From the Letters to Arnauld (1686–87)[107]

As previously indicated, Arnauld's critique of section 13 of the "Discourse" started off a correspondence with Leibniz. Leibniz does a good job of summarizing the debate that ensued (from February to May 1686), in the first selection we have chosen from that correspondence. Passages in double brackets below are not in the copies Arnauld received and may be either earlier thoughts or later additions. Only selected variants are noted.

Remarks on Arnauld's Letter about My Proposition That the Individual Notion of Each Person Includes Once and for All Everything That Will Ever Happen to Him [May 1686].

I *THOUGHT* (says Arnauld) *that we might infer that God was free to create or not to create Adam, but assuming that he wanted to create him, everything that has happened to humankind had to happen, or ought to happen, by a fatal necessity, or at least, I thought that, assuming he wanted to create Adam, God is no more free, with respect to all this, than he would be not to create a creature capable of thought, assuming that he wanted to create me.* I first replied that we must distinguish between absolute and hypothetical necessity. To this, Arnauld replies here that *he is speaking only of hypothetical necessity*. After this assertion, the argument takes a different turn. The terms he used, fatal necessity, are ordinarily understood only as applied to absolute necessity, so I was required to make this distinction, which however, is no longer called for, inasmuch as Arnauld does not insist upon this *fatal necessity,* since he uses alternative phrases: by a *fatal necessity* or at least, etc. It would be useless to dispute about the word. But, as for the thing itself, Arnauld still finds it strange that I seem to maintain *that all human events occur necessitate ex hypothesi, given the single assumption that God wanted to create Adam.* To this I have *two replies* to make. The *first* is that my assumption is not merely that God wanted to create an Adam whose notion was vague and incomplete, but that God wanted to create a particular Adam, sufficiently determined as an individual. And according to me, this complete individual notion involves relations to the whole series of things. This should appear more reasonable, given that Arnauld grants here the interconnections among God's resolutions, that is, he grants that God, having resolved to create Adam, takes into consideration all the resolutions he has concerning the whole series of the universe; this is somewhat like a wise man who, making a decision about one part of his plan and having the whole plan in view, would decide so much the better, if his decision could settle all the parts at once.

The other reply is that the conclusion [*conséquence*], by virtue of which all the events follow from the hypothesis, is indeed always certain, but it is not always necessary with metaphysical necessity as is the one found in Arnauld's

107. G II 37–47, 73–78, 90–102. French.

example: that God in resolving to create me cannot fail to create a nature capable of thought. The conclusion is often only physical and assumes God's free decrees, as do conclusions which depend on the laws of motion or which depend on the moral principle that all minds will pursue what appears best to them. It is true that, when the assumption of those decrees that yield the conclusion is added to the first assumption which had constituted the antecedent, namely, God's resolution to create Adam, to make up a single antecedent out of all these assumptions or resolutions; then, I say, it is true in that case that the conclusion follows.

Since I have already touched upon these two replies in some way in the letter I sent to the Landgrave, Arnauld brings forward replies to them that must be considered. He admits in good faith that he took my view to be that all the events of an individual can be deduced from his individual notion in the same way and with the same necessity as the properties of a sphere can be deduced from its specific notion or definition; he also supposed that I considered the notion of the individual in itself, without taking account of the way in which it exists in the divine understanding or will. *For* (he says) *it seems to me that we don't usually consider the specific notion of a sphere in relation to its representation in God's understanding, but in relation to what it is in itself, and I thought that it was the same for the individual notion of each person.* But, he adds, *now that he knows what I think about this, that is sufficient to enable him to accept it for the purpose of asking whether it overcomes all the difficulties;* he is still doubtful of this. I see that Arnauld has not remembered, or at least did not concern himself with, the view of the Cartesians, who maintain that it is through his will that God establishes the eternal truths, like those concerning the properties of the sphere. But since I am not of their opinion any more than Arnauld is, I will only say why I think that we must philosophize differently about the notion of an individual substance than about the specific notion of the sphere. The reason is because the notion of a *species* includes only eternal or necessary truths, but the notion of an individual includes considered as possible what, in fact, is true, that is, considerations related to the existence of things and to time, and consequently it depends upon God's free decrees considered as possible; for truths of fact or existence depend upon God's decrees. Thus the notion of sphere in general is incomplete or abstract, that is, we consider in it only the essence of a sphere in general or in theory, without regard to particular circumstances, and consequently it does not in any way include what is required for the existence of a certain sphere. But the notion of the sphere Archimedes had placed on his tomb is complete and must include everything belonging to the subject of that shape. That is why, in individual or practical considerations, which are concerned with singulars, in addition to the shape of the sphere, we must consider the matter of which it is made, the place, the time, and the other circumstances, considerations which, by a continual linkage, would in the end include the whole series of the universe, if everything these notions included could be pursued. For the notion of the piece of matter of which this sphere is made involves all the changes it has undergone and will undergo one day. And

according to me, each individual substance always contains traces of what has ever happened to it and marks of what will ever happen to it. But what I have just said can suffice to explain my line of thought.

Now, Arnauld states that, by taking the individual notion of a person in relation to the knowledge God had of it when he resolved to create it, what I have said about this notion is quite certain. And similarly, he even grants that the volition to create Adam was not detached from God's volition concerning what would happen to him and to his posterity. But he now asks whether the link between Adam and what happens to his posterity is dependent on or independent of God's free decrees; *that is*, as he explains, *whether God knew what would happen to Adam and his posterity only as a consequence of the free decrees by which God ordained everything that will happen, or whether there is an intrinsic and necessary connection, independent of these decrees, between Adam and the events in question.* He does not doubt that I would choose the latter alternative, and in fact I could not choose the first as he explained it, but it seems to me that there is a middle ground. However, he proves that I must choose the latter, because I consider the individual notion of Adam as possible when I maintain that, among an infinity of possible notions, God has chosen the notion of an Adam such as this, and notions possible in themselves do not depend upon God's free decrees.

