

LETTERS, 29–41, 1665–1669

[IV/164]

LETTER 29 (A)

HENRY OLDENBURG TO THE VERY
ILLUSTRIOUS GENTLEMAN B. D. S.

5 Most Excellent Sir, and dearest Friend,

From your last letter to me, written on 4 September,¹ it is clear that You take our affairs to heart, not casually. You have obliged not only me, but also our most noble Mr. Boyle, who joins me in sending you the greatest thanks, and who will, at the earliest opportunity, repay
10 your kindness and affection with every kind of service he can render. You can be sure that the same is true of me.

As for that overzealous man who, in spite of the translation of the *Treatise on Colors*² now ready here, nevertheless wanted to prepare another one, perhaps he will think he has acted against his
15 own interest in his ill-timed eagerness. For what will become of his Translation if the Author should enlarge the Latin version available here in England with a great many Experiments not found in the English edition? Necessarily ours, to be distributed shortly now, would then be completely preferred to his, and thought much more
20 valuable by all sensible men. But let him be pleased with himself, if he wishes. We shall look after our own business as seems most advisable to us.

Kircher's *Subterranean World*³ has not yet appeared in our English world, because of the plague,⁴ which prohibits almost all commerce. In addition we have this dreadful War,⁵ which brings with it nothing
25 but an Iliad of evils, and almost banishes all civilized behavior from the world.

1. This letter is not known except for this reference, but evidently it gave Oldenburg some information about the projected *Theological-Political Treatise*.

2. I.e., Boyle 1664.

3. Athanasius Kircher's *Mundus subterraneus* (1665) was a treatise on forces and processes within the earth. A German Jesuit, Kircher fled Germany in 1631 to escape the Thirty Years War, and eventually settled in Rome, where he conducted an extensive correspondence about scientific and cultural matters, both within Europe and with Jesuit missionaries around the world. His scientific curiosity ranged over many disciplines, and he was boldly experimental in his methods. Once he had himself lowered into the crater of Vesuvius to observe its features after an eruption.

4. In the spring and summer of 1665 there was an outbreak of bubonic plague in London, which may have killed as many as one hundred thousand people, or about one-fifth of the population. Defoe's *Journal of the Plague Year* is a vivid, if fictionalized, account.

5. The Second Anglo-Dutch War, which lasted from 1664 to 1667. As in the First Anglo-Dutch War (1652–1654), the main cause was rivalry over trade. For further details see Israel 1995, 766–76.

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In the meantime, however, although our Philosophic Society⁶ holds no public meetings at this dangerous time, nevertheless here and there its Fellows do not forget that they are such. So separately some devote themselves to Hydrostatic Experiments, some to Anatomical Experiments, others to Mechanical Experiments, and still others to other
 30 subjects. Mr. Boyle has examined the origin of Forms and Qualities as it has heretofore been treated in the Schools and by teachers and has
 [IV/165] composed a treatise on it—undoubtedly excellent—which will soon go to press.⁷

I see that You are not so much philosophizing as (if it is permissible to speak thus) Theologizing; for you are recording your thoughts about Angels,⁸ prophecy and miracles. But perhaps you are doing this Philosophically. However that may be, I am sure that the work will be
 5 worthy of you and something I shall want very much to see. Since these very difficult times stand in the way of freedom of communication, I ask you at least not to be reluctant to indicate to me in your next letter what your plan and aim are in this writing of yours.

Every day we expect news here of a second naval battle, unless perhaps
 10 your Fleet has returned again to port. The courage which you hint is debated among you is bestial, not human. For if men acted according to the guidance of reason, they would not tear one another to pieces in this way, as anyone can see. But why am I complaining? There will be vices as long as there are men. But they don't go on without interruption, and they are compensated for by the arrival of better times.⁹

15 While I was writing this, a letter was delivered to me from the distinguished Danzig Astronomer, Mr. Johannes Hevelius,¹⁰ who tells me,

6. The Royal Society, whose origins Oldenburg had described to Spinoza in Letter 7, Volume I, p. 189.

7. See Boyle 1666. Available in Early English Books Online. For a good modern edition, with a helpful introduction, see Stewart 1991.

8. In the TTP as it has come down to us, there are a few scattered comments on angels (most significantly in i, 19–20; ii, 44; and iv, 31), but no extended discussion comparable to the chapters on prophecy and miracles. It appears from Lucas's biography that this was a topic the young men from the synagogue wanted to question Spinoza about, when they visited him shortly before the excommunication. See Lucas 1927, 44ff. There may have been some discussion of angels in the lost defense Spinoza wrote after the excommunication, defending his departure from the synagogue. For speculations about the probable contents of that defense, see Curley 2015a. The early accounts claim that Spinoza included some parts of his defense in the TTP. Oldenburg's reference to angels may be an indication that at this stage Spinoza's draft of the TTP included material on angels which was omitted from the final version.

