

which are easiest to perceive nor those which are hardest, but those which are not so easy to perceive that they fail to satisfy fully the natural inclination of the senses towards their objects nor yet so hard to perceive that they tire the senses.¹

To explain what I meant by 'easy or difficult to perceive by the senses' I instanced the divisions of a flower bed. If there are only one or two types of shape arranged in the same pattern, they will be taken in more easily than if there are ten or twelve arranged in different ways. But this does not mean that one design can be called absolutely more beautiful than another; to some people's fancy one with three shapes will be the most beautiful, to others it will be one with four or five and so on. The one that pleases most people can be called the most beautiful without qualification; but which this is cannot be determined.

134 Secondly, what makes some people want to dance may make others want to cry. This is because it evokes ideas in our memory: for instance those who have in the past enjoyed dancing to a certain tune feel a fresh wish to dance the moment they hear a similar one; on the other hand, if someone had never heard a galliard without some affliction befalling him, he would certainly grow sad when he heard it again. This is so certain that I reckon that if you whipped a dog five or six times to the sound of a violin, it would begin to howl and run away as soon as it heard that music again. . .

ATI

TO MERSENNE, 15 APRIL 1630

135 Your letter of 14 March, which I think is the one you are worried about,
136 reached me ten or twelve days later; but because you indicated that others were on the way, and because it was only a week since I had written to you, I put off replying to you until today, when I received your last dated 4 April. I beg you to believe that I feel myself enormously in your debt for all the kind services you do me, which are too numerous for me to be able to thank you for each individually. I assure you that I will repay you in any way you ask if it is in my power; and I will always tell you my address provided, please, that you tell no one else. If anybody has the idea that I plan to write, please try to remove this impression, not to confirm it; I swear that if I had not already told people I planned to do so, so that they would say I have not been able to carry out my plan, I would never undertake the task at all. If people are going to think about me, I am civilized enough to be glad that they should think well of me; but I would

1 *Compendium Musicae*: AT x 92.

much prefer them to have no thought of me at all. I fear fame more than I desire it; I think that those who acquire it always lose some degree of liberty and leisure, which are two things I possess so perfectly and value so highly that there is no monarch in the world rich enough to buy them away from me.

This will not prevent me from completing the little treatise I have begun,¹ but I do not want this to be known so that I shall always be free to disavow it. My work on it is going very slowly, because I take much more pleasure in acquiring knowledge than in putting into writing the little that I know. I am now studying chemistry and anatomy simultaneously; every day I learn something that I cannot find in any book. I wish I had already started to research into diseases and their remedies, so that I could find some cure for your erysipelas, which I am sorry has troubled you for such a long time. Moreover, I pass the time so contentedly in the acquisition of knowledge that I never settle down to write any of my treatise except under duress, in order to carry out my resolution, which is, if I am still living, to have it ready for posting to you by the beginning of the year 1633. I am telling you a definite time so as to put myself under a greater obligation, so that you can reproach me if I fail to keep to the date. Moreover, you will be amazed that I am taking such a long time to write a discourse which will be so short that I reckon it will take only an afternoon to read. This is because I take more trouble, and think it more important, to learn what I need for the conduct of my life than to indulge myself by publishing the little I have learnt. Perhaps you find it strange that I have not persevered with some other treatises I began while I was in Paris. I will tell you the reason: while I was working on them I acquired a little more knowledge than I had when I began them, and when I tried to take account of this I was forced to start a new project,² rather larger than the first. It is as if a man began building a house and then acquired unexpected riches and so changed his status that the building he had begun was now too small for him. No one could blame such a man if he saw him starting to build another house more suitable to his condition. I am sure that I will not change my mind again; because what I now possess will stand me in good stead no matter what else I may learn; and even if I learn nothing more, I shall still carry out my plan . . .

As for your questions: 1. The corpuscles, which enter a thing during rarefaction and exit during condensation, and which can penetrate the hardest solids, are of the same substance as visible and tangible bodies; but you must not imagine that they are atoms, or that they are at all hard.

1. This treatise was the beginning of *The World*, and the *Optics* and *Meteorology*.

2. Probably the future *The World*.

Think of them as an extremely fluid and subtle¹ substance filling the pores of other bodies. You must admit that even in gold and diamonds there are certain pores, however tiny they may be; and if you agree also that there is no such thing as a vacuum, as I think I can prove, you are forced to admit that these pores are full of some matter which can penetrate everywhere with ease. Now heat and rarefaction are simply an admixture of this matter.

To convince you of this would take a longer discussion than is possible within the bounds of a letter. I have said the same about many other questions which you have put to me; please believe that I have never used this as an excuse to conceal from you what I propose to write in my treatise on physics. I assure you that there is nothing of what I know that I am keeping secret from anyone; much less from you whom I honour and esteem and to whom I am obliged in countless ways. But the difficulties of physics which I told you I had taken on are all so linked and interdependent that it would be impossible for me to give the solution to one without
 141 giving the solution to all; and I do not know how to do that more quickly
 or more simply than I shall do in the treatise which I am writing . . .

