it is only a relationship external to bodies) is not reciprocal in any way.

On art. 36

I wonder: does not the human mind, by heating its spirits in thinking longer and more attentively and thereby also warming its own body, add to the motion of the universe?

On art. 55

Let us assume a perfectly solid and perfectly flat die moves upon a table, one that, likewise, is perfectly solid and perfectly flat. Does it, at that moment when it ceases in its motion, merge as firmly with the table as the die and the table are merged with their respective parts? Or does it, once it has come to rest, always (or at least for the time being) remain divided from the table? For there is no pressure of the die against the table, if we imagine this motion as occurring in a vacuum, as it were, and upon a table situated outside the boundaries of the world (if this were possible) where there is neither heaviness nor lightness. The motion of the die, therefore, stops in the place to which it tends. Hence, there seems to be a law of nature that a die and a table which are divided will always remain divided in actuality unless there is a real action merging them.

On arts. 55 and 57

I cannot see why it is necessary for you to have the particles describe two such wide circles and rounds around body B, since it would seem sufficient that the single water particles, assuming all of them to be moved by subtle matter in a similar fashion, should all be of equal size. For it then follows that when any of the sides of B is hit by the slightest circular, semicircular or any other motion of the adjacent particles closest to it, it will of necessity rest without moving into the one or the other direction.

On art. 57, l. 19

"And they will not move along a straight line", etc.: What, should they now adopt a more circular line after having a more oval one before? I do not fully understand this.

On art. 60:

"... and, insofar as they are impelled more violently, they are driven in other directions." Can the velocity of a motion and its determination suffer a divorce? It would be as though we were to imagine a traveller directing his steps towards London, but being nevertheless driven towards Cambridge or Oxford. This is a subtlety that neither of these universities will ever fathom unless by "are driven" you perhaps understand the undertaking of a motion or the endeavour to direct one's motion into a different direction.



## Ad Partis tertiæ Articulum 16.

Annon juxta *Ptolemaicam* hypothesin Veneris lumen, ad modum Lunæ, nunc decreveret, nunc creveret, quamvis non eisdem mensuris & legibus?

## Ad Artic. 35.

Qui fit ut Planetæ omnes in eodem non circumgyrentur Plano, videlicet in Plano Eclipticæ, maculæque adeò Solares, aut saltem in planis Eclipticæ parallelis, ipsæque Luna; aut in Æquatore, aut in Plano Æquatori parallelo, cum à nulla interna vi dirigantur, sed externo tantum ferantur impetu?

## Ad Artic. 36, 37.

Vellem etiam mihi subindices rationem Apheliorum & Periheliorum Planetarum, & quam ob causam locum subinde mutant singula: tum maximè cum in eodem sint vortice omnia, cur non iisdem in locis inveniuntur Planetarum omnium Primariorum Aphelia & Perihelia? Præcessio etiam Æquinoctiorum quomodo ex tuis oriatur Principiis? Hic enim tu veras & naturales horum Phenomenorum causas explicare poteris, cum alii fictitias tantum exponant Hypotheses.

## Ad Artic. 55.

*Quæ in orbem aguntur.* Sed quomodo primum inceperunt tam immensa materiæ spatia in gyros convolvi, vorticisque fieri?

## Ad Artic. 57.

*Ejus partem quæ à funda impeditur, &c.* Videtur perceptu difficilior, quòd lapis A impediatur à motu in D, cum nec de facto illuc unquam feratur, nec si impedimentum tolleretur illuc naturaliter pergeret; pergeret enim omnino versus C.

## Ad Artic. 59.

Novam vim motus acquiri, & tamen conatum renovari hic dicis: Nescio quàm bene coherent. Nam si nova vis acquiritur & superadditur, non est renovatio motus, sed augmentatio. Quòd si globulus A movendo motum auget in eodem puncto baculi existens, (nam vorticis globulos hoc exemplum respicit) cur non semper motus seipsum movendo accendit & auget? Hoc autem modo jam pridem omnia in flammam abiissent.

## Ad Artic. 62.

Hic quæro, cum conatus globulorum, in quo lux & lumen consistit, fiat per integram vorticis amplitudinem, ita ut basis trianguli BFD multò major esse possit quàm DB, & ab utrisque productæ diametri DB,

386

On Part III, art. 16

Might not the light of Venus, like that of the moon, decrease at one time and increase at another according to the Ptolemaic hypothesis as well, albeit neither to the same degree nor due to the same laws?

On art. 3

How is it possible that not all planets, including even solar flares, are revolving on the same plane, namely that of the ecliptic, or at least on one parallel to the ecliptic? Why does the moon itself not revolve along the equator, or at least on a plane parallel to the equator? After all, none of these planets is directed by any internal force, but only driven by an external impulse.

On arts. 36, 37

I should very much like you to explain to me the causes of the aphelia and perihelia of planets and why they each afterwards exchange places, especially since all of them are in the same vortex? Why are the aphelia and perihelia of all the primary planets not to be found in the same places? How, on your principles, can the precession of the equinox occur? For here you would actually have the opportunity of explaining the true natural causes of these phenomena, while others propose nothing but fictitious hypotheses.

On art. 55

"Which are driven into circular shape." But how did such immense spaces of matter begin to move around in circles and form vortices in the first place?

On art. 57

"That part which is hindered by the sling", etc. It seems quite difficult to understand why stone A should be said to be hindered from moving to D, even though it will never reach there in fact nor would it move there by nature if the impediment were to be removed. For it would move in no other direction but towards C.

On art. 59

Here you say both that a new power of motion is acquired and that the endeavour is renewed. Those two statements do not quite seem compatible. For if a new power is acquired and added, it is not a renewal, but an augmentation of motion. When, therefore, globule A augments its motion by moving, while remaining in the same point of the stick (for this example refers to the globules of a vortex), why does it not always, as it moves, heat itself up in this very motion and augment itself? However, in this way, all things would have by now already burst into flames.

On art. 62

259

387 Now to the endeavour of the globules in which light and brightness covers the whole amplitude of a vortex. Hence, the basis of the triangle BFD could be much larger than DB; and if it were prolonged on both outer sides of the diameter DB,

D B, decies putà vel centies majoris factæ, extremitatibus globuli obliquo conatu in cuspidem aliquam ad F, oculum cujuslibet intuentis, reprimantur, cur lux, putà Solis, non major videtur quàm quæ sit intra circulum D C B?

Ad Artic. 72.

Non penitus hoc artificium contorquendi materiam primi elementi in spirales sive cochleares formas intelligo; præsertim in locis ab axe paulò remotioribus. Nisi hoc fiat, non tam quòd globuli torqueantur circa particulas primi elementi, quàm quòd ipsum primum elementum, ab ipsis fortasse globulis leviter in gyrationem determinatum, se ipsum inter triangularia illa spatia contorqueat, lineasque spirales in se describat. Oro te, ut hinc mentem plenius explices. Sed & alia subindè hinc oritur dubitatio. Cum particula hæ contortæ constent ex minutissimis particulis & rapidissime agitatis, quomodo illæ minutissimæ particulae in ullam formam vel magnitudinem majorem coalescant, præsertim cum in formandis hisce particulis striatis distortio illa sit motusque obliquitas.

Ad Artic. 82.

*Tam supremi quàm infimi, &c.* Prodigii instar mihi videtur rapidus hic globulorum supremorum cursus, (præsertim si cum mediorum comparetur) & qui causas quas in subsequenti Articulo profero longè excedat. Si quid ulterius adinvenire possis, quo mollius hoc dogma redatur, gratum profectò esset audire.

Ad Artic. 84.

*Cur cometarum cauda, &c.* Primam quamque impatienter tibi obtrudo occasionem explicandi quodlibet: Rogo ut hanc rem etiam hoc in loco breviter expeditas.

Ad Artic. 108.

*Per partes vicinas Eclipticæ QH in cælum abire coguntur.* Qui fit ut non omnes ferè illuc abeant, potius quàm à polo ad polum migrando vorticem, quem vocas, componant?

Ad Artic. 121. lin. ult.

*A variis causis assidue potest mutari, &c.* A quibus?

Ad Artic. 129. lin. 15.

*Non prius apparere quàm, &c.* Cur circumfluxus illius materiae, cum sit adeò transparens, impedit Cometam nè videatur? Circumfluens enim materia Jovem Planetam non abdit ab oculis nostris. Et cur necesse est ut non nisi obvolutus materiâ relictæ vorticis Cometa inde egrediatur?

Ad

its size increasing, say, tenfold or one hundredfold, the globules would in an oblique course be pressed back into some cusp at F, the eye of an observer. But why, then, I ask, does not the light of the sun, for instance, seem larger than that within the circle DCB?

On art. 72

I have not yet fully understood your design in having the matter of the first element swirl into spiral shapes or ones twisted like a cochlea, especially in those places which are a little further removed from the axis - unless it happens not because the globules swirl around the particles of the first element, but because the first element itself, perhaps gently forced into rotation by the globules themselves, itself twists inside those triangular spaces, adopting in itself the spiral lines. Please explain your view in this place more fully. However, yet another question immediately arises here. If the twisted particles consist of the minutest particles moving at a very high velocity, how can those minutest particles coalesce into any shape of larger size at all, especially if we consider how distorted and oblique the motion is in the formation of these grooved particles?

On art. 82

"Both of the highest and the lowest ones [i.e. globules]", etc. The rapid motion of the highest globules strikes me as downright miraculous, especially if we compare it to the motion of the middle ones. Moreover, it seems to be far beyond the causes furnished in the following article. I should appreciate it very much if you could find something more which might make this doctrine seem less harsh.

On art. 84

"Why the tails of comets", etc. I cannot but ask you with some impatience to use this first occasion and at least explain something: please do also give a brief explanation of this phenomenon in this place!

On art. 108

"They are forced through the adjacent parts of ecliptic QH to move away into the sky." How is it possible that most of them do not go thither, rather than moving from one pole to another and thereby forming what you call a vortex?

On art. 121

"It can constantly be changed for various reasons," etc. For which reasons exactly?

On art. 129, l. 15

388 "It does not appear there before", etc. Why does that floating matter, being entirely transparent, prevent us from seeing the comet? For the floating matter does not hide the planet Jupiter from our eyes. And why is it necessary that a comet should emerge thence only if it is covered in the matter of the vortex it left?

## Ad Artic. 130. lin. 21.

*Minuitur quidem, &c.* Cur non deletur penitus, si vortex AEIO fortius, vel æquè fortiter, urget vicinos vortices, quàm ille ab ipsis urgetur?

## Ad Artic. 149.

*Brevi accedet ad A, &c.* Cur non ad T usque pergit, impingitque in ipsam terram?

*Quia sic à recta linea minus deflectet.* Non solum constat lineam NA continuatam cum AB, lineam magis rectam constituere quàm eandem NA cum AD continuatam; sed cum Luna à centro S recedat ad modum globulorum cœlestium, magis naturaliter videtur confurgere versus B, quàm versus D descendere.

## Ad Partis quartæ Artic. 22.

*Nec Terra proprio motu cieatur, &c.* Non video quid refert unde sit motus ille circularis, modo sit in Terra; nec deprehendo quin illi celerissimi gyri Telluris imposita omnia rejicerent versus cœlos, quamvis motus non esset proprius, sed ab interna materia cœlesti profectus, nisi agitatio circumjacentis ætheris, quam supponis multò celeriore, fatum illud praverteret. Nec videtur Terra habere rationem corporis quiescentis, quoad conatum partium recedendi à centro; (Videtur enim illud necessarium in omni corpore circulariter moto:) sed quòd simul circumvolvitur cum ambiente æthere, nec separantur superficies, hæc forsàn ratione dicatur Terra quiescere. Hæc autem dico ut ex te intelligam, annon ratio quòd partes Terræ non dissiliant ad solam celeritatem motus particularum Ætheris referenda sit.

## Ad Artic. 25.

*Propter suarum Particularum motum inest levitas.* Quid igitur existimas de frigido & candenti ferro? Utrum præponderat? Præterea, quomodo moles aquæ levior sit ob motum partium, cum motus harum partium tandem à globulis determinatur deorsum. Hinc enim videtur magis accelerari descensus corporis, unde major æstimabitur gravitas. Atque hoc modo aqua auro præponderabit.

## Ad Artic. 27.

*Nisi fortè aliqua exterior causa, &c.* Quænam sint illæ causæ, paucis obsecro ut innuas.

## Ad Artic. 133. lin. 12.

*Axi parallelus.* Parallelismi mentio hæc me monet de difficultatibus quibusdam ferè inextricabilibus. Primò, cur tui vortices non fiant in modum columnæ, seu cylindri, potius quam ellipsis, cum quodlibet punctum axis sit quasi centrum à quo materia cœlestis recedat, & quantum

## On art. 130, l. 21

“It is certainly reduced”, etc. But why is it not destroyed completely if vortex AEIO pushes the neighbouring vortices more strongly than (or as strongly as) it is pushed by them?