9. As Akkerman notes, these last two lines quote Tacitus almost exactly. Cf. his *Histories* IV, lxxiv.

10. Johannes Hevelius (1611–1687) was a member of a noble family in Gdansk, who studied at the University of Leiden. When he returned home, he built an observatory on top of his house, and equipped it with instruments of his own making. He is best

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among other things, that his *Cometography*, consisting of twelve books, has already been in press for a whole year now, and that 400 pages, or the first nine books, are finished. He indicates, furthermore, that he
 20 has sent me several Copies of his *Prodromus Cometicus*, in which he has described fully the first of the two recent Comets.¹¹ But these have not yet reached me. He has decided, in addition, to publish another book on the second Comet, and to submit it to the judgment of the learned.

You would oblige me if you would tell me what your people think of Huygens' Pendulums, especially those which are said to provide such
 25 an exact measure of time that they could serve to determine Longitudes at sea. Also, what is happening about his *Dioptrics*, and his Treatise *On Motion*, both of which we have long been waiting for now? I am certain that he is not idle. I would just like to know what progress he
 30 is making. May you fare well and continue to love

Your most devoted,
 Henry Oldenburg

To M. Benedictus Spinoza,
 In the Baggyne Street
 In the house of Mr. Daniel, the painter,
 35 At the sign of Adam and Eve, in The Hague¹²
 [London, c. 20 September 1665]¹³

[IV/166]

LETTER 30 (C)

B. D. S. TO THE MOST NOBLE AND LEARNED
 GENTLEMAN HENRY OLDENBURG

[Fragment 1]¹⁴

I have seen Kircher's *Subterranean World* at Mr. Huygens'. He praises Kircher's piety, but not his ability. I don't know whether this is because

known now for his *Selenographia* (1647), an atlas of the moon, and for a catalog of the stars which was the most comprehensive of its time (published posthumously in 1690).

11. On these comets, see Boschiero 2008.

12. Apparently Oldenburg was misinformed about Spinoza's address. Van de Ven *Facts*, ch. 7, notes that Spinoza never rented rooms in the Bagijnestraat in The Hague. At this time he lodged in the house of the painter Daniel Tydeman, in the Kerklaan in Voorburg. But Tydeman may also have been the owner of the house "Adam and Eve" in The Hague.

13. This letter is not dated, but its approximate date can be inferred from the date of the lost letter to which it replies and from the known date of Letter 31.

14. The first fragment of this letter is not in Gebhardt's edition, but will be treated for indexing purposes as if it appeared on IV/166. It was first discovered and published by Wolf in 1935 (see Wolf 1935).

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Kircher treats pendulums, and concludes that they will not help at all to discover longitudes (which is completely opposed to Huygens' opinion).

You want to know what Our People think of Huygens' new Pendulums. As yet I can't tell you anything definite about this. Still, I know this: the craftsman who has the exclusive right to make them is completely giving up the work, because he can't sell them. I don't know whether this is because commerce has been interrupted [by the war] or because he's trying to sell them at too high a price. He's asking 300 Caroline florins each.¹⁵

When I asked Huygens about his dioptrics, and about his other treatise on Parhelia, he replied that he is still investigating something in dioptrics, but that as soon as he has discovered it, he will send that book to the press, together with the treatise on Parhelia. But I believe that at present he is thinking more about his trip to France than about anything else (for he is preparing to go to France to live, as soon as his father has returned).¹⁶

What he says he is investigating in Dioptrics is "Whether the lenses in Telescopes can be so arranged that the defect of one corrects the defect of the other, so that all the parallel rays passing through the objective lens will arrive at the eye as if they came together in a mathematical point?" This still seems to me impossible.¹⁷ For the rest, in the whole of his dioptric—as I've partly seen, and partly, if I'm not mistaken, understood from him—he only discusses spherical figures.

But as for the treatise on motion about which you also ask, I think you are waiting for it in vain.¹⁸ It's too long now since he began to boast that by calculation he had discovered rules of motion and laws of nature far different from those Descartes gives, and that Descartes' rules and laws are almost all false. Still, so far he has not published any example of this. I know, of course, that about a year ago he told me that all the things he had previously discovered about motion by calculation he afterward found had been proven in England by

15. For a helpful account of Huygens' work on pendulums, see Mahoney 1980 or Bos's introduction to Blackwell 1986, an English translation of Huygens' *Horologium Oscillatorium* (*Pendulum Clock*).