But here I must explain myself a little better. Therefore, I say that the connection between Adam and human events is not independent of all of God's free decrees, but also, that it does not depend upon them so completely that each event could happen or be foreseen only in virtue of a particular primitive decree made about it. I therefore think that there are only a few free primitive decrees that regulate the course of things, decrees that can be called laws of the universe, and which, joined to the free decree to create Adam, bring about the consequence. This is a bit like needing few hypotheses to explain phenomena—something I will explain more distinctly in what follows. As for the objection that possibles are independent of God's decrees, I grant it with respect to actual decrees (even though the Cartesians do not agree with this), but I hold that possible individual notions include some possible free decrees. For example, if this world were only possible, the individual notion of some body in this world, which includes certain motions as possible, would also include our laws of motion (which are free decrees of God), but also only as possible. For, since there is an infinity of possible worlds, there is also an infinity of possible laws, some proper to one world, others proper to another, and each possible individual of a world includes the laws of its world in its notion.

The same things can be said about miracles or God's extraordinary operations. These belong to the general order and conform to God's principal plans and, consequently, are included in the notion of this universe, which is a result of these plans; just as the idea of a building results from the ends or plans of the builder, so the idea or notion of this world is a result of one of God's plans considered as possible. For everything must be explained by its cause, and God's ends are the cause of the universe. Now, in my opinion, each individual substance expresses the whole universe from a certain point

of view, and consequently it also expresses the miracles in question. All this must be understood of the general order, of God's plans, of the course of this universe, of individual substance, and of miracles, whether they are taken in the actual state or whether they are considered *sub ratione possibilitatis*. For another possible world will also have all this in its own way, though the plans of our world have been preferred.

It can also be seen from what I have just said about God's plans and primitive laws that this universe has a certain principal or primitive notion, a notion of which particular events are merely the result, with the exception of what is free and contingent, to which certainty does no harm, since the certainty of events is based in part upon free acts. Now, each individual substance of this universe expresses in its notion the universe into which it enters. And not only does the assumption that God has resolved to create this Adam include resolutions for all the rest, but so does the assumption that he created any other individual substance whatsoever, because it is the nature of an individual substance to have a notion so complete that everything that can be attributed to it can be deduced from it, even the whole universe, because of the interconnection of things. Nevertheless, to proceed carefully, it must be said that it is not so much because God decided to create this Adam that he decided on all the rest. Rather, both the decision he made with regard to Adam and the one he made with regard to other particular things are the result of the decision he made with regard to the whole universe and a result of the principal plans that determine its primitive notion and establish in it this general and inviolable order. Everything is in conformity with this order, even miracles, which are, no doubt, in conformity with God's principal plans, although they do not always observe the particular maxims that are called laws of nature.

I have said that all human events can be deduced not simply by assuming the creation of a vague Adam, but by assuming the creation of an Adam determined with respect to all these circumstances, chosen from among an infinity of possible Adams. This has given Arnauld the occasion to object, not without reason, that it is as difficult to conceive of several Adams, taking Adam as a particular nature, as it is to conceive of several mes. I agree, but when speaking of several Adams, I was not taking Adam as a determinate individual. I must therefore explain myself. This is what I meant. When one considers in Adam a part of his predicates, for example, that he is the first man, set in a garden of pleasure, from whose side God fashioned a woman, and similar things conceived *sub ratione generalitatis*, in a general way (that is to say, without naming Eve, Paradise, and other circumstances that fix individuality), and when one calls Adam the person to whom these predicates are attributed, all this is not sufficient to determine the individual, for there can be an infinity of Adams, that is, an infinity of possible persons, different from one another, whom this fits. Far from disagreeing with what Arnauld says against this multiplicity of the same individual, I myself used this to make it better understood that the nature of an individual must be complete and determinate. I am even quite convinced of what Saint Thomas had already

taught about intelligences, which I hold to apply generally, namely, that it is not possible for there to be two individuals entirely alike, or differing only numerically.[108] Therefore, we must not conceive of a vague Adam, that is, a person to whom certain attributes of Adam belong, when we are concerned with determining whether all human events follow from positing his existence; rather, we must attribute to him a notion so complete that everything that can be attributed to him can be deduced from it. Now, there is no room for doubting that God can form such a notion of him, or rather that he finds it already formed in the realm of possibles, that is, in his understanding.

It, therefore, also follows that he would not have been our Adam, but another Adam, had other events happened to him, for nothing prevents us from saying that he would be another. Therefore, he is another. It seems obvious to us that this block of marble brought from Genoa would have been altogether the same if it had been left there, because our senses allow us to judge only superficially. But at bottom, because of the interconnection of things, the whole universe with all its parts would be quite different and would have been different from the beginning, if the least thing in it had happened differently than it did. It does not follow from this that events are necessary, but rather that they are certain, given God's choice of this possible universe, whose notion contains this series of things. I hope that what I am going to say will enable Arnauld himself to agree with this. Let there be a straight line ABC representing a certain time. And let there be an individual substance, for example, I, enduring or subsisting during that time. Let us first take me subsisting during time AB, and then me subsisting during time BC. Then, since the assumption is that it is the same individual substance that endures throughout, or rather that it is I who subsists in time AB, being then in Paris, and that it is still I who subsists in time BC, being then in Germany, there must necessarily be a reason allowing us truly to say that we endure, that is to say that I, who was in Paris, am now in Germany. For if there were no such reason, we would have as much right to say that it is someone else. It is true that my internal experience convinces me *a posteriori* of this identity; but there must also be an *a priori* reason. Now, it is not possible to find any reason but the fact that both my attributes in the preceding time and state and my attributes in the succeeding time and state are predicates of the same subject—they are in the same subject. Now, what is it to say that the predicate is in the subject, except that the notion of the predicate is in some way included in the notion of the subject? And since, once I began existing, it was possible truly to say of me that this or that would happen to me, it must be admitted that these predicates were laws included in the subject or in my complete notion, which constitutes what is called I, which is the foundation of the connection of all my different states and which God has known perfectly from all eternity. After this, I think that all doubts should disappear, for, when I say that the individual notion of Adam includes every-

108. The reference is to St. Thomas's doctrine that, with intelligences, every individual is a lowest species; cf. the "Discourse on Metaphysics," sec. 9.

thing that will ever happen to him, I don't mean to say anything other than what all philosophers mean when they say that the predicate is included in the subject in a true proposition. It is true that the results of so evident a doctrine are paradoxical, but that is the fault of the philosophers who do not sufficiently pursue the clearest notions.