## On art. 149

“It will soon approach A”, etc. Why does it not move on up to F and dash into the earth itself?

“Because it will deflect less from a straight line.” I do not see that line NA, being continuous with AB, should constitute a straighter line than the same NA, as being continuous with AD. However, when the moon moves way from the centre S the way celestial globules do, it seems much more natural for it to ascend towards B than descend towards D.

## On Part IV, art. 22

“And since the earth is not stirred by its own motion”, etc. I do not see why it matters where that circular motion should come from provided only it is in the earth. Nor is it clear to me why those extremely fast rotations of the earth would cast all things on it towards the heavens - even though its motion is not due to itself, but proceeds from the inner celestial matter - if it were not for the motion of the ether around it (which you believe to be much faster) preventing this fate. Nor does the earth seem to be a resting body as regards the endeavour of its parts to move away from the centre (for that seems to be a necessary characteristic of all bodies in circular motion). Only insofar as it simultaneously revolves in circles along with the ether surrounding it without any separation of the surfaces may the earth be said to be at rest. However, I point this out to learn from you whether it is due solely to the velocity of the motion of the ether particles that earth does not burst into its parts.

## On art. 25

“They possess lightness because of the motion of their particles.” What, then, do you think about cold and hot iron? Which of them is heavier? Further, how can a mass of water become lighter because of the motion of its particles, even if the motion of these parts eventually forces it downwards? For the descent of a body seems to be accelerated by that motion and, therefore, it will be judged to be of greater weight. And in this way water will be heavier than gold.

## On art. 27

“Unless perhaps some external cause”, etc. I beseech you: please do explain to us in a few words what these causes are!

## On art. 133, l. 12

389 “Parallel to the axis.” The mention of this parallelism raises some other difficulties which I find almost insoluble. Firstly, why do your vortices not assume the shape of a column or cylinder rather than of an ellipsis, since each point of the axis is, as it were, a centre from which the celestial matters move away,



quantum video, æquali prorsus impetu. Deinde, Primum elementum (cùm ubique ab axe oporteat globulos æquali vi recedere) cur non æqualiter per axem totum in cylindri formam productum jaceret, sed in sphaericam figuram congestum ad medium ferè axis relegatur? Nam occurfus hujus elementi primi ab utroque polo vorticis nihil impedit quo minus totus axis producta flammâ luceret. Cùm enim ubique cujuslibet axis æquali vi recedant globuli, facilius præterlabentur se invicem, rectaque pergent ad oppositos polos Materiæ subtilissimæ irruentia fluente, quàm excavabunt vel distudent sibi in aliqua axis parte spatium majus quàm præsens & æquabilis vorticis circumvolutio lubens admitteret, vel sponte suâ offeret. Tertiò denique, Cùm globuli cælestes circa axem vorticis ferantur *ἑαυτῶν & ἀλλήλων* & sibi invicem, nec parallelismum perdant dum locum aliquatenus inter seipsos mutant, impossibile videtur ut ulla omnino fiat particularum striatarum intortio, nisi ipsæ particulæ striatæ in triangularibus illis spatiis circa proprios axes circumrotentur; quod quàm commodè fieri possit non video, quemadmodum supra monui.

#### Ad Artic. 187.

*Nulla sympathia vel antipathia miracula, &c.* Utinam igitur hinc explices si breviter fieri possit, quâ ratione mechanicâ evenit ut in duabus chordis, etiam diversorum instrumentorum, vel unisonis, vel ad illud intervallum Musicum quod *διάπασον* dicitur attemperatis, si una percutiatur, altera in altero instrumento subsiliat, cùm quæ propiores & laxiores etiam sint, imò & in eodem instrumento in quo chorda percussa tensa, non omnino moveantur. Experimentum vulgare est & notissimum. Nulla verò sympathia mihi videtur magis rationes mechanicas fugere quàm hic chordarum consensus.

#### Ad Artic. 188.

*Ac sextam de homine effem, &c.* Perge, Divine Vir, in isthoc opere excolendo & perficiendo. Pro certissimo enim habeo, nihil unquam Reipub. literariæ aut gratius aut utilius in lucem proditurum. Nec est quodd experimentorum defectum hinc cauferis. Nam quantum ad corpus nostrum, accepi à dignis fide authoribus, te, quæ ad humani corporis Anatomiam spectant, accuratissimè universa explorasse. Quod autem ad animam, cùm talem ipse nactus sis, quæ in maxime sublimes amplissimisque operationes evigilavit, spiritusque habeas agillimos & subtilissimos, generosa tua mens, innatâ suâ vi cœlestique vigore, tanquam igni Chymicorum alicui, freta, ita excutiet se, variâque in formas transmutabit, ut ipsa sibi facile esse possit infinitorum experimentorum officina.

#### Ad Artic. 195.

*Et Meteoris explicui, &c.* Pulcherrimam fanè colorum rationem in Meteoris explicuisti. Est tamen ea de re improba quadam difficultas, quæ magnum imaginationi meæ negotium faceffit. Quippe quod cùm colorum varietatem statuas ex proportionem quam habet globulorum motus

doing so, as far as I can see, with the exact same impetus? Secondly, considering that the globules must move away from the axis with the same momentum everywhere, why is not the first element likewise wholly stretched out in cylindrical shape? Why is it not spread out throughout the axis, but instead compressed into spherical shape and all but confined to the middle of the axis? For the first element coming from both poles of the vortex does not prevent the whole axis from shining in an extended flame. For if the globules of each axis move away with the same power everywhere, they will more easily glide past each other, and in torrential streams rush straight to the opposite poles of the subtlest matter. Then, in some part of the axis, they hollow out for themselves an ever-widening place that is larger than the present steady circular motion would possibly allow, let alone freely offer them. Thirdly and finally, since the celestial globules are carried around the axis of a vortex *παράλληλως* both to the axis and to each other, but without losing their parallelism when changing places among themselves for some time, it seems impossible that there should occur any twisting of the grooved particles unless these grooved particles were themselves to rotate around their own axes in those triangular spaces. However, as I have pointed above, I fail to see how this is supposed to happen.

#### On art. 187

“No miracles of sympathy or antipathy”, etc. Please do explain the following to me in a few words here if this is possible: how should it come to pass in a mechanical fashion that in two chords, even of different instruments either identical in musical pitch or tuned to the musical interval called *διάπασον*, if the one is sounded, the other in the other instrument should spring up, while others that are closer and looser, or even part of that very instrument whose cord is sounded remain taut and do not move at all? This is a popular and very well-known experiment, but no other case of sympathy seems to defy mechanical explanation more clearly than this harmony of two chords.

#### On art. 188

“And in the sixth I shall treat man”, etc. Proceed, O excellent author, and bring this work to completion. For I deem it most certain that no book will ever see the light of day that could be either more pleasing or more useful to the republic of letters. Nor must you blame the lack of experiments in this case. For, as regards our body, I have heard from trustworthy authorities that you have already done the most accurate research on everything that has to do with the anatomy of the human body. And as regards the soul, you have already found it to be such that it has awoken into the most sublime and most far-reaching operations and that it possesses the most agile and subtle animal spirits. Therefore, your noble mind should rely upon its innate power and heavenly strength - as do the chemists upon their fire - studying itself in such a way and transforming itself into so many different shapes that it can readily make use of itself as a laboratory housing an infinite number of experiments.

#### On art. 195

“As I have also explained in *Meteorology*.” You have indeed given a most splendid explanation of colours in your *Meteorology*. Still, there is a major difficulty regarding this matter which my imagination quite struggles with: you hold that the different colours result from the proportion obtaining between the circular and rectilinear motions of the globules.

motus circularis ad rectilineam oriri, eveniet necessariò ut aliquando etiam in iisdem globulis & motus circularis rectilineam, & rectilinearis circularem eodem tempore superet. Verbi gratiâ, In duobus parietibus oppositis, quorum unus rubro, alter cæruleo colore obductus est, interjacentes globuli ob rubrum parietem celerius movebuntur in circulum quàm in lineam rectam, ob parietem tamen cæruleum celerius in lineam rectam movebuntur quàm in circulum, & eodem prorsus tempore; quæ sunt planè *aristoteli*. Vel sic, In eodem pariete cujus pars, puta dextra, rubet, media nigra est, sinistra cærulea, cùm ad oculum semper fiat decussatio, omnes globuli ob radiorum concursum singulorum globulorum motus proportionem, circularis nimirum ad rectum suscipient; adeò ut necesse sit colores omnes in imo oculi permisceri & confundi. Neque ullam rationem solvendi hunc nodum excogitare possum, nisi fortè supponendum sit, motum hunc circularem esse duntaxat breves quosdam & celeres conatus ad circulationem, non plenum motum, ut revera fit in motu recto dictorum globulorum. Et ad plerâque omnes alias difficultates quas tibi jam proposui, aliquales faltem solutiones vel proprio Marte eruere forsan potuero. Sed cùm humanitas tua hanc veniam mihi concefferit, cùmque singularis tua dexteritas in solvendis hujusmodi nodis, quam in nuperis tuis literis perspexi, me insuper intavertit, (quamvis enim breviter, pro angustis temporis in quo conjectus tunc eras, egisse te video; tam plenè tamen mihi satisfaciis, tamque fortiter animi sensus mihi moves, ac si præsens digitum digito premeres;) cùm denique majorem præ se laturæ sint auctoritatem elucidationes tuæ, tum apud me ipsum, tum apud alios, si usus fuerit; è re nostra putavi fore, hæc omnes difficultates tibi ipsi proponere, quas cùm solveris, nisi magnopere fallor, penitissimè tuæ Philosophiæ Principia intelligam universa. Quod equidem quanti facio vix credibile est. ~~Hocce autem præsentis~~ gryphos mihi cùm expediveris (quod quod citius fit, propter impotentem illum amorem quo in tua raptor, eo gratius futurum est) quaestiones alias è *Dioptrice* tua petitas mox accipies à

*Philosophia tua studiosissimo,*

HENRICO MORO.

*Clarissimo Viro, Summoque Philosopho,*

RENATO DE S-CARTES,

HENRICUS MORUS.

EQUIDEM impensè doleò, vir Clarissimè, quòd tam subito à vicinia nostra abreptus sis, & in tam longinquas abductus oras. Habeo tamen, ut nihil dissimulem, quo hanc animi ægritudinem ac molestiam mitigare possim, meque ipsum consolari. Et certè non

H h

mi-

Therefore, it will happen of necessity that even in the same globules the circular motion will gain the upper hand over the rectilinear motion and the rectilinear motion over the circular motion at the same time. Thus, for example, the globules lying between two opposing walls, of which one is painted red, the other blue, will, because of the red wall, move faster in a circle than in a straight line. However, at the very same time, they will also move faster in a straight line than in a circle because of the blue wall, which is clearly *ἀσύντατα*. Or another example: let us assume one and same wall, of which one part, say, the right one, is red; the middle one black; and the left one blue. Since these colours will always intersect for the eye, as the beams flow together all the globules will adopt the proportion of the motion of the single globules, namely that of a circular motion in relation to a straight one, so that all the colours will necessarily become mixed up in the lowest part of the eye. Nor can I think of any solution to this problem unless, perhaps, one were to assume that this circular motion consisted only in some quick and short endeavours to move in a circle, rather than a complete motion, as actually happens in the straight motion of said globules.