16. During this period the French comptroller-general, Colbert, was attempting to attract eminent scholars and scientists to Paris. The French Academy of Sciences granted Huygens a large pension and an apartment in its building.

17. Spinoza's intuitions in this matter seem to have been vindicated by the fact that Huygens eventually gave up this project when he learned of Newton's discoveries concerning chromatic aberration. See Oldenburg 1665, II, 524, n. 4.

18. Indeed, Huygens never did publish his projected treatise on the laws of motion, although "all Huygens' theorems on impact were correct (for perfectly elastic bodies)" and only Descartes' first "law of motion" was correct. See Oldenburg 1665, II, 542, nn. 5, 6.

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experiments. But I hardly believe this.¹⁹ Moreover, as regards Descartes' sixth rule of motion,²⁰ I judge that he and Descartes are both completely mistaken. . . .

[Fragment 2]

- [IV/166/5] . . . I rejoice that your philosophers are alive and mindful of themselves and their republic.²¹ I shall wait for news of what they have done lately, when the warriors are sated with blood, and rest, to restore their strength a bit. If that famous mocker²² were alive in this age, he would surely die of laughter. But these turmoils move me, 10 neither to laughter nor even to tears, but to philosophizing and to observing human nature better. For I do not think it right for me to mock nature, much less to lament it, when I reflect that men, like all other things, are only a part of nature, and that I do not know how each part of nature agrees with the whole to which it belongs, and how it coheres with the other parts. And I find, simply from the lack 15 of this knowledge, that certain things in nature, which I perceive in part and only in mutilated way, and which do not agree at all with our philosophic mind, previously seemed to me vain, disorderly and absurd, whereas now I permit each to live according to his own mentality. Surely those who wish to die for their good may do so, so long as I am allowed to live for the true good.
- 20 I am now composing a treatise on my opinion about scripture.²³ The considerations which move me to do this are the following:

1) the prejudices of the theologians; for I know that they are the greatest obstacle to men's being able to apply their minds to philosophy; so I am busy exposing them and removing them from the minds of the more prudent;

19. In Letter 33 (IV/176/12–22) Oldenburg will return to the topic of Huygens' experiments, confirming that they went as Huygens had claimed.

20. Cf. Descartes, *Principles of Philosophy* II, 51. Cf. Boyle's comment on this sentence in his letter to Oldenburg of 14 October 1665 (Oldenburg 1665, II, 569).

21. I.e., the republic of philosophers. Cf. Letter 31, IV/167/24.

22. In antiquity Democritus acquired a reputation for laughing at the follies of mankind, as Heraclitus did of weeping over them. Cf. Horace, *Epistles* 2.1.194. Since little of his work has survived, it is difficult to judge the justice of this reputation.

23. Note that Spinoza characterizes the TTP as a work stating his "opinion about scripture." He does not say explicitly that the work will also contain a political theory. The first two aims of the work are purely theological (in a broad sense of that term). In its final form the work does advance a political theory which supports the third goal, to defend freedom of philosophizing. But it also defends that freedom by the separation it proposes between philosophy and theology in Chs. xiv–xv. So it seems possible that at this point Spinoza did not contemplate developing the political theory we find in the last five chapters of the TTP which has come down to us.

LETTER 31, FROM OLDENBURG

- 25 2) the opinion the common people have of me; they never stop accusing me of atheism,²⁴ and I am forced to rebut this accusation as well as I can; and
- 3) the freedom of philosophizing and saying what we think, which I want to defend in every way; here the preachers suppress it as much as they can with their excessive authority and aggressiveness.²⁵
- 30 I do not yet hear that any Cartesian explains the phenomena of the recent comets on the Cartesian hypothesis, and I doubt that they can be rightly explained on that hypothesis. . . .²⁶
- [Voorburg, c. 1 October 1665]²⁷

[IV/167]

LETTER 31 (OP)

HENRY OLDENBURG TO THE MOST DISTINGUISHED
GENTLEMAN B. D. S.

5 Most excellent sir, dear friend,

You act as becomes a judicious Man and a Philosopher: you love good Men. Nor should you doubt that they love you in return and judge your merits as they should. Mr. Boyle joins me in sending you warm greetings, and exhorts you to proceed with your Philosophizing

10 vigorously and precisely. Above all, if your investigation has shed any light on that difficult question concerning our knowledge of how each part of Nature agrees with its whole and in what way it agrees with other things, we ask you, most affectionately, to communicate it to us.