I now think that Arnauld, being as penetrating and fair-minded as he is, will no longer find my proposition so strange, even if he is not able to approve of it entirely (though I almost flatter myself that I have his approval). I agree with what he so judiciously adds about the circumspection we must use when appealing to divine knowledge [*la science divine*] in order to find out what we ought to judge concerning the notions of things. But, properly understood, what I have just said must hold, even though we should speak of God only as much as is necessary. For even if we did not say that God, when considering Adam whom he is resolving to create, sees in him everything that will happen to him, it suffices that one can always prove that there must be a complete notion of this Adam which contains them. For all the predicates of Adam either depend upon other predicates of the same Adam or they do not. Then, setting aside all of those predicates that depend upon the others, we need only gather together all the primitive predicates in order to form Adam's complete notion, a notion sufficient for deducing everything that will ever happen to him, and this is as much as we need for us to be able to explain it. It is evident that God can construct—and even actually conceive—a notion sufficient to explain all the phenomena pertaining to Adam; but it is no less evident that this notion is possible in itself. It is true that we should not enter unnecessarily into an investigation of the divine knowledge and will, because of the great difficulties involved. Nevertheless, we can explain what we have derived from such an investigation relevant to our question without entering into the difficulties Arnauld mentions—for example, the difficulty of understanding how God's simplicity is reconcilable with what we must distinguish in it. It is also very difficult to explain perfectly how God has knowledge he might not have had, namely, the knowledge by intuition [*la science de la vision*]; for, if things that exist contingently in the future didn't exist, God would not have any intuition of them. It is true that he would have simple knowledge of them, which would become intuition when it is joined to his will, so that this difficulty is perhaps reduced to a difficulty concerning his will, namely, how God is free to will. No doubt this is beyond us, but it is not necessary to understand it in order to resolve our question.[109]

As for the way in which we conceive that God acts by choosing the best among several possibles, Arnauld is right in finding some obscurity there. He seems, nevertheless, to recognize that we are led to conceive that there is an infinity of possible first men, each connected to a long sequence of persons and events, and that God has chosen from them the one who, together with

109. Knowledge of simple understanding [*scientia simplicis intelligentiae*] is God's knowledge of possibles; knowledge by intuition [*scientia visionis*] is God's knowledge of actuals, which differs from the former only in God's reflexive knowledge of his own decrees. Cf. G IV 440–41, C 16–17.

his sequence, pleased him. So this is not as strange as it had first appeared to him. It is true that Arnauld testifies that he is strongly led to think that these purely possible substances are only chimeras. I do not wish to dispute this, but I hope that, in spite of this, he will grant me what I need. I agree that there is no other reality in pure possibles than the reality they have in the divine understanding, and we see from this that Arnauld himself will be required to fall back on divine knowledge to explain them, whereas it seemed earlier that he thought that we should seek them in themselves. When I also grant what Arnauld is convinced of and what I do not deny—that we conceive no possibles except through the ideas actually found in the things God has created—it does no harm to me. For when speaking of possibilities, I am satisfied that we can form true propositions about them. For example, even if there were no perfect square in the world, we would still see that it does not imply a contradiction. And if we wished absolutely to reject pure possibles, contingency would be destroyed; for, if nothing were possible except what God actually created, then what God created would be necessary, in the case he resolved to create anything.

Finally, I agree that in order to determine the notion of an individual substance it is good to consult the one I have of myself, just as one must consult the specific notion of the sphere in order to determine its properties. Yet there is a considerable difference, for my notion and the notion of every other individual substance is infinitely broader and more difficult to understand than a specific notion, like that of the sphere, which is only incomplete. It is not enough that I sense myself [*je me sente*] to be a substance that thinks; I must distinctly conceive what distinguishes me from all other minds, and I have only a confused experience of this. The result is that, though it is easy to determine that the number of feet in the diameter is not included in the notion of sphere in general, it is not so easy to judge whether the trip I intend to make is included in my notion; otherwise, it would be as easy for us to be prophets as to be geometers. I am uncertain whether I will make the trip, but I am not uncertain that, whether I go or not, I will always be me. This is a presumption that must not be confused with a distinct notion or item of knowledge. These things appear undetermined to us only because the foreshadowings or marks which are in our substance are not recognizable to us. This is a bit like those who, consulting only the senses, would ridicule someone who says that the least motion is also communicated as far as matter extends, because experience alone cannot demonstrate this; but, when the nature of motion and matter are considered, one is convinced of this. It is the same here: when someone consults the confused experience he has of his individual notion in particular, he is far from perceiving this interconnection of events; but when the general and distinct notions which enter into it are considered, it is discovered. In fact, in considering the notion I have of every true proposition, I find that every predicate necessary or contingent, past, present, or future is included in the notion of subject; and I ask no more of it.

Indeed, I believe that this will open up to us a way of reconciling our views.

For I suspect that Arnauld did not want to grant me this proposition only because he took the connection I am maintaining to be both intrinsic and necessary, whereas I hold it to be intrinsic, but in no way necessary; for now, I have sufficiently explained that it is founded on free decrees and acts. I do not intend any connection between the subject and the predicate other than that which holds in the most contingent of truths, that is, that we can always conceive something in the subject which serves to provide a reason why this predicate or event belongs to it, or why this happened rather than not. But these reasons for contingent truths incline, rather than necessitate. Therefore, it is true that I could fail to go on this trip, but it is certain that I shall go. This predicate or event is not connected with certainty to my other predicates, conceived incompletely or *sub ratione generalitatis;* but it is connected with certainty to my complete individual notion, since I suppose that this notion was constructed explicitly so that everything that happens to me can be deduced from it. No doubt, this notion is found *a parte rei*, and it is properly the notion that belongs to me, who finds myself in different states, since this notion alone is capable of including all of them.

I have so much deference for Arnauld and such a good opinion of his judgment that I easily give up my opinions, or at least my way of expressing them as soon as I see that he finds something objectionable in them. That is why I precisely followed the difficulties he proposed, and having attempted to satisfy them in good faith, it seems to me that I am not far removed from his* opinions.