(143) Your question of theology is beyond my mental capacity, but it does not
 144 seem to me outside my province, since it has no concern with anything
 dependent on revelation, which is what I call theology in the strict sense; it
 is a metaphysical question which is to be examined by human reason. I
 think that all those to whom God has given the use of this reason have an
 obligation to employ it principally in the endeavour to know him and to
 know themselves. That is the task with which I began my studies; and I can
 say that I would not have been able to discover the foundations of physics
 if I had not looked for them along that road. It is the topic which I have
 studied more than any other and in which, thank God, I have not alto-
 gether wasted my time. At least I think that I have found how to prove
 metaphysical truths in a manner which is more evident than the proofs of
 geometry – in my own opinion, that is: I do not know if I shall be able to
 convince others of it. During my first nine months in this country² I
 worked on nothing else. I think that you heard me speak once before of my
 plan to write something on the topic; but I do not think it opportune to do
 so before I have seen how my treatise on physics is received. But if the book
 145 which you mention was very well written and fell into my hands I might
 perhaps feel obliged to reply to it immediately, because if the report you
 heard is accurate, it says things which are very dangerous and, I believe,
 very false. However, in my treatise on physics I shall discuss a number of

¹ See footnote 1, p. 161 below.

² Holland, where Descartes came to live in 1628.

metaphysical topics and especially the following. The mathematical truths which you call eternal have been laid down by God and depend on him entirely no less than the rest of his creatures. Indeed to say that these truths are independent of God is to talk of him as if he were Jupiter or Saturn and to subject him to the Styx and the Fates. Please do not hesitate to assert and proclaim everywhere that it is God who has laid down these laws in nature just as a king lays down laws in his kingdom. There is no single one that we cannot grasp if our mind turns to consider it. They are all [†]inborn in our minds[†] just as a king would imprint his laws on the hearts of all his subjects if he had enough power to do so. The greatness of God, on the other hand, is something which we cannot grasp even though we know it. But the very fact that we judge it beyond our grasp makes us esteem it the more greatly; just as a king has more majesty when he is less familiarly known by his subjects, provided of course that they do not get the idea that they have no king – they must know him enough to be in no doubt about that.

It will be said that if God had established these truths he could change them as a king changes his laws. To this the answer is: Yes he can, if his will can change. 'But I understand them to be eternal and unchangeable.' – I make the same judgement about God. 'But his will is free.' – Yes, but his power is beyond our grasp. In general we can assert that God can do everything that is within our grasp but not that he cannot do what is beyond our grasp. It would be rash to think that our imagination reaches as far as his power.

146

I hope to put this in writing, within the next fortnight, in my treatise on physics; but I do not want you to keep it secret. On the contrary I beg you to tell people as often as the occasion demands, provided you do not mention my name. I should be glad to know the objections which can be made against this view; and I want people to get used to speaking of God in a manner worthier, I think, than the common and almost universal way of imagining him as a finite being.

With regard to infinity, you asked me a question in your letter of 14 March, which is the only thing I find in it which is not in the last letter. You said that if there were an infinite line it would have an infinite number of feet and of fathoms, and consequently that the infinite number of feet would be six times as great as the number of fathoms. [†]I agree entirely. [†]'Then this latter number is not infinite.' [†]I deny the consequence. [†]'But one infinity cannot be greater than another.' Why not? [†]Where is the absurdity? [†]Especially if it is only greater [†]by a finite ratio, as in this case, where multiplication by six is a finite ratio, which does not in any way affect the infinity[†]. In any case, what basis have we for judging whether one infinity can be greater than another or not? It would no longer be infinity if we could grasp it. Continue to honour me by thinking kindly of me.

147

AT I

TO MERSENNE, 6 MAY 1630

148 Thank you for M. Gassendi's account of the corona.¹ As for the bad book, I no longer want you to send it to me; for I have now decided on other projects, and I think that it would be too late to carry out the plan which made me say to you in the last post that if it were a well-written book and fell into my hands I would try to reply immediately. I thought that even if there were only thirty-five copies of the book, still, if it were well written it would go to a second impression, and circulate widely among curious people however much it might be prohibited. I had thought of a remedy which seemed more effective than any legal prohibition. My idea was that before the book was reprinted secretly it should be printed with permission, with the addition, after each paragraph or each chapter,

149 of arguments refuting its conclusions and exposing their fallaciousness. I thought that if it were sold thus publicly in its entirety with a reply, nobody would care to sell it in secret without a reply, and thus nobody would learn its false doctrine without at the same time being disabused of it. The replies to such books which appear separately are customarily of little use because people do not read books which do not suit their humour; and so those who take the time to examine the replies are never the same as those who have read the bad books. I expect that you will say that we do not know whether I would have been able to reply to the author's arguments. To that I can only say that at least I would have done all I could; and since I have many arguments that persuade and convince me of the contrary of what you told me was in the book, I dared to hope that they might also persuade others. I trusted that truth expounded by an undistinguished mind would be stronger than falsehood maintained by the cleverest people in the world.