I entirely approve the reasons you mention as inducing you to com-

15 pose a Treatise on Scripture, and I passionately want to be able to see for myself what you have written on that subject. Mr. Serrarius may

24. On Spinoza's reputation for atheism at this time, see Nadler 1999, 203 (and the Editorial Preface to the *TTP*, pp. 47–49, and the Glossary-Index entry ATHEISM, pp. 615–17).

25. Contrast this with Spinoza's praise of Dutch liberty in *TTP* Pref., 12.

26. Descartes attempts to explain the origin and motions of comets in his *Principles of Philosophy* III, 118–39. He believed that the universe was a plenum, with the matter distributed in vortices, made up initially of particles of varying sizes and shapes. Over time he thought the particles would tend to become spherical. The finest particles would tend to settle at the centers of their vortices and form stars; the others would tend to recede from the centers and to revolve around them. Eventually the matter revolving around a star might be taken into other vortices, leaving nothing but the star, which might then begin to pass from one vortex to another. Hevelius's letter to Oldenburg, dated 22 May (1 June N.S.) 1665, but apparently not received until August of that year, may be found in Oldenburg 1965, II, 392–99.

27. This letter is undated, but as with Letter 29, its approximate date can be inferred from Letter 29 (written as a response to a letter dated 4 September) and from Letter 31 (dated 12 October and written as a response to this letter).

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soon be sending me a small parcel.²⁸ If it seems appropriate to you, you can safely commit to him what you have already written, and be
 20 assured that we shall be prompt in returning the favor.

I have glanced, to some extent, at Kircher's *Subterranean World*. Though his reasonings and theories do not speak well for his ability, still, his Observations and Experiments, as he reports them to us there, testify to the Author's diligence and his desire to deserve well from the
 25 Republic of Philosophers. So you see, I ascribe a bit more to him than piety, and you will easily recognize the intent of those who sprinkle him with this Holy water.

When you speak about Huygens' *Treatise on Motion*, you hint that Descartes' Rules of motion are almost all false. I do not now have at hand the little book you previously published, concerning *Descartes'*
 30 *principles, Demonstrated Geometrically*. And I do not recall whether you showed that falsity there, or whether, to oblige others, you simply followed Descartes' tracks.

[IV/168] I wish you would finally reveal the fruit of your own talent, and entrust it to the Philosophical world, to cherish and nourish. I remember that somewhere²⁹ you claimed that we can understand and explain very clearly many of the things Descartes said surpass human understanding,
 5 indeed, that we can grasp things which are much more sublime and subtle. What's stopping you, my Friend? What are you afraid of? Try it. Get on with it. Finish it. It's a task of such importance! You will see that the whole Chorus of real Philosophers will be your advocate. I am bold
 10 enough to pledge my loyalty, which I would not do if I doubted whether I would be able to honor my pledge. I cannot in any way believe that you intend to undertake anything against the Existence and Providence of God.³⁰ As long as these supports are intact, Religion stands firm, and any Philosophic Contemplations are easily either defended or excused. Don't delay any longer, then, and don't let the critics hold you back.

15 I should think you will soon learn what is to be said about the recent Comets. The Dantziger, Hevelius, and the Frenchman, Auzout³¹—both

28. This seems likely to have been the copy of Adam Boreel's *Jesus Nazarenus Legislator*, a defense of Christianity, which Oldenburg had arranged for Peter Serrarius to make for him and Boyle when he learned that Boreel was near death. See Van de Ven *Facts*, ch. 7, and Oldenburg 1965, II, 404–5, 408, 534. On Boreel, see Iliffe 1996.

29. Cf. Meyer's preface to *Descartes' "Principles of Philosophy,"* I/132, Vol. I, p. 230.

30. Spinoza will not, of course, deny either God's existence or his providence. But it's doubtful that Oldenburg would have been satisfied by the account of divine providence he develops in the TTP. See particularly TTP vi, 39–51 (III/88–91). Spinoza's God is not providential in the sense of being a personal agent, who exercises a prudent concern for his creatures (cf. KV I, v, I/40).

31. On Hevelius, see the notes to Letter 29. Adrien Auzout was a member of the Paris Academy. They had disagreed about the location of the comet in the constellation Aries.

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learned Men and Mathematicians—are debating about the Observations they have made. At the moment the controversy is being investigated; when the dispute has been adjudicated, I believe someone will communicate the whole matter to me, and I to you. This I can say now: 20 all the Astronomers I know, at least, judge that there were not one, but two, Comets, and I have not met anyone yet who has tried to explain their Phenomena according to the Cartesian Hypothesis.