The proposition at issue is of great importance and deserves to be firmly established, for from this it follows that every soul is like a world apart, independent of every other thing outside of God, that it is not only immortal and, so to speak, undisturbable, but that it holds in its substance the traces of everything that happens to it. From this also follows that in which the interaction [*commerce*] of substances consists, particularly the union of soul and body. This interaction does not occur in accordance with the ordinary hypothesis of physical influence of one substance on another, since every present state of a substance happens to it spontaneously and is only a result of its preceding state. This interaction also does not occur in accordance with the hypothesis of occasional causes, according to which God ordinarily intervenes in some way other than conserving each substance in its course, and according to which God, on the occasion of something happening in the body, arouses thoughts in the soul which would change the course it would have taken without this intervention. It occurs in accordance with the hypothesis of concomitance, which appears demonstrative to me. That is, each substance expresses the whole series of the universe according to the point of view or relation proper to it, from which it happens that they agree perfectly; and when we say that one acts upon another, we mean that the distinct expression of the one acted upon is diminished, and that of the one acting is augmented, in conformity with the series of thoughts involved in its notion. For although every substance expresses everything, in common usage we correctly attribute to it only the most evident expressions in accordance to its relation to us.

Finally, I believe that after this, the propositions contained in the summary sent to Arnauld will appear not only more intelligible, but perhaps also more solid and more important than might have been thought at first.[110]

To Arnauld (28 November/8 December 1686) [excerpts][111]

AS I FOUND something extraordinary in the frankness and sincerity with which you accepted some arguments I used, I cannot avoid recognizing and admiring it. I suspected that the argument taken from the general nature of propositions would make some impression on your mind; but I also confess that there are few people able to appreciate truths so abstract, and that perhaps no one else would have been able to perceive its cogency so readily.

I should like to be informed of your meditations about the possibilities of things; they can only be profound and important since they are concerned with speaking of these possibilities in a way worthy of God. But this will be at your convenience. As for the two difficulties you found in my letter, the one concerning the hypothesis of concomitance, that is, the hypothesis of the agreement of substances among themselves, and the other concerning the nature of the forms of corporeal substances, I confess that they are considerable, and if I were able to satisfy them completely, I think that I would be able to decipher the greatest secrets of nature in its entirety. But it is something to advance to a certain point.[112] As for the first, I find that you yourself have sufficiently explained the obscurity you found in my thought concerning the hypothesis of concomitance; for when the soul has a sensation of pain at the same time that the arm is injured, I think that the situation is, in fact, as you say, Sir, that the soul itself forms this pain, which is a natural result of its state or notion. I admire Saint Augustine for having apparently recognized the same thing (as you have remarked) when he said that the pain the soul has in these encounters is nothing but a sadness that accompanies the ill disposition of the body. In fact, this great man had very solid and very profound thoughts. But (it will be asked), how does the soul know this ill disposition of the body? I reply that it is not by any impression or action of bodies on the soul, but because the nature of every substance carries a general expression of the whole universe and because the nature of the soul carries, more particularly, a more distinct expression of that which is now happening with regard to its body. That is why it is natural for the soul to mark and

110. Again, Arnauld seems not to have been sent the whole "Discourse," but only a summary which corresponds closely to the titles of successive sections.

111. Arnauld wrote to Leibniz on September 28, 1686, saying that he sees "no other difficulties except about the possibility of things, and about this way of conceiving God as having chosen the universe he created from an infinity of other possible universes he saw at the same time and did not wish to create" (G II, 64). Arnauld then asked Leibniz to explain himself further about the hypothesis of concomitance and about the nature of the form of corporeal substance; he formulated a series of seven queries on the latter problem. Leibniz's response takes up each query individually.

112. Horace, *Epistles*, I.1.32.

know the accidents of its body through accidents of its own. The situation is the same for the body when it accommodates itself to the thoughts of the soul. And when I wish to raise my arm, it is exactly at the moment when everything in the body is disposed for that effect, so that the body moves by virtue of its own laws. But through the wondrous though unfailing agreement of things among themselves, it happens that these laws work together exactly at the moment that the will is so inclined, since God took this into account in advance when he formed his resolution about this series of all the things in the universe. All these things are only consequences of the notion of an individual substance, which contains all its phenomena in such a way that nothing can happen to a substance that does not come from its own depths, though in conformity to what happens to another, despite the fact that the one acts freely and the other without choice. [[And this agreement is one of the best proofs that can be given of the necessity for there to be a substance which is the supreme cause of everything.]]

I should like to be able to explain myself as clearly and decisively about the other question, concerning the substantial forms. The first difficulty you indicated, Sir, is that our soul and our body are two really distinct substances; therefore, it seems that the one is not the substantial form of the other. I reply that, in my opinion, our body in itself or the *cadaver*, setting the soul apart, can be called a substance only in an improper sense, just as in the case of a machine or a pile of stones, which are only beings by aggregation; for regular or irregular arrangement does not constitute substantial unity. Besides, the last Lateran council declares that the soul is truly the substantial form of our body.

As for the second difficulty,[113] I grant that the substantial form of the body is indivisible, and it seems to me that this is also Saint Thomas's opinion; and I further grant that every substantial form or, indeed, every substance is indestructible and even ingenerable—which was also the opinion of Albertus Magnus and, among the ancients, the opinion of the author of the book *De diaeta*, attributed to Hippocrates.[114] Therefore, they can only come into being by an act of creation. And I am greatly inclined to believe that all reproduction among animals deprived of reason, reproduction which does not deserve a new act of creation, is only the transformation of another animal already living but sometimes imperceptible, like the changes that happen to a silkworm and other similar animals; nature is accustomed to reveal its secrets in some cases and hide them in others. Thus the souls of brutes* would have all been created from the beginning of the world, in accordance with the fruitfulness in seed

113. Arnauld asked: If the substantial form of the body is divisible, "we would not gain anything with respect to the unity of body [literally: to body being a *unum per se*]" (G II, 66); if it is indivisible, "it seems that body would be as *indestructible* as our soul" (ibid.).

114. The reference to St. Thomas might be to *Summa Theologica* I, q. 76, art. 8, but Leibniz is probably not representing Aquinas accurately. See below, the "New System of Nature," for a different set of attributions. The reference to Albertus Magnus is too vague to be specified. On Hippocrates, see *The Regimen* I.4. While the text is part of the Hippocratic corpus, it is probably not by Hippocrates himself. See below, "Letter to Samuel Masson," pp. 225–26, in which Leibniz's claims about this text are modified.

mentioned in Genesis. But the rational soul is created only at the time of the formation of its body, being entirely different from the other souls we know, because it is capable of reflection and it imitates the divine nature on a small scale.