As for the eternal truths, I say once more that †they are true or possible only because God knows them as true or possible. They are not known as true by God in any way which would imply that they are true independently of him†. If men really understood the sense of their words they could never say without blasphemy that the truth of anything is prior to the knowledge which God has of it. In God willing and knowing are a single thing in such a way that †by the very fact of willing something he knows it and it is only for this reason that such a thing is true†. So we must not say

150 that †if God did not exist nevertheless these truths would be true†; for the existence of God is the first and the most eternal of all possible truths and the one from which alone all others proceed. It is easy to be mistaken about this because most people do not regard God as a being who is infinite and

1 See above, p. 14.

beyond our grasp, the sole author on whom all things depend; they stick at the syllables of his name and think it sufficient knowledge of him to know that 'God' means what is meant by *Deus* in Latin and what is adored by men. Those who have no higher thoughts than these can easily become atheists; and because they perfectly comprehend mathematical truths and do not perfectly comprehend the truth of God's existence, it is no wonder they do not think the former depend on the latter. But they should rather take the opposite view, that since God is a cause whose power surpasses the bounds of human understanding, and since the necessity of these truths does not exceed our knowledge, these truths are therefore something less than, and subject to, the incomprehensible power of God. What you say about the production of the *Word*¹ does not conflict, I think, with what I say; but I do not want to involve myself in theology, and I am already afraid that you will think my philosophy too free-thinking for daring to express an opinion on such lofty matters.

TO [MERSENNE], 27 MAY 1630

AT I

You ask me †by what kind of causality God established the eternal truths†. I reply: †by the same kind of causality† as he created all things, that is to say, as their †efficient and total cause†. For it is certain that he is the author of the essence of created things no less than of their existence; and this essence is nothing other than the eternal truths. I do not conceive them as emanating from God like rays from the sun; but I know that God is the author of everything and that these truths are something and consequently that he is their author. I say that I know this, not that I conceive it or grasp it; because it is possible to know that God is infinite and all powerful although our soul, being finite, cannot grasp or conceive him. In the same way we can touch a mountain with our hands but we cannot put our arms around it as we could put them around a tree or something else not too large for them. To grasp something is to embrace it in one's thought; to know something, it is sufficient to touch it with one's thought.

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You ask also what necessitated God to create these truths; and I reply that he was free to make it not true that all the radii of the circle are equal—just as free as he was not to create the world. And it is certain that these truths are no more necessarily attached to his essence than are other created things. You ask what God did in order to produce them. I reply that †from all eternity he willed and understood them to be, and by that very fact he created them†. Or, if you reserve the word †created† for the existence of things, then he †established them and made them†. In God,

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1 The generation of the Second Person of the Trinity by the First.

willing, understanding and creating are all the same thing without one being prior to the other †even conceptually†.

2. As for the question whether †it is in accord with the goodness of God to damn men for eternity†, that is a theological question: so if you please you will allow me to say nothing about it. It is not that the arguments of free thinkers on this topic have any force, indeed they seem frivolous and ridiculous to me; but I think that when truths depend on faith and cannot be proved by natural argument, it degrades them if one tries to support them by human reasoning and mere probabilities.

3. As for the liberty of God, I completely share the view which you tell me was expounded by Father Gibieuf.[†] I did not know that he had published anything, but I will try to have his treatise sent from Paris as soon as possible so that I can see it. I am very pleased that my opinions coincide with his, because that assures me at least that they are not too extravagant to be defended by very able men.

The fourth, fifth, sixth, eighth and last points of your letter are all theological matters, so if you please I will say nothing about them. As for the seventh point concerning such things as the birth marks caused on children by their mothers' imagination, I agree it is worth examination, but I am not yet convinced.

154 In your tenth point you start from the supposition that God leads everything to perfection and that nothing is annihilated, and then you ask what is the perfection of dumb animals and what becomes of their souls after death. That question is within my competence, and I reply that God leads everything to perfection, in one sense, i.e. †collectively†, but not in another, i.e. in particular. The very fact that particular things perish and that others appear in their place is one of the principal perfections of the universe. As for animals' souls and other forms and qualities, do not worry about what happens to them. I am about to explain all this in my treatise, and I hope that I will make it all so clearly understood that no one will be capable of doubting it.

ATI

TO [BEECKMAN], 17 OCTOBER 1630

(158) . . . Consider first what are the things which one person can teach another: you will find they are languages, history, observational data, and clear and certain proofs, like those of geometers, which bring conviction to the mind. As for mere opinions and received doctrines, such as those of the philosophers, simply to repeat them is not to teach them. Plato says one

† Guillaume Gibieuf (1591-1650), Prior of the Oratory in Paris and member of the Sorbonne.