If you learn anything further about the studies and works of Mr. 25 Huygens, about the success of his pendulums [NS: in the matter of determining Longitudes], or about his move to France, I beg you not to hesitate to let me know about it as soon as possible. And please add whatever may be said among You about a peace Treaty, about the plans of the Swedish army which has been sent to Germany, and about 30 the progress of the Bishop of Munster.³² I believe that next summer the whole of Europe will be involved in wars, and everything seems to be tending toward a strange change.³³ Let us serve the supreme Deity with a pure mind, and cultivate a Philosophy which is true, solid and useful.

Some of our Philosophers, having followed the King to Oxford,³⁴ 35 have fairly frequent meetings there, and discuss the advancement of [IV/169] Physical studies. Among other things they have recently begun to inquire into the nature of Sounds. I believe they will conduct Experiments to determine by what proportion you must increase weights to stretch a string, without any other force, so that it will produce a higher Note which makes an assigned consonance with the first sound. More about 5 these matters at another time. Farewell, and remember,

Your most devoted,
Henry Oldenburg
London, 12 October 1665

The Royal Society considered the matter and in 1666 decided in favor of Auzout. “Of the Judgment of Some of the English Astronomers, Touching the Differences between Two Learned Men, about an Observation Made of the First of the Two Late Comets” (*Philosophical Transactions*, 1665, pp. 150–51).

32. The English had sought to persuade Sweden to send an army to aid them in their war against the Dutch, and the Swedish army did indeed take “a considerable town from the Dutch” (10 November 1665, *Calendar of State Papers*, as cited in Van de Ven *Facts*, ch. 7). The Bishop of Munster did invade Holland in 1665.

33. It appears from this that Oldenburg had millenarian inclinations, which led him to think that the end of the world might be near. Cf. Letter 33, IV/178/24ff.

34. Charles II had left London to escape the plague.

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LETTER 32 (OP)

B. D. S. TO THE MOST NOBLE AND LEARNED GENTLEMAN,
HENRY OLDENBURG

Reply to the Preceding

15 Most Noble Sir,

I am most grateful both to you and to the very Noble Mr. Boyle for your kind encouragement of my philosophizing. Indeed, I proceed as well as I can, considering the slenderness of my ability, never doubting, in the meantime, your assistance and good will.

20 When you ask me what I think about the question concerning
our knowledge of how each part of Nature agrees with its whole and how
[IV/170a] *it coheres with the others*, I think you are asking for the reasons by which we are persuaded that each part of Nature agrees with its whole and coheres with the others. For I already said in my preceding
5 Letter that I don't know [A: absolutely] how they really cohere and how each part agrees with its whole. To know that would require knowing the whole of Nature and all of its parts. So I shall try to show [A: as briefly as I can] the reason which compels me to affirm this. But first I should like to warn that I attribute to Nature nei-
10 ther beauty, nor ugliness, neither order nor confusion. For only in relation to our imagination can things be called beautiful or ugly, orderly or confused.

By the coherence of parts, then, I understand nothing but that the laws *or* the nature of the one part adapts itself to the laws *or* the nature of the other part so that they are opposed to each other as little as
15 possible. Concerning whole and parts, I consider things as parts of some whole to the extent that the nature of the one adapts itself to that of the other so that they [A: all] agree with one another as far as possible. But insofar as they disagree with one another, to that extent
[IV/171a] each forms in our Mind an idea distinct from the others, and therefore it is considered as a whole and not as a part.

For example, when the motions of the particles of lymph, chyle, etc., so adapt themselves to one another, in relation to their size and shape,
5 that they completely agree with one another, and they all constitute one fluid together, to that extent only the chyle, lymph, etc., are considered as parts of the blood. But insofar as we conceive the particles of lymph, by reason of their shape and motion, to differ from the particles of chyle, to that extent we consider them as a whole and not as a part.

LETTER 32, TO OLDENBURG

Let us feign³⁵ now, if you please, that there is a little worm living
 10 in the blood which is capable of distinguishing by sight the particles
 of the blood, of lymph, [A: of chyle], etc., and capable of observing by
 reason how each particle, when it encounters another, either bounces
 back, or communicates a part of its motion, etc. Indeed, it would live
 in this blood as we do in this part of the universe, and would consider
 15 each particle of the blood as a whole, not as a part. It could not know
 how all the parts of the blood are regulated by the universal nature
 of the blood, and compelled to adapt themselves to one another, as
 the universal nature of the blood requires, so that they agree with one
 another in a definite way.