Third,[115] I think that a block of marble is, perhaps, only like a pile of stones, and thus cannot pass as a single substance, but as an assemblage of many. Suppose that there were two stones, for example, the diamond of the Great Duke and that of the Great Mogul. One could impose the same collective name for the two, and one could say that they constitute a pair of diamonds, although they are far part from one another; but one would not say that these two diamonds constitute a substance. More and less do not make a difference here. Even if they were brought nearer together and made to touch, they would not be substantially united to any greater extent. And if, after they had touched, one joined to them another body capable of preventing their separation—for example, if they had been set in the same ring—all this would make only what is called an *unum per accidens*.[116] For it is as by accident that they are required to perform the same motion. Therefore, I hold that a block of marble is not a complete single substance, any more than the water in a pond together with all the fish it contains would be, even if all the water and all the fish were frozen, or any more than a flock of sheep would be, even if these sheep were tied together so that they could only walk in step and so that one could not be touched without all the others crying out. There is as much difference between a substance and such a being as there is between a man and a community, such as a people, an army, a society, or a college; these are moral beings, beings in which there is something imaginary and dependent on the fabrication [*fiction*] of our mind. A substantial unity requires a thoroughly indivisible and naturally indestructible being, since its notion includes everything that will happen to it, something which can be found neither in shape nor in motion (both of which involve something imaginary, as I could demonstrate), but which can be found in a soul or substantial form, on the model of what is called *me*. These are the only thoroughly real beings, as was recognized by the ancients, and above all, by Plato, who clearly showed that matter alone is not sufficient to form a substance. Now, the aforementioned *I*, or that which corresponds to it in each individual substance, can neither be made nor destroyed by the bringing together or separation of parts, which is a thing entirely external to what constitutes a substance. I cannot say precisely whether there are true corporeal substances other than those that are animated, but souls at least serve to give us some knowledge of others by analogy.

All this can contribute to clearing up the fourth difficulty.[117] For without

115. Arnauld asked: "What happens to this substantial form [of a block of marble] when it stops being one, because someone has broken it in two?" (G II, 66).

116. Accidental unity.

117. Arnauld asked: "Do you give to extension a general substantial form, such as certain Scholastics admitted when they called it *forma corporeitatis*, or do you want there to be as many different substantial forms as there are different bodies, and different species when these are bodies of different species?" (G II, 66).

bothering with what the Scholastics have called the form of corporeity [*formam corporeitatis*], I assign substantial forms to all corporeal substances that are more than mechanically united. But fifth,[118] if I am asked in particular what I say about the sun, the earthly globe, the moon, trees, and other similar bodies, and even about beasts, I cannot be absolutely certain whether they are animated, or even whether they are substances, or, indeed, whether they are simply machines or aggregates of several substances. But at least I can say that if there are no corporeal substances such as I claim, it follows that bodies would only be true phenomena, like the rainbow. For the continuum is not merely divisible to infinity, but every part of matter is actually divided into other parts as different among themselves as the two aforementioned diamonds. And since we can always go on in this way, we would never reach anything about which we could say, here is truly a being, unless we found animated machines whose soul or substantial form produced a substantial unity independent of the external union arising from contact. And if there were none, it then follows that, with the exception of man, there is nothing substantial in the visible world.

Sixth,[119] since the notion of individual substance in general, which I have given, is as clear as that of truth, the notion of corporeal substance will also be clear and, consequently, so will that of substantial form. But even if this were not so, we are required to admit many things whose knowledge is not sufficiently clear and distinct. I hold that the notion of extension is much less clear and distinct—witness the strange difficulties of the composition of the continuum. And it can indeed be said that *because of the actual subdivision of parts, there is no definite and precise shape in bodies.* As a result, *bodies would doubtless be only imaginary and apparent, if there were only matter and its modifications.* However, it is useless to mention the unity, notion, or substantial form of bodies when we are concerned with explaining the particular phenomena of nature, just as it is useless for the geometers to examine the difficulties concerning the composition of the continuum when they are working on resolving some problem. These things are still important and worthy of consideration in their place. All the phenomena of bodies can be explained mechanically, that is, by the corpuscular philosophy, following certain principles of mechanics posited without troubling oneself over whether there are souls or not. But in the final analysis of the principles of physics and even of mechanics, we find that these principles cannot be explained by the modifications of extension alone, and that the nature of force already requires something else.

Finally, in the seventh place[120] I remember that Cordemoy, in his treatise,

118. Arnauld asked: "Where do you situate the unity we attribute to the earth, the sun, the moon . . . ?" (G II, 66).

119. Arnauld asked: "Finally, it will be said that it is not worthy of a philosopher to admit entities of which we have no clear and distinct idea" (G II, 67).

120. Arnauld wrote: "There are Cartesians who, in order to find unity in bodies, have denied that matter is divisible to infinity, and [have asserted] that one must admit indivisible atoms. But I do not think that you share their opinion" (G II, 67).

On the Distinction between Body and Soul, thought he needed to admit atoms, or extended indivisible bodies, to save substantial unity in bodies, so as to find something fixed to constitute a simple being. But you rightly concluded that I am not of that opinion. It appears that Cordemoy recognized something of the truth, but he did not yet see what the true notion of substance consists in; but this is the key to the most important knowledge. The atom* which contains only a shaped mass of infinite hardness (which I hold not to be in conformity with divine wisdom, any more than the void is) cannot contain in itself all its past and future states, and even less all those of the entire universe.

To Arnauld (April 30, 1687)

SINCE your letters are of considerable benefit to me and the marks* of your genuine liberality, I have no right to ask for them, and consequently your reply is never too late. However agreeable and useful they may be to me, I take into consideration what you owe to the public good, and thus I suppress my wishes. Your reflections are always instructive for me and I will take the liberty to go through them in order.

I do not think that there is any difficulty in my saying that *the soul expresses more distinctly, other things being equal, that which belongs to its body,* since it expresses the whole universe in a certain sense, in particular in accordance with the relation other bodies have to its own, since it cannot express all things equally well; otherwise there would be no differences among souls. But it does not follow from this that it must perceive perfectly everything occurring in the parts of its body, since there are degrees of relation between these very parts, parts which are not all expressed equally, any more than external things are. The greater distance of external bodies is compensated for by the smallness, or some other hindrance, with respect to the internal parts—Thales saw the stars, though he did not see the ditch at his feet.