And I might have found out by my own effort at least some kind of solutions to most of the other difficulties pointed out to you above. However, in your kindness you have given me leave to consult you, and your peerless acumen in solving such difficulties which I have seen in your last letters has further encouraged me. For, although I have noted that, lacking leisure, as you did back then, you were rather brief, you have nevertheless answered my questions to my full satisfaction, stimulating my mind's senses as strongly as if you had been present yourself and taken me by the hand. Finally, your own explanations will carry more weight both for me and for others whenever it is necessary. Hence, I thought that it would be in my own best interest to present all these difficulties to you yourself and that, unless I was seriously mistaken, I would, once you had solved them, gain a most thorough understanding of all the Principles of your Philosophy, which would be of well-nigh incredible worth to me. However, once you have disentangled the present riddles for me - the earlier you can do so, the more I shall rejoice, being passionately in love with your writings - you will soon receive further questions regarding your Optics from

that most ardent student of your philosophy,

Henry More

OO, 262 AT V, 434

Henry More to that most distinguished gentleman and foremost philosopher  
Rene Descartes

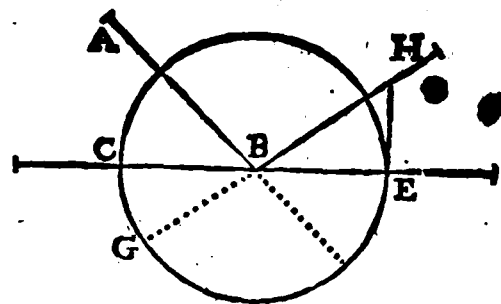
435 I, for one, am deeply afflicted, most distinguished Sir, that you have so suddenly been snatched away from our vicinity and carried away to such distant shores. And yet I do not want to conceal from you that there is something that may alleviate my mind's distress and sorrow and console me. And it is certainly not



minimum est, quod is honor tibi optimè merenti habitus sit, etiam apud gentes remotissimas, nominisque tui claritudo ad Septentrionales usque spissitudines crassaque nebulas tam potenter penetraverit; neque id (quod caput rei est) frustra: cum tantus literarum & literatorum amor generosum pectus Illustrissimæ Heroinæ, Serenissimæ Reginae Suecorum, incesse, ut famâ librisque tuis non contenta, à scribendo ad te, ut eam inviseres, nunquam destiterit, donec voti facta sit compos. Quod cessurum credo in magnum illius regni commodum & ornamentum. Quas ob causas fateor me minùs inclementer tulisse tuum ab hisce regionibus nostris abcessum, jacturamque itidem exoptatissimæ illius Epistolæ quam, prout promisisti, ante abitum tuum à te expectabam: cujus jam recuperandæ spem omnem tantum abest ut abijciam, ut è contrà fortiter confidam te non solum illis quas antè scripsi, sed & præsentibus literis, cum ad manus tuas pervenerint, brevi responsurum. Quâ fretus confidentiâ ad *Dioptricem* tuam pergo; mox ad *Meteora*, si quid fortè ibi occurrerit difficultatis, profecturus; ut tandem animam meam iis omnibus exonerare possim quæ in rem nostram putabam fore tibi plenius proponere. Spero enim hoc modo me, cum omnia ex mea parte perfecta sint quæ præstare oportebat, molliorem animæ meæ conciliaturum quietem, minùsque in posterum me anxie habiturum.

#### Ad Dioptrices Cap. 2. Artic. 4. lin. 21.

*Nulla modo illi oppositum.* Linteum CE videtur opponi B pilæ, aliquo saltem modo, etiam quatenus pila dextrorsum fertur. Quod sic patetbit.



Nam GH plenè opponitur pilæ B, perfectèque impedit cursum ejus, tam versùs HE quàm versùs CE. seu deorsum. Cum igitur tam propè accedat CE, ad posituram GH, ut desit tantum angulus HBE, sive GBC ad perfectam oppositionem tendentiæ versùs HE, CE etiam suam servans posituram, aliqua-

tenus opponetur pilæ B, etiam quatenus cursum tendit versùs HE. Quod insuper manifestius apparebit, si fingamus CE udæ argillæ planitiem, & pilam, putà æneam, ab A ferri ad B, ubi aliquò utque penetrabit, sed statim suffocabitur vis cursùs tam versùs HE quàm versùs CE; quod tamen non fieret, si pila ferretur secundum lineam CBE, sed sine impedimento pergeret versùs HE, præsertim si nulla inesset pilæ gravitas: unde patet planitiem CE opponi pilæ B descendenti ab A, etiam quatenus fertur versùs HE, quod oportebat demonstrare.

*Dimidiam suæ velocitatis partem amittat*, lin. 27. Partem hinc aliquam velocitatis amissam esse lubens concedam; sed quod & in hoc Articulo & in proximè sequenti supponis hanc partem velocitatis deperdi tantum versùs CE, non versùs FE, nullus capio. Cum enim unicus

realis

the meanest thing that that this honour has been accorded to you and your merit even amongst the most remote of peoples and that the resplendent light of your name has so forcefully made its way even to the dense and thick fogs of the north. Nor, most importantly, did it do so in vain, since so great a love for writings and writers has entered the noble bosom of that most famous heroine, the most serene Queen of Sweden, that she was no longer content with your fame and your books alone. Instead, she wrote unceasingly to you, entreating you that you should visit her, until you fulfilled her wish, which, I believe, will greatly adorn and benefit that kingdom. All of that, I confess, consoles me a little both over your departure from our regions here and the loss of that most desired letter which I expected you to send me before your departure, as you had promised me. However, far from having given up the hope of receiving that letter, I, on the contrary, am more confident than ever that you will not only briefly reply to my earlier letter, but also to the present one once it has reached your hands. Being confident about that, I shall now pass to your *Optics*, and then move on to your *Meteorology* if I should find difficulties in this work as well. Thus I hope I can free my soul of all the things which I thought most useful for me to point out to you more fully. For, once I have done everything that I, for one, think needs to be done, I hope my soul will find a gentler peace and quiet and lose much of its fear ever after.

*On Optics, ch. 2, art. 4, l. 21*

"It does not resist it in any way." Cloth CE seems to resist ball B at least in some way, even insofar as the ball moves to the right. This will become clear from the following.

Thus, GH fully resists ball B and completely prevents its continuing on its course either towards HE or towards CE (and downwards as well). When, therefore, CE comes so close to position GH that only angle HBE or GBC is lacking in order to resist the tendency towards HE completely, CE, likewise resting in its position, will for some time resist ball B, even as it continues its course towards HE. This will become even more obvious if, for example, we assume CE to be a surface of wet clay and the ball to be made of iron. It will move from A to B until it penetrates it at some point. However, the force of its course both towards HE and towards CE will at once dissipate. By contrast, this would not happen if the ball were to move along line CBE. In this case, it would continue on towards HE unimpeded, especially if the ball lacked hardness. Hence, it is clear that surface CE resists ball B descending from A, even as it moves towards HE. Thus it has been demonstrated.

"It loses half its velocity" (l. 27). I shall admit gladly here that some part of velocity is lost. However, I fail to see why this part of velocity, as you suppose both in this article and the one immediately after it, should only be lost towards CE, not towards FE. There is, after all, but one



realis motus sit pilæ, (quamvis varias imaginari possimus pro libitu tendentias hujus motus, sive metas,) si minuitur hic motus quacunque pergere fingis pilam, tardius incedet quam ante motum minutum. Causa igitur tendentiæ pilæ ad I potius quam ad D, non pendenda est à tarditate vel celeritate motus, sed à resistantia magni illius anguli C B D, & à debilitate minoris illius anguli E B D, cujus acies ob exilitatem suam & materiæ fluiditatem facilius cedit pilæ projectæ quam obtusus angulus D B D. Alioqui si causa referenda esset ad celeritatem vel tarditatem, pila descendens ab H in B cursum etiam deflecteret. Hic schema tuum consule, si opus est, pag. 84.

### Ad Artic. 6. lin. 7.

*Tam oblique incumbat, ut linea FE ducta, &c.* Perpetua hæc tua demonstrandi ratio, quò pila profectua sit, lepidam profectò in se habet subtilitatem, sed quæ causam rei non videtur attingere. Vera enim & realis causa intelligenda est ex amplitudine anguli C B D, & exilitate E B D anguli, & ex magnitudine etiam pilæ, quæ quo major est, eò minorem depressionem lineæ A B versus C E requirit, ad resiliendum versus aerem L. Major enim pila non tam commodè levat atque aperit cuspidem acutioris anguli, quo intret in ipsam putæ aquam, sed contundendo potius transvolat reflexa.

*Quod vim ejus motus augeat, lin. 22.* Augmentum motus nihil efficiet ad detorquendum cursum pilæ inceptum, nisi sit positura alicujus corporis quod dictum cursum pilæ versus partem aliam determinet. Quod ego hoc modo fieri auguror in mediis illius quæ tu fingis radium facilius admittere, qualia sunt crySTALLUS, vitrum, &c. Nempe cum acies anguli E B D in istiusmodi substantiis adeò dura sit & pervicax, ut nihil cedat, radius impingens in constipatam & inclinantem anguli aciem nonnihil avertitur ab incepto cursu, & introrsum perpendiculum versus abigitur. Utraque igitur refractionis reflexio quædam mihi videtur, vel saltem reflexionis quædam inchoatio. Atque quemadmodum in plenæ & libera reflexione determinatio tollebatur sine ulla retardatione cursus pilæ, ita hic ad minuendam vel mutandam determinationem nova tarditas vel celeritas non videtur necessaria. Sola igitur determinatio minuta vel aucta sufficit ad utramque refractionem. Neque enim A cum ad C E superficiem pervenerit, quatenus celerior vel tardior cursum flectit, sed quatenus impingit in corpus determinationem mutans. Alioqui, si nuda duntaxat accesserit celeritas vel tarditas, A semper pergeret à B in D.

In priori igitur refractione, videlicet à perpendiculo, determinatio deorsum minuitur necessario, pila autem retardatur per accidens, ob mollitiem cursum immutantis. In posteriori determinatio deorsum augetur; pila autem si acceleratur, acceleratur per accidens, ob novi medii faciliorem transitum. Determinationis igitur mutatio ejusque causa ad refractiones juxta ac reflectionem sunt planè necessariae; velocitas & tarditas ipsius motus sunt duntaxat accessoriae, vel potius planè supervacaneæ. Imò verò, novam quod pilæ seu globuli accelerationem attinet in medio faciliore, videtur quidem illa perceptu perquam difficilis; propterea quòd novum illud medium non suppeditat

real motion of the ball, even though we may imagine as many different tendencies or changes in this motion as we please. If, therefore, this motion is reduced, the ball, no matter where you imagine it to be heading, will move at a slower velocity than it did before its motion was reduced. Hence, the tendency of the ball towards I instead of D must not be seen as being caused by the greater or lesser velocity of its motion, but rather by the resistance of the large angle CBD and by the weakness of the smaller angle EBD whose sharp tip, due to its small size and fluid matter, will give way to the approaching ball more easily than the obtuse angle CBD. If one were to view the greater or lesser velocity as the cause instead, the ball, descending from A to B, would alter its course<sup>1</sup>] as well. On that, consult your scheme on p. 84 of the Latin edition, if necessary.

On art. 6, l. 7

“It is so sharply inclined that the line, being drawn,” etc. Your accustomed way of demonstrating where the ball will turn is certainly fair and subtle, but it does not appear to touch on the cause of the matter. For we must view the true and actual cause as consisting in the extent of the angle CBD and the smallness of the angle EBD as well as the size of the ball. The bigger it is, the less it needs to press down line AB against CE to jump back into air L. For instance, to enter water, a larger ball does not so easily indent and penetrate the tip of a more acute angle but rather hits and bends it while flying past it.

“That it augments the power of its motion” (l. 22). The increase of the ball’s motion will not contribute to its changing its original course unless there is some body positioned in such a way that it determines the ball’s said course in another direction. I suspect that something like this happens in those media which, as you believe, admit rays more easily, such as crystal, glass, etc. The sharp upper point of angle EBD, then, is so firm and strong in such substances that it does not give way at all. Therefore, a ray, hitting the angle’s dense and curved sharp point, is clearly diverted from its original course and forced to move perpendicularly towards the interior. For this reason, both refractions strike me as a kind of reflection (or at least an inchoate reflection). And just as in a complete and unimpeded reflection the determination was removed without any delay in the ball’s course, so here no acceleration or deceleration seems to be required for the reduction or alteration of the determination. The reduced or augmented determination alone suffices for both refractions, since B does not, on reaching surface CE, change its course insofar as it is faster or slower, but rather insofar as it hits a body that changes its determination. If, instead, it were merely accelerated or decelerated, it would always continue on its course from B to D.