[IV/172a] For if we should feign that there are no causes outside the blood
 which would communicate new motions to the blood, and no space
 outside the blood, nor any other bodies to which the particles of blood
 could transfer their motion, it is certain that the blood would always
 5 remain in the same state, and its particles would undergo no variations
 other than those which can be conceived from the given relation of the
 motion of the blood to the lymph, chyle, etc.³⁶ Thus the blood would
 always have to be considered as a whole and not as a part. But because
 there are a great many other causes which regulate the laws of the nature
 of the blood in a definite way,³⁷ and which in turn are regulated by the
 10 blood, the result is that other motions and other variations arise in [A:
 the particles of] the blood which follow not simply from the relation
 of the motion of its parts to one another, but from the relation of the
 motion of the blood [A: as a whole] and of its external causes to one
 another. In this way the blood has the nature of a part and not of a
 whole. This is what I say concerning whole and part.

15 Now all bodies in nature can and must be conceived as we have
 here conceived the blood, for all bodies are surrounded by others, and
 are determined by one another to existing and producing an effect in
 [IV/173a] a fixed and determinate way, the same ratio of motion to rest always
 being preserved in all of them at once, [that is, in the whole universe].³⁸
 From this it follows that every body, insofar as it exists modified in a
 definite way, must be considered as a part of the whole universe, must
 agree with its whole and must cohere with the remaining bodies. And
 5 since the nature of the universe is not limited, as the nature of the

35. OP: *fingamus*. A: *concipiamus*, let us conceive. But when *fingamus* occurs below in the OP (at l.18), A also reads: *fingamus*.

36. A: than those which can follow from the nature of the blood alone, i.e., from the relation of the motion of the lymph, chyle, etc., to one another.

37. A: by which the whole nature of the blood is regulated in a definite way.

38. The bracketed phrase, not present in A, is added in the OP.

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blood is, but is absolutely infinite, [its parts are regulated in infinite ways by this nature of the infinite power, and compelled to undergo infinitely many variations].³⁹

But in relation to substance I conceive each part to have a closer union with its whole. For as I tried to demonstrate previously in my
10 first Letter (which I wrote to you while I was still living in Rijnsburg), since it is of the nature of substance to be infinite, it follows that each part pertains to the nature of corporeal substance, and can neither be nor be conceived without it.⁴⁰

15 You see, therefore, how and why I think that the human Body is a part of Nature.⁴¹ But as far as the human Mind is concerned, I think it is a part of Nature⁴² too. For I maintain that there is also in nature an infinite power of thinking, which, insofar as it is infinite, contains
[IV/174a] in itself objectively the whole of Nature, and whose thoughts proceed in the same way as Nature, its object, does. Next, I maintain that the human Mind is this same power, not insofar as it is infinite and perceives
5 the whole of Nature, but insofar as it is finite and perceives only the human body. For this reason I maintain that the human Mind is a part of a certain infinite intellect.

But it would take too long to explain accurately and demonstrate here all these things, along with those connected with them. And I do not think you expect this of me at present. Indeed, I wonder whether
10 I have sufficiently grasped your intention, and have not answered a different question than the one you were asking. Please let me know.

As for what you write next—that I hinted that Descartes’ Rules of motion are almost all false—if I remember rightly, I said that Mr. Huygens thinks this. I did not affirm that any of the Rules was false except
15 the sixth.⁴³ And about that, I said I think Mr. Huygens is also wrong. On that occasion I asked you to communicate to me the experiment you have tried according to this hypothesis in your Royal Society. But since you say nothing about this, I infer that you are not permitted to reply.

[IV/175a] Huygens has been, and still is, completely occupied with polishing lenses. To this end he has constructed a rather elegant instrument on which he can also turn the lenses. But what progress he has made with

39. For the bracketed phrase A has: the variations of its parts which can follow from this infinite power must be infinite.

40. A: For since it is of the nature of substance to be infinite (as I tried to demonstrate previously, when I was still living in Rijnsburg), it follows from this that each part of the whole corporeal substance pertains to the whole substance, and can neither be nor be conceived without the rest of the substance.

41. A: a part of the universe.

42. A: a part of the universe.

43. Cf. Letter 30, fragment 1.

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this I still do not know. Nor, to confess the truth, do I greatly desire to know.⁴⁴ For experience has taught me sufficiently that spherical lenses are more safely and better polished with a free hand than with
5 any sort of instrument. Concerning the success of his pendulums and the timing of his move to France, I cannot yet write anything certain.

[IV/175b] [A: The Bishop of Munster, having foolishly gone into Frisia, as Aesop's
15 goat went into the well,⁴⁵ has not been able to accomplish anything. Indeed, unless the winter begins very early, he will not be able to leave Frisia without great losses. There is no doubt that it was only because of the urging of some traitor that he dared to undertake this action. But all these things are too old to be written as news. And in the last week or two, nothing new has happened which is worth writing about.
20 There appears to be no hope of a peace with the English. Nevertheless, there was a rumor recently because of some conjecture about a Dutch envoy who was sent to France, and also because the people of Overijsel, who are trying with all their might to bring in the prince of Orange, had dreamed up a way to do this: they would send the prince to England as a mediator. (Many think this is more to spite the Hol-
25 landers than for their own advantage.) But the reality is quite different. For the moment the Hollanders do not even dream of peace—unless it should turn out that they can buy peace with money.