For us the nerves are more sensitive than the other parts of our bodies, and perhaps it is only through them that we perceive the others. This apparently happens because the motions of the nerves or of the fluids in them imitate the impressions better and confuse them less, and the most distinct expressions in the soul correspond to the most distinct impressions of the body. This is not because the nerves act on the soul, or the other bodies on the nerves, metaphysically speaking, but because the former represent the state of the latter through a spontaneous relation [*spontanea relatione*]. We must also take into account that too many things take place in our bodies for us to be able to perceive them all individually. What we sense is only a certain resultant to which we are habituated, and we are not able to distinguish the things that enter into the resultant because of their multitude, just as when one hears the noise of the sea from afar, one does not discern what each wave does, even though each wave has an effect on our ears. But when a striking change happens in our body, we soon notice it and notice it more clearly than external changes which are not accompanied by a notable change in our organs.

I do not say that the soul knows the pricking before it has the sensation of pain,

except insofar as it knows or expresses confusedly all things in accordance with my previously established principles. But this expression which the soul has of the future in advance, although obscure and confused, is the true cause of what will happen to it and of the clearer perception it will have afterwards, when the obscurity is lifted, since the future state is a result of the preceding one.

I said that God created the universe in such a way that the soul and the body, each acting according to its laws, agree in their phenomena. You judge that *this is in accord with the hypothesis of occasional causes.* If this were so, I would not be sorry, and I am always glad to find others who hold my positions. But I have only a glimpse of your reason for thinking this; you suppose that I wouldn't say that a body can move by itself, and thus, since the soul is not the real cause of the motion of the arm, and neither is the body, the cause must therefore be God. But I am of another opinion. I hold that what is real in the state called motion proceeds as much from the corporeal substance as thought and will proceed from the mind. Everything happens to each substance as a consequence of the first state God gave to it in creating it, and, extraordinary concourse apart, his ordinary concourse consists only in the conservation of the same substance, in conformity with its preceding state and the changes it brings about. Yet it is rightly said that one body pushes another, that is, that it never happens that a body begins to have a certain tendency unless another body touching it has a proportionate loss, in accordance with the unvarying laws that we observe in phenomena. And in fact, since motions are real phenomena rather than beings, a motion considered as a phenomenon is the immediate result or effect of another phenomenon in my mind, and similarly in the minds of others, but the state of a substance is not the immediate result of the state of another particular substance.

I do not dare assert that plants have no soul, life, or substantial form, for although a part of a tree planted or grafted can produce a tree of the same kind, it is possible that there is a seminal part in it that already contains a new vegetative thing, as perhaps there are already some living animals, though extremely small, in the seeds of animals, which can be transformed within a similar animal. Therefore, I don't yet dare assert that only animals are living and endowed with a substantial form. Perhaps there is an infinity of degrees in the forms of corporeal substances.

You say that those who maintain the hypothesis of occasional causes, saying that *my will is the occasional cause and God is the real cause of the motion of my arm, do not claim that God does this in time by means of a new volition he has each time I wish to raise my arm, but through the unique act of eternal will, by which he willed to do everything he foresaw it would be necessary for him to do.* To this I reply that one could say, for the same reason, that even miracles are not accomplished by a new volition of God, since they are in conformity with his general plan, and I already remarked that each volition of God involves all the others, but in a certain order of priority. In fact, if I properly understand the views of the authors of occasional causes, they introduce a miracle which is no less miraculous for being continual. For it seems to me that the notion of miracle does not consist in rarity. One might say that in this matter God

acts only according to a general rule, and consequently he acts without miracle. But I do not grant that consequence, and I believe that God can make general rules for himself even with respect to miracles. For example, if God had resolved to give his grace immediately or to perform some other action of this nature every time a certain condition was satisfied, this action, though ordinary, would nevertheless still be a miracle. I admit that the authors of occasional causes might give another definition of the term, but, according to common usage, it seems that a miracle differs internally and substantively from the performance of an ordinary action, and not by the external accident of frequent repetition; properly speaking, God performs a miracle when he does something that surpasses the forces he has given to creatures and conserves in them. [[For example, if God made a body, put into circular motion by means of a sling, freely go in a circular path when released from the sling, without it being pushed or retained by anything whatever, that would be a miracle, for according to the laws of nature, it should continue in a straight line along a tangent; and if God decided that this should always happen, he would be performing natural miracles, since this motion could not be explained by anything simpler.]] Thus, in the same way, we must say, in accordance with the received view, that if continuing the motion exceeds the force of bodies, then the continuation of the motion is a true miracle. But I believe that corporeal substance has the ability [*force*] to continue its changes in accordance with the laws God put into its nature and conserves there. To make myself better understood, I believe that the actions of minds change nothing at all in the nature of bodies, nor do bodies change anything in the nature of minds, and even that God changes nothing on their occasion, except when he performs a miracle. In my opinion, things are so interconnected that the mind never wills anything efficaciously except when the body is ready to accomplish it in virtue of its own laws and forces; [[but, according to the authors of occasional causes, God changes the laws of bodies on the occasion of the action of the soul, and *vice versa*. That is the essential difference between our opinions.]] Thus, on my view, we should not worry about how the soul can give some motion or some new determination to animal spirits, since, in fact, it never gives them any at all, insofar as there is no proportion between mind and body, and there is nothing that can determine what degree of speed a mind can give a body, nor even what degree of speed God would want to give to a body on the occasion of the action of the mind in accordance with a certain law. The same difficulty found in the hypothesis of a real influence of soul on body, and *vice versa,* is also found in the hypothesis of occasional causes, insofar as we can see no connection nor can we see a foundation for any rule. And if someone were to say, as, it seems, Descartes wishes to say, that the soul, or God on its occasion, changes only the direction or determination of a motion and not the force which is in bodies (since it does not seem probable to him that at every moment God would violate the general law of nature that the same force must persist, on the occasion of every volition minds have), I would reply that it would still be quite difficult to explain what connection there can be between the thoughts of the soul and the paths or

angles of the direction of bodies. Furthermore, there is in nature yet another general law which Descartes did not perceive, a law no less important, namely, that the same sum of determination or direction must always persist. For I find that if one were to draw any straight line, for example, from east to west through a given point, and if one were to calculate all the directions of all the bodies in the world insofar as they advance or recede in lines parallel to this line, the difference between the sum of all the easterly directions and of all the westerly directions would always be the same. This holds both for certain particular bodies, assuming that at present they have interactions only among themselves, and for the whole universe, in which the difference is always zero, since everything is perfectly balanced, and easterly and westerly directions are perfectly equal in the universe. If God does something in violation of this rule, it is a miracle.[121]