In the former refraction, therefore, i.e. the one proceeding from the perpendicular, the determination downwards is necessarily reduced. The ball, by contrast, is slowed down only accidentally because of the softness of the medium which changes its course. In the latter one, the determination downwards is augmented. However, if the ball is accelerated, it is accelerated only accidentally, since it passes more easily through a new medium. Therefore, the change of determination and its cause are clearly necessary for both refraction and reflection. By contrast, the greater or lesser velocity of the motion is but an addition, and perhaps even a completely superfluous one at that. However, as regards the new higher velocity of the ball or the globule in an easier medium, it seems very difficult to understand. This new medium, after all, does not furnish it with any

novos gradus motûs, sed tantum permittit pilæ quos etiamnum habet superstitis sine ulteriori ulla diminutione integros possidere, cum nullos ad se arripiat, vel imbibat. Aequèque absurdum videtur, novos, vel, si malles, pristinos motûs gradus, restitui pilæ medium facilius intranti, ac concedere in puncto reflectionis pilam aliquo momento hære priusquam resiliat, quod merito explodis *Art. 2. hujus cap.*

### Caput. 6. ad Artic. 9.

*Sed ex solo situ exiguarum partium cerebri, &c. Sûntne igitur istiusmodi in cerebri dissectione particulæ visibiles, an ratione duntaxat colligis istiusmodi esse oportere in hunc usum destinatas? Mihi verò nihil opus harum esse videtur, sed eadem organa quæ motum transmittunt, animam etiam commonescere necessario, unde illa fiat motûs transmissio, si nullum interjacet impedimentum.*

### Ad Artic. 13.

*Similem illi, quæ Geometra per duas stationes, &c. Duriuscula hæc videtur obscuriorque comparatio, in nihiloque contentions; nisi quod utrobique binæ sumuntur stationes. Geometra enim, vel, si malles, Geodætæ, stationes sumunt, in linea ab arbore puta vel turri recta producta; Oculus locum mutans in linea transversa, & ferme objecto parallela, si rectè rem capio.*

### Ad Artic. 16.

*Ex cognitione seu opinione quæ de distantia habemus, &c. Adequatæ fortasse causas apparentis corporum magnitudinis explicare perquam difficile esset. Sed in uno hoc maxime consistere opinor, nimirum in magnitudine & parvitate decussationis anguli. Ille enim quod major est, major apparebit ejusdem corporis magnitudo; quod minor, minor. Deinde, quod observatu dignissimum est, cum objectum aliquod, pollicem puta tuum, intra grani unius distantiam oculo admoventis, hic decussationis angulus quater aut quinque major erit quam ille qui fit ad oculum a pollice distantem decem ferme grana; & si adhuc amovebitur pollex ab oculo per aliquot dena grana, semper angustior reddetur angulus decussationis, sed minori semper proportionè, per dena quæque grana, & minori; semper tamen aliquantò angustior evadit quàm antea, donec tandem fiat tam angustus, ut rationem unius lineæ rectæ habere intelligatur. Hinc nemo mirabitur, si multo majorem pollicem deprehendat unico grano ab oculo distantem, quam cum decem abest ab oculo, & postea per multa dena grana remotum, ad singula grana dena, non multum magnitudinis deperdere; tam longinquè tamen removeri posse, ut prorsus desinat ulterius apparere. Distantia enim crurum interni decussationis anguli minor esse poterit quàm unius capillamenti nervi optici diameter. Quid autem hîc facit opinio de distantia cum imaginis magnitudine comparata, parùm intelligo. Neque certò scio quomodo aut oculus aut anima istam com-*  
pa-

new grades of motion. Instead, it only permits the ball to retain those which it possesses up to this point, leaving them intact and without any reduction, since it neither takes any of them away from it nor absorbs any itself. And it would be as absurd to suppose that the ball receives new or, if you prefer, its former grades of motion on entering an easier medium as it would be to admit that it rests for a moment in the point of reflection before leaping back, a view which you rightly reject in art. 2 of this chapter.

### On ch. 6, art. 9

"But only on the place of the small particles of the brain", etc. Are these, then, such particles as are visible in a dissection of the brain or do you conclude only by reason that such particles must exist to fulfil this function? I, for one, do not think that these particles are necessary. Rather, those same organs which transmit motion also necessarily alert the soul, which brings about that transfer of motion, provided there is no obstacle.

438

### On art. 13

"Similar to that used by the geometers who, by means of two fixed points", etc. This strikes me as a rather rough and obscure comparison, the two agreeing in nothing but the fact that they both involve two fixed points. Thus, geometers or, if you prefer, surveyors make use of fixed points extending from a tree or tower in a straight line, for instance, while the eye, if I have understood it correctly, changes its place in a transverse and almost parallel line with the object.

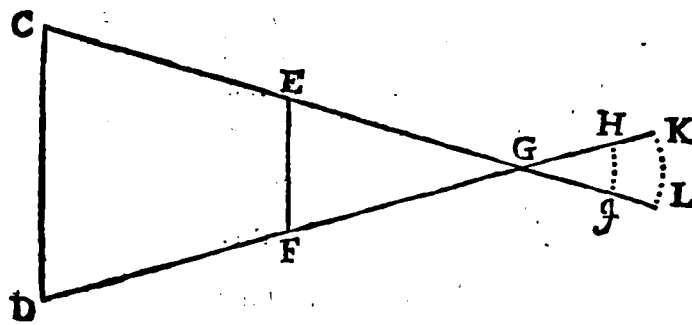
264

### On art. 16

"On the basis of the knowledge or opinion which we have about the distance", etc. It might prove quite difficult to explain the adequate causes of the way the size of bodies appears to us. However, in my view, it consists above all in one thing, namely the greater or lesser size of the intersecting angle. Thus, the larger it is, the larger that same body will appear to be in size and vice versa. It is, moreover, very remarkable that when you move some object, say, your thumb, as close to your eye as the space of one grain, the intersecting angle will be four or five times as great as that between the eye and the thumb at a distance of ten grains. If you then move your thumb further away from your eye by several tens of grains, the intersecting angle will become smaller and smaller, albeit in a steadily-decreasing proportion of tens of grain each or less. And it progressively increases in narrowness until it is finally so narrow that we perceive it only as one single straight line. Hence, no one will be surprised that if a thumb at a one-grain distance from our eye appears much bigger than at a ten-grain distance and that, removed by more tens of grain, it will not lose much in size at every ten grains, even though it can be moved so far away from us that we cease to perceive it altogether. For the distance of the legs of the internal intersecting angle will be smaller than the diameter of an individual fibre of an optical nerve. However, I do not completely understand yet how, in this case, we form an opinion about the distance in comparison to the size of the image. Nor do I know for certain how either the eye or the soul



parationem secum instituat. Deprehensionem autem magnitudinis ex dicto angulo quo modo oriri concipio, sic videor mihi posse explicare.



HI & KL sint fundi duorum oculorum, majoris scilicet & minoris. CD sit objectum majus & remotius, EF objectum minus, sed propinquius, EGF vel KGL Angulus decussationis.

Primum, hic statuo esse nisum quendam, seu transmissionem motus ab E in L & a D in K. Et animadversionem meam recta excurrentem per lineam KGFD offendere unam extremitatem objecti CD, videlicet D, eo revera quo inest loco, & per lineam LGEC offendere alteram extremitatem objecti CD, videlicet C, in suo itidem loco; & sic de cæteris partibus tam extremis quam intermediis objecti CD. Recto igitur excursu hoc animadversionis meæ, obversam objecti magnitudinem deprehendo; cujus diametri apparentis mensura est angulus EGF. Servatis igitur eisdem rectis lineis per quas excurrat mea animadversio, & eadem anguli magnitudine in oculo HI, quæ modo in KL; dico objectum DC æquè magnum apparere ac in oculo KL. Unde postea colligo, magnitudinem objecti apparentem ad anguli decussationis magnitudinem, non ad magnitudinem imaginis, referri. Postremo, ut magnitudo apparens objecti non sit ex magnitudine imaginis in oculi fundo (utl porro patet ex eo, quod eadem sit, imaginis magnitudo objecti minoris EF quæ majoris CD, tam in HI oculo quàm in KL) ita neque simpliciter ex magnitudine anguli decussationis: alioquin objectum EF æquè magnum appareret ac objectum CD, cum idem sit decussationis angulus. Sed amoto EF minore objecto, objectum CD revera multò majus apparebit quàm apparebat modò objectum EF, cum tamen utraque cernerentur sub eodem decussationis angulo. Unde merito concludi potest, apparentem cujusque objecti magnitudinem partim ex anguli decussationis, partimque ex reali corporis magnitudine oriri. Neque mirum est animadversionem meam per lineas rectas nisus illius sive motus transmissi pergentem eò usque penetrare, ibique se sistere ubi motus hic primum incipit, videlicet ad C & D; ut neque eas (cùm revera magis distant quàm EF, nec sub minori angulo videntur) apparere etiam magis distantes quàm E & F, totumque adeo objectum CD majus simpliciter apparere quàm objectum totum EF.

Ad Artic. 19.

Quoniam sumus assueti judicare, &c. Quid igitur censes de cæco illo à nativitate sua quem sanavit Christus, si speculum planum ipsi ob-

H h 3

jectum

performs a comparison between the two. However, it seems to me that we may account for how we understand the size of said angle in the following way:

Let HI and KL be the base of the two eyes, i.e. the larger and smaller ones. Let CD be the larger and more remote object, EF the smaller yet closer one, and EGF or KGL the intersecting angle.

Firstly, I posit that there is some impetus or transmission of motion from C to L and from D to K. And my perception, proceeding straight along line KGFD, hits one end of object CD, i.e. D, in that very place where it is located. Likewise, it proceeds along line LGEC, and hits the other end of object CD, i.e. C, in its own place as well. And the same applies to all the other outer and middle parts of object CD. It is, therefore, through my perception, which proceeds straight along this line, that I perceive the size of an object opposite me. The measure of the latter's diameter, as it appears to me, is the angle EGF.

439 If, therefore, both the straight lines along which my perception proceeds and the size of the angle stay the same in eye HI as in KL shortly before, I claim that object DC appears as large as in eye KL. From this I conclude, then, that the apparent size of an object is due to the size of the intersecting angle, not to the size of the image. Finally, just as the apparent size of an object does not result from the size of the image at the base of the eye (as is clear, on the other hand, from the fact that the size of the smaller object EF is the same as that of the larger object CD both in eye HI and eye KL), it does not simply result from the size of the interceding angle either. Otherwise, object EF would appear as large as object CD, since the intersecting angle is the same. However, if the smaller object EF is removed, object CD will in fact appear to be much larger than how object EF appeared previously, even though both were perceived under the same intersecting angle. Hence, we can rightly conclude that the apparent size of each object results partly from the intersecting angle and partly from the body's real size. Nor is it surprising that my perception, proceeding along the straight lines of that impetus or transmission of motion, should advance as far as this point and stop at the first starting point of this motion, i.e. at C and D. Neither is it surprising (considering that they are in reality more distant than EF and are not seen under a smaller angle) that they seem more distant than E and F and that the whole object CD should indeed appear larger than the whole object EF in absolute terms.

On art. 19

"Since we are accustomed to judge", etc. What, then, is your opinion about the man born blind whom Christ cured? If a flat mirror had been presented to him



jectum fuisset antequam consuetudo iudicium depravasset? Numquid ille vultum suum citra speculum, non ultra, vel pone speculum, deprehendisset? Mirificè torfit & fatigavit imaginationem meam hic imaginis pone speculum lusus, 'cujus causas nondum me satis percepisse fateor. Neque enim mihi ullo modo satisfacit hæc depravata iudicandi consuetudo. Si rationes reales magis magisque mechanicas excogitare poteris, & nobiscum communicare, rem sanè gratissimam præstabis.

#### Ad Artic. 20. lin. ult.

*Indè sequitur diametrum illorum, &c.* Cur non diameter Solis vel Lunæ videatur pedalis vel bipedalis, ob angulum decussatorium ad eam rationem diminutum, quæ apta sit corpora ejusdem realis magnitudinis, cujus sunt Sol & Luna, sub hanc pedalem vel bipedalem magnitudinem apparentem, ad istas distantias, representare?

#### Ad Artic. 21.

*Quia tam versùs Horizontem quàm versùs verticem, &c.* Igitur majores Sol & Luna ad Horizontem apparent quàm pro distantia oportet apparere. Et ea potius est dicenda vera magnitudo apparens, sive non fallax, quæ certæ legi subjicitur, quàm quæ externis aliquibus adjunctis alteratur.

#### Ad Caput 7. Artic. 22.

*Quâ arte ob alias causas, &c.* Quam invertendi artem hîc intelligis? Et quas ob causas ab ipsa abstinere?

#### Ad Caput 8. Artic. 20.

*Aut diversis partibus parallelas.* Quid sibi hinc velint radii diversis partibus paralleli, nullo modo intelligo. Nihil enim hujusmodi quicquam exhibetur in schemate hoc, pag. 172. depicto. Ut mentem hîc apertius explices oro. Obscurissimum etiam illud est, nisi ego sum tardissimus, quod habetur ad calcem hujus Articuli, de decussatione radorum duo vitra convexa, DBQ & dbq, permeantium. Sed ad marginem hujus loci in editione tua Gallica relegas nos ad paginam 108. id est, ad figuram illam quæ in Latina editione habetur paginâ 164. Ego verò ibi in vitris illis nullam omnino video radorum decussationem, sed tantum inter vitra, ad communem focum I. Nulli enim ibi radii apparent nisi paralleli, qui parallelismum servant donec ad convexitates vitrorum BD, & bd, pervenerint, ubi demum ita incipiunt inflecti, ut omnium tandem fiat decussatio in foco I, non alibi. Hîc autem dicis radios etiam in illis vitris DBQ, dbq, primò decussari in superficie prioris, putà DBQ, deinde in altera posterioris, putà dbq. Quam autem intelligis superficiem? Planam, aut convexam? & an eandem in utraque? Pergis porro, *Si saltem qui ex diversis partibus allabuntur.* Quid est ex diversis partibus allabi? Numquid intelligis ex adversis sive oppositis? Nam paralleli etiam qui

before the bad habit had perverted his judgement, would he have seen his face on this side of the mirror rather than on that side, or behind it? I find this fanciful idea of an image behind the mirror, whose causes, I must admit, I have not sufficiently grasped yet, to be exceedingly weary and troublesome for my imagination. In fact, I do not find this notion of a perverted habit of judgement satisfying at all. It would be greatly appreciated if you could come up with more tangible and mechanical explanations and share them with us.