There is still doubt about the plans of the Swede. Most think that
30 his objective is Mainz; some think the Hollanders. But these are only conjectures.

I wrote this letter last week, but I could not send it because the weather prevented me from going to The Hague. That is the disadvantage of living in a village. Rarely do I receive a letter without delay, for unless
35 by some chance there is an opportunity to send it to me immediately, a week or two passes before I receive it. And it is not unusual for some
[IV/176] difficulty to arise when I want to send a letter. So when you see that I do not reply to you as promptly as I ought to, you should not think that this comes from my forgetting you. Meanwhile, the time presses me to

44. Wolf 1966 (p. 423) contends that if Spinoza had tried to learn more about what Huygens was doing in this area, he probably would not have been able to, since Huygens was interested more in finding out what Spinoza was doing than in sharing the results of his own work. Cf. Huygens' letters to Constantijn, his brother, in Huygens 1888–1950, VI, 151, 168, 215. Huygens mentions Spinoza several times in his correspondence, usually referring to him as “the Jew of Voorburg” or “our Israelite.” Sometimes he expresses admiration for Spinoza's skill as a lensgrinder (VI, 155, 158) and sometimes criticism of his theories (VI, 148, 164, 205). Wolf (1966) gives a clear account of the device Huygens constructed.

45. In Aesop's fable of the fox and the goat, the fox fell into a well and lured the goat in with him by telling her he expected a drought. When the goat joined him in the well, he used her body as a ladder on which to climb out.

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bring this letter to a conclusion. I shall write about the other things on another occasion. For now I can only ask you to convey my warmest
5 greetings to the most Noble Mr. Boyle, and to remember me, who am

Yours with all affection,

B. de Spinoza

Voorburg, November 1665

P.S.: I should like to know whether all the astronomers judge that
10 there were two comets from their motion, or in order to preserve Kepler's hypothesis.⁴⁶ Farewell.]

To: Mr. Henry Oldenburg, Secretary of the Royal Society, in the Pall Mall, in St. James' fields, in London

LETTER 33 (OP)

HENRY OLDENBURG TO THE MOST DISTINGUISHED
GENTLEMAN B. D. S.

Most excellent sir, Dearest friend,

25 Your philosophical account of the agreement of the parts of Nature with the whole, and their connection, is very pleasing, although I do not
[IV/177] sufficiently follow how we can eliminate the order and symmetry from nature, as you seem to do, especially since you yourself recognize that all its bodies are surrounded by others, and are mutually determined, in a definite and constant manner, both to existing and producing an
5 effect with the same ratio of motion to rest always being preserved in all together. This seems to be the formal ground itself of a true order.

But perhaps I don't sufficiently understand you here, any more than I did in what you wrote previously about Descartes' Rules. If only you were willing to take the trouble to explain to me thoroughly in what respect you judge that both Descartes and Huygens are mistaken about
10 the rules of motion. You would please me very much by doing me this favor, which I would indeed do my best to deserve.

I was not present when Mr. Huygens performed his Experiments here in London, proving his Hypothesis. In the meantime, I understand that, among other experiments, someone suspended a one pound ball in the manner of a pendulum, which was then released, striking another
15 ball suspended in the same way (but weighing only half a pound) from

46. AHW report that at this time people still thought comets moved in a straight line. So there was often doubt whether two comet phenomena perceived in close succession were caused by the same comet.

LETTER 33, FROM OLDENBURG

an angle of forty degrees. Huygens had predicted, after making a brief Algebraic Calculation, what the effect would be, and the effect was exactly as he had predicted. A certain distinguished Gentleman,⁴⁷ who is now away, had proposed many such Experiments, which Huygens
 20 is said to have solved. As soon as I have the opportunity to see him, perhaps I will explain this matter to you more fully and precisely.

Meanwhile I urge you once again not to decline the request I made above. Furthermore, if you know anything about Huygens' success in polishing Telescopic Lenses, please don't be reluctant to share it with me. Now that, by the grace of God, the plague is markedly less
 25 virulent, I hope that our Royal Society will return to London shortly and resume its weekly meetings. If anything worthy of note happens there, you can be assured that I will certainly communicate it to you.