It is therefore infinitely more reasonable and more worthy of God to suppose that, from the beginning, he created the machinery of the world in such a way that, without at every moment violating the two great laws of nature, namely, those of force and direction, but rather, by following them exactly (except in the case of miracles), it happens that the springs in bodies are ready to act of themselves, as they should, at precisely the moment the soul has a suitable volition or thought; the soul, in turn, has this volition or thought only in conformity with the preceding states of the body. Thus the union of the soul with the machinery of the body and with the parts entering into it, and the action of the one on the other, consist only in this concomitance that marks the admirable wisdom of the creator, far better than any other hypothesis. It cannot be denied that this hypothesis is at least possible and that God is a sufficiently great craftsman to be able to execute it; hence, we can easily judge that this hypothesis is the most probable, being the simplest, the most beautiful, and most intelligible, at once avoiding all difficulties—to say nothing of criminal actions, in which it seems more reasonable to have God concur only through the conservation of created forces.

To use a comparison I will say that this concomitance I maintain is like several different bands of musicians or choirs separately playing their parts, and placed in such a way that they do not see and do not even hear each other, though they nevertheless can agree perfectly, each following his own notes, so that someone hearing all of them would find a marvelous harmony there, one more surprising than if there were a connection among them. It is quite possible that someone next to one of two such choirs could judge from the one what the other was doing (particularly if we supposed that he could hear his choir without seeing it and see the other without hearing it), he would, as a result, form such a habit that, with the help of his imagination, he would no longer think of the choir where he was, but of the other, and he would mistake his own choir for an echo of the other, attributing to his own only certain interludes in which some rules of composition [*symphonie*], by which

121. The rule in question here is what is now called the conservation of momentum, mass times velocity, which, Leibniz claims here, holds both for the universe as a whole and for any closed system within the universe.

he distinguished the other, were not satisfied. Or, attributing to his own choir a certain beating of the tempo, performed on his side according to certain plans, he might think, because of the agreement on this he finds as the melody continues,* that the beating of the tempo is being imitated by the others, since he doesn't know that those on the other side are also acting in accordance with their own plans, though in agreement with his.

Yet I do not disapprove at all of the assertion that minds are in some way the occasional causes, and even the real causes, of the movements of bodies. For, with respect to divine resolutions, what God foresaw and pre-established with regard to minds was the occasion for his regulating bodies from the beginning so that they might fit together in accordance with the laws and forces he will give them. And since the state of the one is an unfailing, though frequently contingent, and even free, consequence of the state of the other, we can say that God brings about that there is a real connection by virtue of this general notion of substances, which entails that substances express one another perfectly. This connection is not, however, immediate, since it is founded only upon what God has done in creating substances.

If my opinion that substance requires a true unity were founded only on a definition I had formulated in opposition to common usage, *then the dispute would be only one of words.*[122] But besides the fact that most philosophers have taken the term in almost the same fashion, distinguishing between a unity in itself and an accidental unity, between substantial and accidental form, and between perfect and imperfect, natural and artificial mixtures, I take things to a much higher level, and setting aside the question of terminology, *I believe that where there are only beings by aggregation, there aren't any real beings.* For every being by aggregation presupposes beings endowed with real unity, because every being derives its reality only from the reality of those beings of which it is composed, so that it will not have any reality at all if each being of which it is composed is itself a being by aggregation, a being for which we must still seek further grounds for its reality, grounds which can never be found in this way, if we must always continue to seek for them. I agree, Sir, that there are only machines (that are often animated) in all of corporeal nature, but I do not agree that *there are only aggregates of substances;* and if there are aggregates of substances, there must also be true substances from which all the aggregates result.[123] We must, then, necessarily come down either to mathematical points, of which some authors constitute extension, or to the atoms of Epicurus and Cordemoy (which are things you reject along with me), or else we must admit that we do not find any reality in bodies; or finally, we must recognize some substances that have a true unity. I have already said in another letter that the composite made up of the diamonds of the Grand Duke and of the Great Mogul can be called a pair of diamonds,

122. Arnauld had written that Leibniz's arguments "amount to saying that all bodies whose parts are mechanically united are not substances, but only machines or aggregates of many substances," and that "there is only a quibble over words here; for Saint Augustine feels no difficulties about recognizing that bodies have no true unity" (G II, 86).

123. The version Arnauld received concludes: " . . . of which all aggregates are made."

but this is only a being of reason. And when they are brought closer to one another, it would be a being of the imagination or perception, that is to say, a phenomenon. For contact, common motion, and participation in a common plan have no effect on substantial unity. It is true that there are sometimes more, and sometimes fewer, grounds for supposing that several things constitute a single thing, in proportion to the extent to which these things are connected. But this serves only to abbreviate our thoughts and to represent the phenomena.

It also seems that what constitutes the essence of a being by aggregation is only a mode [*manière d'être*] of the things of which it is composed. For example, what constitutes the essence of an army is only a mode of the men who compose it. This mode therefore presupposes a substance whose essence is not a mode of a substance.[124] Every machine also presupposes some substance in the pieces of which it is made, and there is no plurality without true unities. To put it briefly, I hold this identical proposition, differentiated only by the emphasis, to be an axiom, namely, *that what is not truly* one *being is not truly one* being *either.* It has always been thought that one and being are mutually supporting. Being is one thing and beings are another; but the plural presupposes the singular, and where there is no being still less will there be several beings. What could be clearer? [[I therefore believed that I would be allowed to distinguish beings by aggregation from substances, since these beings have their unity in our mind only, a unity founded on the relations or modes [*modes*] of true substances. If a machine is one substance, a circle of men holding hands will also be one substance, and so will an army, and finally, so will every multitude of substances.]]

I do not say that there is nothing substantial or nothing but appearance in things that do not have a true unity, for I grant that they always have as much reality or substantiality as there is true unity in that which enters into their composition.

You object that it might be of the essence of body not to have a true unity. But it would then be of the essence of body to be a phenomenon, deprived of all reality, like an ordered dream, for phenomena themselves, like the rainbow or a pile of stones, would be completely imaginary if they were not composed of beings with a true unity.