440

*On art. 20, final line*

“Hence, it follows that their diameter”, etc. Why should not the sun’s or moon’s one- or two-foot diameter, if its intersecting angle is reduced to the right ratio, represent bodies of the actual size of the sun and moon, appearing to be one or two feet in size at such a distance?

*On art. 21*

“Because ... equally towards the equator and the pole”, etc. Hence, the sun and the moon appear larger at the equator than they should considering their distance. And we should rather call that the true, non-fallacious apparent size which is subject to a certain law, instead of that apparent size which changes under certain external circumstances.

*On ch. 7, art. 22*

“By which art. for other reasons”, etc. What exactly do you understand by the art of inversion? And for what reasons do you avoid it?

*On ch. 8, art. 20*

“Or parallel to different parts.” I do not understand at all the meaning of rays being ‘parallel to different parts’. For nothing of this kind is depicted in the figure on p. 172. Please explain your intention more fully here. Unless I am extremely slow, this article’s final section on the intersection of two rays passing through the two convex lenses DBQ and dbq is also extremely obscure. However, in the margins of this passage in your French edition you refer us to page 108, i.e. to that figure which is on page 164 in the Latin edition. However, I, for one, cannot see any intersection of rays in those lenses, but only between the lenses at the common burning point. For no other rays emerge there but parallel ones which keep their parallelism until they reach the convex surfaces of lenses BD and bd, where, finally, they begin to bend in such a way that there will eventually be an intersection of all of them in burning point I and not anywhere else. However, here you say that there will also be an intersection of the rays in lenses DBQ et dbq, first on the surface of the former, i.e. DBQ, then on the surface of the latter, i.e. dbq. But what surface to you mean? A plain or a convex one? And is it the same in both? After this, you go on to say: “Those at least which proceed from different parts.” What does “proceed from different parts” mean? Do you mean from ones facing or from ones opposite one another? After all, such parallels

ab eodem objecto emanant recte dici possunt allabi ex diversis partibus. Hic prorsus in luto hæreo.

Ad Caput 9. Artic. 5. pag. 185. lin. 10.

Quod magis hac perspicilla objectorum imagines augent, eò pauciora simul representant. Cum perfectiora hæc perspicilla aperturam vitri exterioris majorem habent, eaque plures proinde parallelos radios ab objecto suscipit quam imperfectiorum minor apertura, omnesque illi radii ad fundum oculi à convexa dicti vitri superficie contorquentur, cur non plura etiam objecta, æque ac majores imagines, in oculo poterunt depingere?

Ad Caput 10. Artic. 4 lin. 17.

\*Hyperbole omnino similis & æqualis præxi deprehendetur. Supponis igitur Hyperbolas omnes, quarum foci æquidistant à verticibus, quamvis hæ per conum, illæ per funem & regulam describantur, per *εφαρμογή* coincidere: quod ut falsum non video, ita puto tamen veritatem illius, cum fundamentum sit totius quam mox expositurus es machinæ, fuisse operæ pretium demonstrasse, aut saltem rationem levi aliquo indicio innuisse.

Ad Artic. 6. pag. 202. lin. 27.

Hæbebit enim & aciem & cuspidem. Aciem habeat, sed quam cuspidem habere poterit non video, præsertim cum acies hujus instrumenti fabricanda sit recta, non concava, sic enim esset spherica; quæ si contingat extremos circulos latitudinis Rotæ, ad interiores tamen non adaptabitur; major enim erit quam ut cum illis conveniat. Unde nec tanget instrumenti hujus cuspis circumductam Rotam in mediis latitudinis spatiis.

Ad Artic. 7. lin. 17.

Tantum esse debere ut ejus semidiameter, distantia qua erit inter lineas 12 & 55. &c. Hujusce rei rationem autumo, quod tunc concava vitri superficies spherica fieret, non Hyperbolica.

Ad Artic. 10.

Ut nonnullos ex maxime industriis & curiosis, &c. Lubenter ex te audirem numquis ex peritioribus illis artificibus periculum fecerit adhuc in ingeniosissimo hoc tuo invento, & quo successu. Nam quod quidam hic mussitant, aliquos tentasse, operamque lusisse, id aut falsum arbitror, aut opifices illos qui tentarunt ex peritioribus non fuisse.

Quod ad Meteora attinet, difficultates quæ ibi occurrunt pauciores sunt, & levioris, opinor, momenti. Quales autem sint mox audies.

Meteororum Cap. 1. Artic. 4. pag. 210. lin. 7.

Et denique prope terram quam prope nubes. Hoc asseris de radiis tam rectis quam reflexis. Qui autem fieri possit ut recti, nisi quatenus re-

as emanate from the same object can also be rightly said to proceed from different parts. I am mired in quite a quandary here.

On ch. 9, art. 5, p. 185, l. 10

441 “The more these telescopes magnify the images of objects, the less of it they can represent at one glance.” Now the outer lenses of these more perfect telescopes possess a larger aperture which, therefore, receives more parallel rays from the object than the smaller opening of less perfect telescopes. Moreover, all of these rays are collected by the convex surface of said lens at the base of the eye. Why, then, can they not also represent both more objects and more images in the eye?

On ch. 10, art. 4, l. 17

“We shall find a hyperbola entirely similar to and identical with the preceding one.” You suppose, therefore, that all hyperbolas whose burning points are equally far removed from the top are identical by *εφαρμογή* even though some are described with reference to the cone, the others to the cord and the ruler. Indeed, you suppose that the apices have the same distance. While I do not consider this false at all, I still believe that it would have been advisable to prove its truth since this is the basis of the entire machine which you are about to describe.

On art. 6, p. 202, l. 27

“For it will have both a cutting edge and a point”. It may have a cutting edge, but I fail to see what point it will possess, especially since the cutting edge of this tool is to be made straight, not concave. It would, therefore, be spherical. And while it may reach the outer circles of the wide wheel, it will not be adapted to the inner parts, since it will be too large to fit them. Hence, the point of this tool will not touch the wheel in its wide middle space.

On art. 7, l. 17

“It must not be so large that its semi-diameter, the distance which will extend from line 12 to 15”, etc. I hold that the reason for this is the fact that the concave surface of the lens would then become spherical, not hyperbolical.

On art. 10

“So as to ... some of the most curious and skillful people”, etc. I should like to hear from you whether any of those more skilled artisans have put your most ingenious invention to the test yet, and how successful they have been. There are, in fact, some people who complain that some have already tried and failed in their endeavours. However, this, in my view, is either mistaken or those craftsmen who have tried were not among the more skilled.

As regards *Meteorology*, the difficulties which I have encountered in this work are fewer and less significant. However, let me mention what they are.

*Meteorology*, ch. i, art. 4, p. 210, l. 7

442 “And finally, faster near the vicinity of the earth than near the clouds.” You assert this both about direct and reflected rays. However, I fail to see how it is possible for direct rays



reflectuntur & replicantur iterum in se prope Terram, vim caloris augeant, non video. Tum vero non sunt simpliciter recti, sed recti cum reflexis conjuncti. Imò vero potius minui videtur vis caloris in aere terræ vicino, cum nonnihil sui motus ætherei globuli communicent cum particulis terrestribus, unde prope terram tardior erit motus eorum & languentior quam in superioribus aeris regionibus. Non igitur abs re esset si hic explices, cur caleseat aer prope Terram magis quam prope nubes. Et annon fieri possit, ut quamvis motus minor sit prope terram quam in supernis aeris partibus, major tamen calor sentiat, ob inæqualitatem hujusce motus.

Caput 7. Artic. 6. pag. 283. lin. 4.

*Sed etiam inferiores adeò raras atque extensas, &c.* At cum tam raræ sint, quæ possunt alias in se cadentes nubes excipere, ibique sistere? Videntur potius præ sua tenuitate ad Terram transmissuræ, si eò, alias, profecturæ essent.

Ad Artic. 7. lin. 2.

*Ob aeris circumquaque positi resonantiam, &c.* Ità sanè fingit Paracelsus tonitru tam immaniter boare & mugire, ob arcuata cœli templa, non absimili ratione atque si quis æneam machinam nitrato pulvere onustam disploderet sub Tecto testudineato. Tu verò, fat scio, nullis laquearibus ætherem claudi sustines, ac proinde videatur verisimilius, quod quò magis ictus distat à Terra, eò debiliior futurus sit sonitus; cum nec tam commodè fiat resonantia, quod quò reverberetur sonus, tam longè absit ab aliis corporibus.

Caput 9. Artic. 2. lin. 19.

*Pauci quippe tantummodo radii, &c.* Numquid igitur radiorum paucitas cæruleum colorem generat? Videtur hoc haud ità consonum præcedentibus. Quippe quod cum supra statueris, colores oriri ex varia proportionè rotationis sphaularum ad motum earundem rectum, & particulatim cæruleum ex rotatione minore quam progressu proficisci, quasi in eo ipso constaret ipsa cærulei coloris ratio; nunc tamen causam refert non tam ad rotationis defectum, quam paucitatem radiorum resilientium a superficie maris. Hic igitur quæro utrùm sentias nullam aliam esse colorum rationem præter eam quam ipse tam subtiliter & ingeniosè exposuisti; an & aliis modis colores oriri possint, nullà habitâ ratione rotationis globulorum motusque rectilinei: præsertim cum & ipse innuis aquam marinam cæruleam videri ob paucitatem duntaxat radiorum. Et certè explicatu haud facile est, cum globuli in æquoris superficiem impingunt, cur non aut albescat mare aut rubescat, cum fortius impingunt, aut illis resistitur fortius in superficie maris, quam in cœlo præ vaporibus albescente.

Proposui jam omnia quæ in scriptis tuis Physicis mihi visa sunt intellectu difficilia, aut intellectu difficulter vera. In quibus legendis mirari non immeritò tibi subeat ingenii mei conditionem & fatum; qui cum profiteri auserim me cætera omnia in tuis scriptis satis intime in-

to augment the power of their heat unless they continually reflect and replicate themselves upon themselves near the earth. In this case, however, they are not simply direct rays but are also coupled with reflected ones. But there is another more serious misgiving which troubles me here, namely your theory of the reflection of rays. For, according to the common philosophy, the reason for this is very simple: a sunray, like a thread, turns backwards and replicates itself, thereby necessarily doubling the power and, as it were, the crassness of its heat. However, there is no place for this in your philosophy. Instead, a ball bouncing back explains your mode of reflection better than a thread being duplicated. Hence, it hardly seems possible that the heat should be doubled. Thus, a ball which descends, say, from A to B, only describes a simple line of motion, one which is entirely lacking before the same ball ascends from B to D. Therefore, since for each time x there is only one line of motion, it seems entirely impossible that the power of its heat should be doubled. On the contrary, it will rather be reduced in the air near the earth, since a globule or ball communicates some of its motion to the earthly particles. As a consequence, its motion from B to D will be slower and fainter than that from A to B. It would, therefore, be very helpful if you would explain here why the air near the earth becomes hotter than it does near the clouds and whether it is possible that a greater heat is felt because of the inequality of this motion, even though there is less motion near the earth than in the higher regions of the air.

Ch. 7, art. 6, p. 283, l. 4

“But also the lower ones, remaining very much rarefied”, etc. However, if they are so rarefied, how can they absorb others falling into them and stop them? They rather seem so subtle that they should push them towards the earth instead if they were otherwise to go there.

On art. 7, l. 2

“Because of the resonance of the air all around”, etc. In the same way, for sure, Paracelsus imagined the thunder to resound and reverberate so deafeningly because of the vaults of the heavenly temples – not unlike somebody causing an iron cannon charged with gunpowder to explode under a solid roof. I am well aware that you do not believe the ether to be enclosed within walls. And therefore, it should seem more likely that the further removed the blow is from the earth, the weaker the sound should be, for this resonance does not occur so easily, since the sound it produces reverberates far from the bodies hit.

Ch. 9, art. 2, l. 19

443 “For only a few rays”, etc. Does not a small number of rays, therefore, create a blue colour? This does not seem to chime too well with what you have said before. On the one hand, colours, as you have stated above, arise from the different proportions in which the rotation of the spheres stand to their straight motion. And blue in particular arises from a rotation smaller than the forward motion which, as it were, is the sole cause of the colour blue. On the other hand, you now trace it back not to the lack of rotation but to the small number of rays bouncing back from the surface of the sea. I ask you here, therefore, whether you believe that there is no other cause of colours than the one which you have described with such subtlety and ingenuity, or whether colours may also arise in other ways entirely independent of the rotation of globules and their rectilinear motion. After all, you yourself seem to imply that sea water seems blue only because of the small number of rays. And it is certainly hard to explain why the sea does not turn white when globules hit the surface of the water, or red when they hit it harder. Or is there stronger resistance to them on the surface of the sea than there is in the sky, which turns white because of the vapours?