Previously I had mentioned some Anatomical Observations. Mr. Boyle
 20 (who greets you very graciously) wrote me not long ago that some distinguished Anatomists at Oxford had assured him that they had found the Windpipe—both of certain Sheep and of Oxen—filled with grass, and that a few weeks ago these Anatomists were invited to examine
 35 an Ox which for two or three days had almost continuously held its
 [IV/178] neck stiff and upright, and had died of an illness which its owners were completely unfamiliar with. When they dissected the parts relating to the neck and throat, they found, to their surprise, that its Windpipe, deep inside the trunk itself, was filled with grass, as if someone had forced it in. This suggested a good reason to ask two questions: how
 5 did such a large quantity of grass get there? And when it was there, how could an animal of this kind survive so long?⁴⁸

In addition, the same Friend has told me that a certain inquisitive Doctor, also at Oxford, has found Milk in human blood. He relates that
 10 a girl who had had a rather large breakfast at seven in the morning was bled in the foot at eleven on the same day. The first blood was collected in a Dish and after a short time took on a white color; but the later blood flowed into a smaller vessel, which (unless I'm mistaken) they call an *acetabulum* (in English, a sawcer), where it immediately took
 15 the form of a cake of milk. Five or six hours later the Doctor returned and inspected both samples of blood. The sample in the Dish was half blood, but half chyleform, and this chyle floated in the blood, like whey

47. Oldenburg 1965, II, 637, suggests that this was probably Christopher Wren, who in addition to being an architect of note, was also a scientist and a founder of the Royal Society. Cf. Oldenburg 1965, II, 624.

48. These observations were reported in the *Philosophical Transactions* of the Royal Society, no. 6 (6 November 1665), but Wolf thinks the anatomists (Josiah Clark and Richard Lower) must have been mistaken in what they reported. See Wolf 1966, 427–28.

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20 in milk. But the sample in the saucer was all chyle, without any appearance of blood. And when he heated each of them separately over a fire, both liquids became hard. But the girl was quite well, and was bled only because she had never had her period, although she had a healthy color.⁴⁹

But I pass to Politics. Here there is a rumor on everyone's lips that
25 the Israelites, who have been scattered for more than two thousand years, will return to their Native Land.⁵⁰ Few here believe this, though many desire it.⁵¹ Please tell your friend what you hear and think about this. For my part, so long as this News is not reported by trustworthy
30 Men from the City of Constantinople, to whom this matter is of the Greatest concern, I cannot trust it. I'm eager to know what the Jews in Amsterdam have heard about this matter, and how they are affected by such an important report, which, if it should be true, seems that it will lead to⁵² a sudden Overturning of everything in the World.

[NS: As yet there seems to be no hope of Peace between England
35 and the Netherlands.]

[IV/179] Explain, if you can, what the Swede and the Brandenburger are trying to do. And believe me to be

Your most devoted,
Henry Oldenburg
London, 8 December 1665

5 P.S. Soon, God willing, I shall tell you what our Philosophers think about the recent Comets.

49. This observation was also reported in the *Philosophical Transactions* of the Royal Society, no. 6. According to Wolf, the "milk" was a whitish or gray plasma which is usually mixed with the blood, but rises to the top when blood is left to sit. AHW suggest that this might be explained by a higher than usual protein content in the blood.

50. This hope had been aroused by Sabbatai Zevi (1626–1676), a Jew living in the Ottoman Empire who proclaimed himself the Messiah. Despite rabbinic opposition he was able to attract financial backing and a wide following. In 1665 one of his followers, Nathan of Gaza, who claimed to be the risen Elijah, and the precursor of the Messiah, prophesied that in the following year Israel (then part of the Ottoman Empire) would be restored to the Jews and the Messianic era would begin. This fit widespread expectations of both Jewish and Christian millenarians. There was, in fact, considerable enthusiasm for Zevi in Amsterdam. On this see Nadler 1999, 249–54. Early in 1666 Zevi was imprisoned in Constantinople, where, under pressure, he converted to Islam. His apostasy cost him much of his following, though some found ways to justify it and the movement continued for many years after his death. The classic study is Scholem 1974. Although our record of correspondence between Oldenburg and Spinoza is about to be interrupted for nearly ten years—which may explain why we do not have a letter in which Spinoza replies to Oldenburg's questions about Zevi—what he might have said may perhaps be inferred from two passages in the TTP, i, 7 (III/16); iii, 55 (III/57).

51. Christian millenarians hoped for the return of the Jews to Israel in 1666, as a sign of the Second Coming.

52. OP, Gebhardt: *induturus*. NS: *zal meebrengen*. AHW read: *inducturus*, which is what I translate.