I have now outlined all the doctrines in your writings on physics which I have found to be either difficult to understand or where I could not see how it could be true. In reading them, you may rightly have wondered at the state of my mind. After all, I have dared to claim a very thorough understanding of all other tenets in your writings,



ntelligere, (ubi plurima tamen reperiuntur, quæ multò difficiliora videri possint quam de quibus sapius hæsito) ista tamen quæ tibi proposui explicanda aut munienda, non æque ac illa cætera intelligerem. Ego verò hanc naturam meam atque indolem, quam à puero usque in me ipso observavi, (quæ nempe maxima sæpenumero feliciter vinco, victus interim à minimis) ad hunc usque diem emendare non potui. Humanitatis tuæ erit ignoscere quod nefas est corrigere, nulloque pacto aut affectatæ ignorantiae aut disputandi pruriginis imputare, quod tam multa congesserim. Feci enim non ex effræni aliquo disputandi desiderio, sed potius ex religioso quodam erga tua studio,

*Non tam certandi cupidus, quam propter amorem;  
Quod te imitari avelo:*

Quod scitè quidem ille; Ego vero hac in causa verissimè. Quod reliquum est, Clarissime Cartesi, exorandus es, ut ista omnia quæ scripsi æqui-bonique consulas, & cum primo tuo otio rescribas. Quod si dignatus fueris, peritissimum illum tandem efficies, qui semper fuit hactenus

• Cantabrigiæ, à Christi Collegio,  
12 Calend. Novemb. 1649.

*Philosophia tua studiosissimas,*

HEN. MORUS.

*Ce qui suit a esté trouvé parmy les Papiers de Monsieur Des-Cartes, comme un projet ou commencement de la reponse qu'il preparoit aux deux precedentes Lettres de Monsieur More.*

CUM tuam Epistolam decimo Calendas Augusti datam accepi, parabam me ad navigandam Sueciam versus, &c.

1. *An sensus Angelorum sit propriè dictus, & an sint corporei, necne.*

Resp. Mentès humanas à corpore separatas sensum propriè dictum non habere; de Angelis autem non constare ex sola ratione naturali an creati sint instar mentium à corpore distinctarum, an verò instar earundem corpori unitarum; nec me unquam de iis de quibus nullam habeo certam rationem quicquam determinare, & conjecturis locum dare. Quod Deum dicas non esse considerandum nisi qualem omnes boni esse cuperent, si deesset, probo.

2. Ingeniosa instantia est de acceleratione motus, ad probandam eandem substantiam nunc maiorem nunc minorem locum posse occupare; sed tamen est magna disparitas, in eo quod motus non sit substantia, sed modus, & quidem talis modus, ut intimè concipiamus quo pacto minui vel augeri possit in eodem loco. Singulorum autem entium quædam

even though there are quite a few others in them that might well appear to be much more difficult than the ones about which I have expressed some reservations. Still, at the same time, I failed to understand those which I have asked you to explain and defend as clearly as those others. In fact, I have until this day been unable to correct this character trait of mine which I have observed in myself ever since I was a child: that while I am very often capable of overcoming the greatest of difficulties, at the same time I find the least ones to be insuperable. I shall leave it to your kindness to forgive what cannot be rightfully rebuked and not to attribute the great number of questions raised either to affected ignorance or to a penchant for dispute. In doing this, I was moved not by any uncontrolled desire for dispute, but rather by my religious devotion to your writings,

*Not so much out of any desire to compete with you as for love:  
my wish is to imitate you.*

What the poet says with great eloquence I, in this matter, say with the greatest sincerity. It remains for me, most distinguished Monsieur Descartes, to pray that you judge all of what I have written to you with benevolence and justice and that you answer me at your earliest convenience. If you deign to do so, you will make one most learned who has to this day always been a most ardent student of your philosophy,

Henry More

Cambridge, Christ's College 21<sup>st</sup> October 1649

OO, 267 AT V, 401

The following has been found among the papers of Monsieur Descartes, apparently a draft or the beginning of an answer which he was preparing to the preceding letters of Monsieur More.

CSMK, 380

402 When I received your letter of 23<sup>rd</sup> July, I was about to leave for Sweden, etc.

1. "Is the sensation of angels sensation in the proper sense and are they corporeal or not?"

I answer that human minds separated from the body do not have sensation in the proper sense. As regards angels, however, it is not clear from natural reason alone whether they are possibly created like minds distinct from bodies or rather like minds united to bodies. However, I never decide anything concerning that about which I cannot reason with any certainty, nor do I entertain any speculations about them. I concur that we must conceive of God as one whose existence the best of men would wish for if he did not exist.

268  
CSMK, 381

2. Your instance regarding the acceleration of motion by which you seek to prove that the same substance can occupy more space at one time and less at another is ingenious. Still, there is a major difference in that motion is not a substance but a mode, and a mode of such a kind that we can inwardly conceive how it can decrease and increase in the same place. However, singular beings

quædam sunt propriæ notiones, de quibus ex iis ipsis tantum, non autem ex comparatione aliorum, est judicandum: Ita figuræ non compèrit quod motui, nec utrique quod rei extensæ. \* Qui autem semel bene perspexit nihili nullas esse proprietates, atque ideo illud quod vulgò vocatur spatium vacuum non esse nihil, sed verum corpus, omnibus suis accedentibus (sive iis quæ possunt adesse & abesse sine subjecti corruptione) exutum, notaveritque quomodo unaquæque pars istius sive spatii sive corporis sit ab omnibus aliis diversa & impenetrabilis, facile percipiet nulli alteri rei eandem divisibilitatem, & tangibilitatem, & impenetrabilitatem, posse competere.

3. Dixi Deum extensum ratione Potentiæ, quod scilicet illa Potentia se exferat, vel exferere possit, in re extensæ. \* Certumque est Dei essentiam debere ubique esse præsentem, ut ejus potentia illi possit se exferere; sed nego illam ibi esse per modum rei extensæ, hoc est, eo modo quo paulò antè rem extensam descripsi.

4. Inter merces quas ais te ex navigiolo meo tibi comparasse, duæ mihi videntur adulteratæ. Una est, quod quies sit actio sive renixus quidam; etsi enim res quiescens, & hoc ipso quod quiescat, habeat illum renixum, non ideo ille renixus est quies. Altera est, quod moveri duo corpora sit immediatè separari; sæpe enim ex iis quæ ita separantur unum dicitur moveri, & aliud quiescere, ut in *Art. 25, & 30. partis 2. explicui*.

5. Translatio illa, quam motum voco, non est res minoris entitatis quam sit figura, nempe est modus in corpore. Vis autem movens potest esse ipsius Dei conservantis tantumdem translationis in materia, quantum à primo creationis momento in ea posuit; vel etiam substantiæ creatæ, ut mentis nostræ; vel cujusvis alterius rei, cui vim dederit corpus movendi. Et quidem illa vis in substantia creata est ejus modus, non autem in Deo; quod quia non ita facile ab omnibus potest intelligi, nolui de ista re in scriptis meis agere, \* nè viderer favere eorum sententiæ qui Deum tanquam animam mundi materiæ unitam considerant.

6. Considero materiam sibi liberè permissam, & nullum aliunde impulsu suscipientem, ut planè quiescentem; illa autem impellitur à Deo, tantumdem motus sive translationis in ea conservante quantum ab initio posuit; neque ista translatio magis violenta est materiæ quam quies: Quippe nomen violenti non refertur nisi ad nostram voluntatem, quæ vim pati dicitur, cum aliquid sit quod ei repugnat. In natura autem nihil est violentum, sed æquè naturale est corporibus quod se mutuo impellant, vel elidant, quando ita contingit, quam quod quiescant. Tibi autem puto ea in re parare difficultatem, quod concipias vim quandam in corpore quiescente per quam motui resistit, tanquam si vis illa esset positivum quid, nempe actio quædam, ab ipsa quiete distinctum; cum tamen nihil planè sit à modali entitate diversum.

7. Rectè advertis motum, quatenus est modus corporis, non posse transire ex uno in aliud; sed neque etiam hoc scripsi; quinimo puto motum, quatenus est talis modus, assidue mutari. Alius est enim modus in primo puncto corporis A, quod à primo puncto corporis B separatur, & alius quod separatur à secundo puncto, & alius quod a tertio,

403 possess certain characteristic notions which must be judged solely by themselves, not in comparison with others. Thus, shape does not possess the characteristic notions of motion, nor does either of them possess those of an extended thing.\* However, once we have well understood that there are no properties of nothing and that, therefore, a vulgarly so-called vacuum or empty space is not nothing, but a real body deprived of all its accidents (or, more precisely, those which it may or may not have without the subject ceasing to exist); and once we have noted how each single part of this space or body is different from all the others and impenetrable, we shall readily see that no other thing can possess the same divisibility, tangibility and impenetrability.

3. I have said that God is extended in respect of his power, i.e. this power manifests itself, or can manifest itself, in an extended thing.\* And it is certain that God's essence must be present everywhere in order that his power may manifest itself there. However, I deny that it is there in the mode of an extended thing, i.e., in that mode in which I have just described an extended thing.

4. Of the "useful things" which you say you "have gained from" my "example of the boat", two seem to me to be corrupted. The one is that "rest is an action or a kind of resistance". For, even though a thing possesses this resistance because of the very fact that it is at rest, this resistance is not therefore identical with rest. The other is that "for two bodies to move means that they separate immediately". For of those bodies which separate in this way the one is frequently said to be in motion, the other at rest, as I have explained in Part II, arts. 25 and 30.

5. The transfer which I call motion is a thing of no less being than shape. It is a mode in a body as well. However, the moving power may well be that of God himself preserving the same amount of transfer in matter which he put into it at the first moment of creation. Alternatively, it could be that of a created substance like our mind or some other thing to which he has given the power of moving a body. And that power in a created substance is certainly its own mode and not in God. Since everybody finds this difficult to understand, I chose not to deal with this question in my writings.\* I was afraid that I might seem to endorse the view of those who consider God the world soul united with matter.

6. I believe that "matter, left to itself and receiving no impulse from without", is entirely at rest. However, it is impelled by God who preserves the same amount of motion or transfer in it which he put into it in the beginning. Nor does this transfer do any more violence to matter than rest, since the term "violence" can only be referred to our will which is said to suffer violence when it experiences something adverse to it. In nature, however, there is no violence, but it is as natural for bodies mutually to impel or even crush one another when this happens as it is for them to be at rest. However, I believe you find this question difficult because you conceive a certain power in a body at rest by which it resists motion, as though this power were something positive, i.e. a certain action distinct from rest itself, even though in reality it is nothing but a modal entity.

7. You rightly note that "motion, insofar as it is a mode of a body, cannot pass from one to another." However, this is not what I wrote. Rather, I believe that motion, insofar as it is such a mode, is 405 subject to constant change. For there is one mode in point one of body A in that it is separated from point 1 of body B and there is another mode in that it is separated from point 2 and yet another in that it is separated from



tertio, &c. Cùm autem dixi tantundem motûs in materia semper manere, hoc intellexi de vi ejus partes impellente, quæ vis nunc ad unas partes materiæ, nunc ad alias se applicat, juxta leges in *Artic. 45.* & sequentibus partis secundæ propositas. Non itaque opus est ut sis sollicitus de transmigratione quietis ex uno subjecto in aliud, cùm nè quidem motus, quatenus est modus quieti oppositus, ita transmigret.

8. Quæ addis, nempe tibi videri corpus stupidè & remulentè esse vivum, &c. tanquam suavia considero: & pro libertate quam mihi concedis, hîc semel dicam, nihil magis nos a veritate inveniendâ revocare, quam si quædam vera esse statuamus, quæ nulla positiva ratio, sed sola voluntas nostra, nobis persuadet, quando scilicet aliquid commentati sive imaginati sumus, & postea nobis Commentum placet; ut tibi, de Angelis corporeis, de umbra Divinæ essentiae, & similibus; quæ nihil quisquam debet amplecti, quia hoc ipso viam ad veritatem sibi præcludat.

## SCHOLIA

### In Fragment. RESPONS. R. C.

**SECT. 2.** Qui autem semel verè perspexit Nihili nullas esse proprietates, atque ideo illud quod vulgò vocatur Spacium vacuum non esse nihil, &c. Certè si hisce Principiis stetur apud Cartesianos, ut apud ipsum Spinozium inculcatissimum est, Nihili utique nullam esse proprietatem sive affectionem, substantiam esse Incorpoream à Materia distinctam, eamque aliquo modo extensam manifestò potest demonstrari: Quemadmodum abundè probavi in *Enchiridio Metaphysico*, Cap. 6, 7, 8.

**SECT. 3.** Certumque est Dei Essentiam debere ubique esse præsentem ut ejus potentia ibi possit se exercere, &c. Et tamen in suo Responso ad Epistolam meam secundam apertè ait (*Instant. 1.*) Hoc ubique non admitto, &c. Sed si sententiam, uti spero, mutaverit, gaudeo. Cartesiani interim priori illius sententia adherent, quò eum Nullibismi sui constituent Auctorem, ac Nullibistarum Principem.

**SECT. 5.** Nè viderer favere eorum sententiæ, qui Deum tanquam Animam Mundi Materiæ unitam considerant. Si substantiam aliquam creatam, cujus vi Materia Mundana moveretur, agnosceret, nihil inde periculi impendere video, nè videatur Deum tanquam Animam mundi Materiæ unitam considerare, sed potius illud Incommodum à se amoliretur, si substantiam creatam Mundana Materia motricem, qualem Spiritum Natura suppono, vellet admittere. Equidem admodum obscurus est hic locus, nec quid sibi velit hæc Cartesius, satis video.

### Responsio

point 3, etc. However, when I said that there was always the same amount of motion in matter, I was referring to the force impelling its single parts, a force which attaches itself to different parts at different times in accordance with the laws set down in Part II, arts. 45 and following. Hence, you do not have to worry about rest passing from one subject to another, since not even motion, insofar as it is a mode opposite to rest, passes on in such a fashion.

8. However, what you add then, namely that “a body is alive in a mindless and befuddled way” and so on, strikes me as downright amusing. And with the candour which you allow me, let me tell you once and for all that nothing leads us further astray from the discovery of the truth than deciding that certain things are true of which no positive reason but only our will convinces us. Thus, we imagine and invent something, afterwards growing fond of our own inventions as you have of your corporeal angels, your shadow of the divine essence and the like. However, no-one should accept anything of that because he would thereby bar altogether his road to the truth.

OO, 269

### Scholia on the Fragment of the Answer of R.C.

Sect. 2: “However, once we have well understood that there are no properties of nothing and that, therefore, a vulgarly so-called vacuum or empty space is not nothing”, etc. Certainly, if the Cartesians hold on to these principles – and Spinoza himself is most adamant that there is no property or predicate of nothing – then it can clearly be demonstrated that there is an incorporeal substance distinct from matter which is extended in some way. I have done so in great detail in my *Enchiridium Metaphysicum*, chs. 6-8.

Sect. 3: “And it is certain that God’s essence must be present everywhere in order that his power may manifest itself there”, etc. And despite that, he clearly says in his answer to my second letter (inst. 1): “I do not grant this ‘everywhere’”, etc. However, if, as I hope, he has changed his mind, I shall be content. Meanwhile, the Cartesians stick to his earlier view in order to make him the author of their own nullibism and the prince of the nullibists.

Sect. 5: “I was afraid that I might seem to endorse the view of those who consider God the world soul united with matter.” If he were to acknowledge a created substance, by whose power worldly matter was moved, he would not, in my opinion, risk viewing God as the world soul united with matter. On the contrary, he would free himself of this impasse altogether if he would admit a created substance moving worldly matter like the spirit of nature which I posit. In any case this place is rather obscure and I fail to see clearly what Descartes means to say here.



## Responsio ad Fragmentum Cartesii, ex Epistola Henrici Mori ad Claudium Clerselier.

**Q**UOD tantopere tibi placuerunt nuperæ meæ literæ (Vir Clarissime) id profecto nulli earum lepori aut acumini, sed singulari tuæ humanitati imputandum est. Cujus & locupletius adhuc argumentum dedisti, quod ad me nec rogantem nec expectantem gratissimum illud misisti Epistolæ Cartesianæ Fragmentum; utroque nonnullis earum difficultatum quas Cartesio proposui, ipse tam benigne tentasti satisfacere. Quod quidem officium aut hâc aut nullâ possum ratione compensare, nempe si eis omnibus quæ uterque vestrum scripsistis breviter respondeam.

1. Primo igitur, quantum ad Cartesianam illa attinet; De animarum separatarum Angelorumque sensu, dum omni penitus corpore destituntur, inter nos convenit, neutros nempe habere sensum proprie dictum. Quod vero Angeli subtilissimis semper corporibus induti fuerint, indicio est, quod nonnulli ex ipsis propria voluntate mali evaserunt. Spiritus autem pure ac perfecte immaterialis nulli labi aut lapsui obnoxius esse videtur; non est enim, cum adeo simplex sit, unde possit tentari stationemque suam deserere.

2. Nullo modo eludi potest instantia mea de eodem numero motu qui nunc majus nunc minus subjectum occupat, ni male mentem explicaverit suam, aut sententiam à me monitus retractaverit. Nam motum à corpore in corpus transferri ipse docet disertis verbis, discipulusque ejus ac interpres \* Henricus Regius eodem modo transire affirmat ac hæreditas à Sticho pervenit ad Seium. Nec disparitas illa quicquam huc facit, quod motus sit tantum modus, spiritus autem substantia, cum utrumque quid reale sit; imo verò causæ nostræ magis favet, cum impossibile sit ut idem numero modus nunc hoc, nunc illud subjectum, subjective partem occupet, idem autem numero spiritus sit commodè possit. Miror igitur infelicitatem Regiani ingenii, qui cum eundem numero motum tam libere à corpore ad corpus vagari passus sit, animam tamen humanam scetulento cadaveri tam inhumaniter incarceraverit, nec ex his sive absumptis Naturæ vinculis foras evolare permiserit. Quod ad ideam spatii attinet, illumque toties inculcatum Aphorismum, *Nibili nullam esse Affectionem*, tam fuse & copiose ad ista respondi in superioribus meis literis ad Cartesium, ut planè supervacaneum ducam quicquam hîc adjicere.

3. De Dei etiam, quam vocant, Omnipræsentia nullum superest inter nos dissidium, cum ubique eum esse agnoscat, vîmque suam in subjectam materiam exerere; extensionem porro aliqualem ei competere, sed longè diversam ab ea divisibili ac impenetrabili corpori competit.

4. Nullas ego merces in Cartesiano navigio adulteravi; nam quod conqueritur me ita permiscere ac confundere illum corporis quiescentis renixum cum quiete, ut nullam inter ipsa distinctionem admittam, id contendo optimo jure esse factum. Quid enim est, si non sit quies, quo se corpus quiescens ab abreptione seu translatione, quam ille motum

OO, 269

## Answer to Descartes' Fragment in the Letter of Henry More to Claude Clerselier

The fact that you, most distinguished Sir, took so great pleasure in my recent letter cannot at all be due either to its pleasantness or astuteness, which it lacks, but only to your own singular affableness. You have furnished me with even stronger proof of your kindness by sending me that most agreeable fragment of Descartes' letter without my either asking for or expecting it and by very kindly attempting yourself to answer some of the difficulties which I had proposed to Descartes. Neither my answer to what both of you have written to me nor anything else can possibly be equal to this favour.

1. I shall start, then, with the points raised by Descartes. As regards the sensation of separated souls and angels, we concur that as long as they are completely deprived of bodies, they do not have sensation in the proper sense. However, the fact that some angels have by their own will become evil is evidence that they are always clothed with bodies of the greatest subtlety. On the other hand, it seems that a spirit of pure and perfect immateriality cannot be subject to any sin or fall. For, being so simple, it could not be tempted or abandon its place.

2. On no account can my instance regarding a numerically identical motion occupying a larger subject at one time and a smaller one at another be evaded unless he has either explained his intention badly or, following me, has revoked his view. For he himself teaches quite explicitly that motion is transferred from one body to another. Likewise, his pupil and interpreter Henri Regis holds that it passes on like an inheritance passing from Stichus to Seius. Nor does that disparity help in any way, i.e. the fact that motion is only a mode, and spirit a substance, since both of them are something real. In fact, it favours our cause even more since it is impossible for one numerically identical mode to occupy different subjects or parts of subjects at different times, whereas a numerically identical spirit can do this with ease. I wonder at Regis's infelicitous mind, therefore, since he allows the same numerically identical motion to pass so freely from one body to another, while incarcerating the human soul so mercilessly in a stinking corpse, not permitting it to fly outside once it has cast off and left behind the fetters of nature. As regards the idea of space and that much-belaboured aphorism that "there is no predicate of nothing", I have replied to this in such abundant detail in my earlier letters to Descartes that I would find it completely superfluous to add anything here.

3. Further, as regards what is called God's omnipresence, there is no longer any disagreement between us, since he acknowledges that God is everywhere, manifesting his power in a material subject; and, moreover, that he possesses a certain extension, albeit one far different from that which a divisible and impenetrable body possesses.

4. I have not "corrupted" any of the useful things from the Cartesian boat. Thus, to his charge that I conflate and confuse that resistance of a body at rest with rest itself in such a way that I do not acknowledge any distinction between the two, I reply that I have been perfectly right in doing so. For is it not by rest alone that a body at rest defends itself from being pulled away or transferred, which he calls motion?

270

tum vocat, defendit? Est igitur renixus ille nihil aliud nisi ipsissima quies, rem quiescentem conservans in statu quietis; hoc est, res perseverat in eo statu quo est juxta leges Naturæ, donec fortior aliqua causa eum mutaverit. Quod si renixus hic, sive constantia, quietis actio aliqua esset, cum omnis actio corporea sit motus, quietis etiam motus aliquis esset; quod videtur valde rationi absolum. Ego igitur potius suspicor incomparabilem Philosophum aliorum culpâ, qui satis pro imperio omnia agunt, rationem motûs adulterasse, ne videretur, quod superstitiosa Peripateticorum schola pro piaculo ferè habet, telluris motum asserere, dum eam communi omnium Planetarum vortice agnoscit circa Solem circumferri.

Pari etiam facilitate adulteratio illa altera diluitur. Nam cum ipse *Cartesius* motum seu translationem reciprocâ esse statuât, nec tamen eam vim ullam esse vel actionem in corporibus divulsis ac translatis, quid, quæso, potest esse nisi immediata corporum separatio? Quod si motus sit immediata corporum separatio. continuò sequitur, quod moveri duo corpora sit immediate separari. Quod autem unum ex istis sæpius dicatur quiescere, id profectò gratis dictum est, cum sit impossibile. At verò nisi quiescat terra E F G H, dum corpus A B transfertur ab E versus F, ac C D ab H versus G, terra uno eodemque tempore in contrarias partes movebitur. Unde iterum constat ipsum *Cartesium* genuinam motûs notionem adulterasse. Vide *Part. 2. Art. 30.*

5. Videtur Translatio minus habere entitatis quàm Figura, quoniam hæc est magis absoluta affectio corporis in quo est, illa ad aliud duntaxat relatio. Quod ad vim motricem spectat sive in Deo sive in Mente Divina sive in Anima Mundi cum *Platonici* statuât; præclare tamen factum est quod tam egregius Philosophus hanc virtutem materiæ ipsi non tribuerit, sed alii alicui subjecto, quod proinde non potest non esse immateriale seu incorporeum. Videbat enim proculdubio Vir perspicacissimus, nisi quis licentiam sibi arriperet quidlibet temerè & precario affirmandi vel negandi, quod necesse esset agnoscere universam materiam suâ naturâ esse homogeneam, juxta ideam ejus animo nostro obversantem, præsertim cum nulla causa fingi possit ullius in ea diversitatis. Hinc sequitur mundanam materiam totam suâ naturâ aut moveri aut quiescere. Quod si tota per se moveatur, nullius rei esset, ne ad momentum quidem, permanens compages, diffluentibus statim suâ sponte à se invicem particulis, vel potius nunquam in unum coalescentibus; quod abundè satis probavi in Literis meis ad *Cartesium*.

6. Apertè igitur profitetur *Cartesius* se, cum Ficino reliquisque *Platonici*, materiam sibi liberè permissam, nullumque aliunde impulsus suscipientem, considerare ut planè quiescentem. Quod verò impulsus hic ipsi non sit violentus, juxta cum illo sentio: non solum quod nomen violenti propriè non referatur nisi ad nostram voluntatem, quæ vim pati dicitur cum aliquid sit quod ei repugnat; sed quod materia quodammodo motu hoc vel impulsu perficiatur. Ne quicquam obstat renixus ille qui fingitur in materia quiescente, cum non propriè actio sit, sed tantum rei quiescentis in sua quiete persistencia, ut ipse innuit hoc in loco *Cartesius*.

Therefore, this resistance is nothing other than rest itself which preserves a thing at rest in the state of rest, i.e., a thing perseveres in this state in which it is in accordance with the laws of motion until some stronger cause changes this state. If, therefore, this resistance or constancy were a certain action of rest, it would also be a motion, since all corporeal action is motion. However, this seems highly unreasonable. I, for one, suspect therefore that this incomparable philosopher, through the fault of others who only follow authorities in all things, has himself given a corrupted exposition of the cause of motion. He was afraid that he might be seen as asserting the motion of the earth, which the superstitious school of the Peripatetics considers downright sacrilegious. In reality, however, he acknowledged that the earth orbits the sun in the common vortex of all planets.

We may dispose of the other corruption as easily. For since Descartes himself holds that motion or translation is reciprocal without, however, allowing it to be any force or action in bodies being separated or transferred from one another, what else, I pray, could it be than the immediate separation of bodies? If, then, motion is the immediate separation of bodies, it follows at once that for two bodies to be in motion means that they are separated. However, it is therefore entirely without meaning if we say, as we do in fact quite frequently, that one of them is at rest, because this is impossible. But unless earth EFGH is at rest when body AB is transferred from E to F and CD from H to G, the earth will simultaneously move into opposite directions. Hence, it is clear that Descartes himself has corrupted the true concept of motion. See Part II, art. 30.

5. A transfer does seem to have less being than shape, because the latter is a more absolute predicate of the body in which it is than the former, which is only a relation to another body. As regards the motive force, he may have placed it either in God and the divine mind or, agreeing with the Platonists, in the world soul. Either way, however, it is extraordinary that such an excellent philosopher has not attributed this power to matter itself, but to some other subject which, therefore, cannot but be immaterial or incorporeal. Thus, undoubtedly, this most farsighted man had realized that unless we were to usurp the freedom of affirming and denying things arbitrarily and at will, it was necessary to acknowledge that the whole of matter was by its very nature homogeneous in accordance with its idea observed in our minds, especially since we could not invent any reason for any diversity in it. Hence, it follows that the whole of worldly matter either is in motion or at rest by its very nature. However, if, as a whole, it were moved through itself, there would not, even for one single moment, be any permanent structure in anything. Instead, the particles would at once drift apart by themselves, or rather they would never coalesce into any unity at all, as I have proved in abundant detail in my letter to Descartes.

6. Descartes, therefore, concurs with Ficino and the other Platonists, stating explicitly that "he believes 'matter, freely left to itself and not receiving any impulse from without', to be entirely at rest." However, I agree with him that this impulse does not do violence to it, not only because "the term violence can only be referred to our will which is said to suffer violence when it experiences something adverse to it", but also because matter is, as it were, perfected through this motion or impulse. Nor does the resistance imagined in matter at rest pose any problem because it is not an action in the proper sense, but only means that a body persists in its rest, as Descartes himself says in this place.

Rectè me hîc dicit advertere motum, quatenus est modus corporis, non posse transire ex uno in aliud, neque se ullubi hoc scripsisse. *Regius* verò datâ operâ rem sic explicat ac si error esset aliter sentire, prout suprà monui. Quin & ipsius *Cartesii* verba hunc sensum præ se planissimè ferre videntur, *Part. 2. Art. 40.* ubi asserit corpus majorem vim habens ad pergendum alterum corpus secum movere, ac quantum ei dat de suo motu tantundem perdere. Imò verò & vis illa quâ de hîc agit idem mihi videtur atque motus iste. Sed cuilibet Authori sua scripta interpretandi jus esto.

8. Mea illa *suavia* quæ vocat si miscerentur cum ejus *severis*, optimum crederem indè factum iri temperamentum. Ego tamen interim venustum *Cartesiani* ingenii rigorem non retractanter suavior ac deoscolor, quamvis hoc sæpius notaverim, nempe eos qui Mathematicam certitudinem in rebus omnibus tam pertinaciter affectant, infelicissimè omnium in quibusdam vacillasse. Ea enim argumentandi ratio quæ demonstrationis speciem præ se fert, simul atque deprehensa sit non esse legitima demonstratio, nullius loci argumentum meritò judicatur.

Præterea, in adhibendo allusiones quasdam & similitudines nulla fraus subesse potest, modò meminerimus, res propriis nominibus non appellari, sed tralatitiis, nec materiam sive universum mundi corpus ideo esse umbram, quòd quasi umbram esse divinæ essentiae indigita-verim. Hæc enim allusio non docet corpus vera esse umbram, sed à Deo pendere ut umbra à corpore. Deinde, ut umbra aliqualem corporis imaginem refert, sed obscurissimam maximeque degenerem; sic in corpore sive materia cæca quadam ac evanida esse Divinæ essentiae vestigia, quæ cum, uti dixi, vita sit perfectissima, ipsa analogia postulat, ut omni prorsus vitæ imagine materia non destituatur. Aliqualem autem vitæ speciem mensuratur in eo, quòd dum duo corpora occurrunt, ita motus eorum attemperari possit, ut mutuo quasi monita, alterum de acceleratione motus, de retardatione alterum, utraque tandem in eundem motus tenorem conspirent. Eademque est ratio in reliquis translationis legibus. Nam motum illum qui in uno corpore est transire in aliud, ipse vix audet affirmare *Cartesius*.

Quòd verò addit externam aliquam esse vim, sive à Deo sit, sive à substantia aliqua incorporea à Deo creata, quâ materia in motum excitatur, id etiam laudo, cum proculdubio in genere sit verissimum. Quòd si ita rem intellexerit ac si Divina illa vis singula corpora immediate impelleret quæ moventur, magna erit difficultas; frustra enim essent mutui corporum impulsus. Experimentiâ autem constat unum corpus alterum impellere, ut videre est in projectis manu lapidibus, globisque ferreis è machina bellica explosis. Quòd si quasdam materiæ partes exuscitet illa vis, alias verò immediate exuscitet, partes illæ divinitus excitatæ alias impulsu suo in motum excitabunt. Cum verò nullus motus transeat ab uno corpore in aliud, manifestum est, unum alterum quasi è somno expergefacerere, atque hoc pacto expergefacta corpora de loco in locum se suâ vi transferre; quam corporis proprietatem ego tanquam umbram vitæ aliquam ac imaginem considero. Quamobrem tandem liquet cassas nos non captare umbras,

He says that "I rightly note that 'motion, insofar as it is a mode of a body, cannot pass from one to another'" and that he did not write this anywhere. However, as I have pointed out above, *Regis* expressly expounds this matter in this way as though it were an error to take a different view. But *Descartes*' own words in *Part II*, art. 40 most clearly seem to have this very meaning. There he holds that the body which has a greater force to continue onwards moves another body with it, and loses the same amount of its motion which it gives to the other. Indeed, the force which he refers to here also seems to me to be identical with this very motion (but may every author reserve the right to interpret his own writings!).

8. I am inclined to believe that if those "amusing" things of mine, as he likes to call them, and the sterner ones of his were mixed, it would yield the best possible blend. Meanwhile, I personally bow most willingly to the beautiful rigour of *Descartes*' genius, although there is one thing that I have observed quite frequently: those who seek mathematical certainty in all things with such tenacity vacillate in some of the same in the most infelicitous fashion possible. For once a line of arguing that purports to be a demonstration has been shown to be illegitimate, it cannot rightly be judged to be an argument of any worth.

Besides, there cannot be any deceit hidden in the use of metaphors and similitudes as long as we keep in mind that things are not designated by their proper names, but by figurative ones. Hence, in saying that matter or the universal body of the world was, as it were, the shadow of the divine essence, I did not mean to say they were a shadow in reality. For the meaning of this metaphor is not that it is a shadow in actual fact, but that it depends upon God as does the shadow upon the body. Further, just as a shadow reflects some image of the body, albeit a very obscure and base one, there are in body or matter some blind and faint traces of the divine essence. However, since the latter, as I have said, is most perfect life, the analogy itself requires that matter is not wholly deprived of the image of life. It counterfeits some semblance of life in the meeting of two bodies, as their motion is adjusted in such a way that both, notifying one another of the acceleration and deceleration of motion respectively, eventually agree in the continued course of their motion. And the same holds true of the other laws of transfer. For not even *Descartes* dares to affirm that the motion which is in one body passes to another.

Moreover, I appreciate what he proceeds to add, namely, that there is some external power, be it from God or from another incorporeal substance created by God, by which matter is stirred into motion, because it is undoubtedly very true in general. If, however, he understands it in such a way that the divine power immediately impels each single body that is in motion, a major difficulty will arise, as the mutual impulses of bodies will be in vain. However, it is clear from experience that one body impels another, as we can see from stones cast by men's hands or iron balls fired from instruments of war. If, then, this power immediately rouses some parts, while not rousing others, those parts stirred by God will by their own impulse stir the others into motion. Since, in reality, no motion passes from one body to another, it is manifest that one awakens the other from sleep, as it were, and that the bodies awakened this way transfer themselves from one place to another by their own power. And I, for one, call this property of body a shadow or image of life, as it were. Hence, it finally becomes clear that we are not reaching for hollow shadows here at all.



bras, sed quæ usum suum habent, optimèque veritatem illustrant severiori argumentandi genere demonstrabilem.

Alterum illud *suave* quod spectat, Angelos scilicet corporeos; eorum fanè existentiam testantur sexcentæ amplius non fabulæ, sed verissimæ de Dæmonibus historiæ. Vanos autem illos vagulósque genios corporeos esse oportere, hoc est, vehiculis indui corporeis, ipse mihi videor satis suprà demonstrasse.

## Epistola H. MORI ad V. C.

1. Non omnia se Cartesiana sine delectu amplecti. 2. Ad tria ferè genera revocari quicquid uspiam lapsus est Cartesius. 3. Primi generis exempla. 4. Exempla secundi. 5. Tertiæ exempla. 6. Cur tantopere sibi indulget lectionem Philosophiæ Cartesianæ; Prima Ratio. 7. Ratio secunda. 8. Tertia Ratio. 9. Quarta. 10. Quinta Ratio. 11. Ratio ultima. 12. Cartesium injustè ab imperito vulgo Atheismi insimulari. 13. Qualia sunt quæ potissimum hujus criminis eum suspectum reddunt. 14. Quod Existentiam Dei demonstratione perfectissimâ probavit. 15. Quod in demonstranda Anima immortalitate tam prope scopum attigit, ut certum sit illum firmiter eam credidisse immortalem. 16. Huic consonare dicta ejus pia ac generosa supremo instanti fato. 17. Multa occurrere in ejus Philosophia quæ Dei existentiam Animæque immortalitatem necessario inferunt. 18. Tredecim loca in Epistolis eodem spectantia. 19. Insignem solummodo Naturæ peritiam eum Atheismi reddidisse suspectum. 20. Ridicula quorundam obtrectatio, qui eum tanquam vertiginosum mentisque malè compotem considerant. 21. Inventa ejus maximè paradoxa cum nuperis Philosophorum observationibus artissimè coherere. 22. Quomodo ex Tyconica cæli fluiditate primum suum secundumque Elementum collegit. 23. Quomodo ex Hypothesi Copernicana detexerit Materiam cælestem circa Solem, ad modum Vorticis, circumrotari. 24. Quomodo ex raptu hujus Vorticis Solis Stellarumque generationem intellexerit. 25. Quomodo hinc Luminis ac Colorum intima natura illi enotuerit. 26. Quæ Philosophorum Observationes eum invitaverint ad credendum Terram olim fuisse Solem Stellamve fixam. 27. Enumeratio quarundam Magnetis proprietatum, generalisque ex eis Conclusio; Quod, si Terra magnes sit, in axe alicujus Vorticis eam olim sitam esse oportuerit. 28. Eadem conclusio particulatim tum de Duritie Terræ Magnetica, 29. Tum de subtilitate particularum & foraminum magneticorum illata. 30. Cartesii indoles modesta ac sobria. 31. Nimiùm tamen illum indulgisse suo Genio Mechanico, sed in immensum Reipublicæ literariæ commodum. 32. Qui nihil sciri posse conqueruntur, non tam opprobrio Philosophiam afficere quàm suam excusare ignaviam. 33. Aliquid sciri posse in rebus naturalibus Cartesium clarè edocuisse. 34. Qui ea quæ ad mentem excolendam inserviunt nihil ad vitam humanam conferre statuunt, apertè profiteri se degere belluinam.

1. **R** E M magnam à me postulas, V. C. nempe ut de Philosophorum Triumviratu hujus seculi maximè insignium sententiam feram. Quorum quidem de duobus nihil planè statuere possum, ut-

Instead, they are quite useful and a very good illustration of a truth which can also be proved by a much stricter mode of argumentation.

As to the other "amusing" matter, i.e. corporeal angels, their existence is confirmed clearly by more than six-hundred very true reports - not just stories - about demons. However, I think I have already given sufficient evidence above that those vain and vagrant genii must be corporeal, i.e. clothed with corporeal vehicles.