You say that you do not see what leads me to admit these substantial forms,* or rather, these corporeal substances endowed with a true unity; but that is because I conceive no reality without a true unity. On my view, the notion of singular substance involves consequences incompatible with a being by aggregation. I conceive properties in substance that cannot be explained by extension, shape, and motion, besides the fact that there is no exact and fixed shape in bodies due to the actual subdivision of the continuum to infinity, and the fact that motion involves something imaginary insofar as it is only a modification of extension and change of location, so that we cannot determine which of the changing subjects it belongs to, unless we have recourse to the

124. In the draft Arnauld received Leibniz wrote: "of another substance."

force which is the cause of motion and which is in corporeal substance. I confess that we do not need to mention these substances and qualities to explain particular phenomena, but for this we also do not need to examine God's concourse, the composition of the continuum, the plenum, and a thousand other things. I confess that we can explain the particularities of nature mechanically, but that can happen only after we recognize or presuppose the very principles of mechanics, principles which can only be established *a priori* by metaphysical reasonings. And even the difficulties concerning the composition of the continuum will never be resolved as long as extension is considered as constituting the substance of the bodies, and as long as we entangle ourselves in our own chimeras.

I also think that to want to limit true unity or substance almost exclusively to man is to be as shortsighted in metaphysics as were those in physics who wanted to confine the world in a sphere. And since there are as many true substances as there are expressions of the whole universe, and as many as there are replications of divine works, it is in conformity with the greatness and beauty of the works of God for him to produce as many substances as there can be in this universe, and as many as higher considerations allow, for these substances hardly get in one another's way. By assuming mere extension we destroy all this marvelous variety, since mass [*massa*] by itself (if it is possible to conceive it), is as far beneath a substance which is perceptive and representative* of the whole universe, according to its point of view and according to the impressions (or rather the relations) its body receives mediately or immediately from all others, as a cadaver is beneath an animal, or rather, it is as far beneath a substance as a machine is beneath a man. It is also because of this that the features of the future are formed in advance, and that the features of the past are conserved forever in each thing, and that cause and effect give way to one another* exactly up to the least detail of the least circumstance, even though every effect depends on an infinity of causes, and every cause has an infinity of effects; it would not be possible for this to happen if the essence of body consisted in a certain determinate shape, motion, or modification of extension. Thus, there is nothing of the kind in nature. Everything is strictly indefinite with respect to extension, and the extensions we attribute to bodies are merely phenomena and abstractions; this enables us to see how easily we fall into error when we do not reflect in this way, something so necessary for recognizing the true principles and for having a proper idea of the universe. [[And it seems to me that there is as much prejudice in refusing such a reasonable idea as there is in not recognizing the greatness of the world, the subdivision to infinity, and mechanical explanations in nature. It is as great an error to conceive of extension as a primitive notion without conceiving the true notion of substance or action as it was to be content considering substantial forms as a whole without entering into the details of the modifications of extension.]]

The multitude of souls (to which, in any case, I do not always attribute pleasure or pain) should not trouble us, any more than does the multitude of Gassendi's atoms, which are as indestructible as these souls. On the contrary, it is

a perfection of nature to have many of them, a soul or animated substance being infinitely more perfect than an atom, which is without variety or subdivision, whereas every animated thing contains a world of diversity in a true unity. Now, experience favors this multitude of animated things. We find that there is a prodigious quantity of animals in a drop of water imbued with pepper;[125] and with one blow millions of them can be killed [[neither the frogs of the Egyptians nor the quails of the Israelites, of which you spoke, Sir, approach this number.]] Now, if these animals have souls, we would have to say of their souls what we can probably say of the animals themselves, namely, that they were already alive from the creation of the world, and that they will live to its end, and that since generation is apparently only a change consisting in growth, so death will only be a change consisting in diminution, which causes this animal to reenter the recesses of a world of minute creatures* where perceptions are more limited, until the order comes, perhaps calling them to return to the stage. The ancients were mistaken in introducing the transmigration of souls instead of the transformations of the same animal which always preserves the same soul; they put *metempsychoses pro metaschematismis*.[126] But minds are not subject to these revolutions, [[or rather, the revolutions in bodies must serve the divine economy with respect to minds.]] God creates them when it is time and detaches them from the body [[(at least the coarse body)]] by death, since they must always keep their moral qualities and their memory, in order to be [[perpetual]] citizens of this universal, perfect republic, of which God is the monarch; this republic can never lose any of its members and its laws are superior to those of bodies. I confess that the body by itself, without the soul, has only a unity of aggregation, but that the reality inhering in it derives from the parts composing it, which retain their [[substantial]] unity [[through the countless living bodies included in them.]]

Nevertheless, although a soul can have a body made up of parts animated by other souls, the soul or form of the whole is not, as a consequence, composed of the souls or forms of its parts. It is not necessary for the two parts of an insect cut in half to remain animated, although there may be some movement in them. At very least, the soul of the whole insect will remain only on one side. And since, in the formation and growth of the insect, the soul was, from the beginning, in a certain part that was already living, after the destruction of the insect it will still remain in a certain part that is still alive, a part as small as is necessary for it to be protected from the action of someone tearing or destroying the body of that insect. Hence, we do not need to imagine, with the Jews, that there is a little bone of insurmountable hardness in which the soul takes refuge.

I agree that there are degrees of accidental unity,[127] that an ordered society has more unity than a confused mob, and that an organized body, or rather

125. Leeuwenhoek experimented with pepper water.

126. Change of souls in place of change of shape.

127. Arnauld stated that "although it is true that there is true unity only in intelligent natures, all of which can say *I* [*moi*], there are nevertheless various degrees in this improper unity suitable to the body" (G II, 88).

a machine, has more unity than a society, that is to say, it is more appropriate to conceive them as a single thing, because there are more relations among the constituents. But in the end, all these unities become realized only by thoughts and appearances, like colors and other phenomena, which, nevertheless, are called real. The tangibility of a heap of stones or a block of marble does not prove its substantial reality any more than the visibility of a rainbow proves its substantial reality; and since nothing is so solid that it does not have some degree of fluidity, perhaps this block of marble is only a heap of an infinite number of living bodies, or like a lake full of fish, even though these animals cannot ordinarily be distinguished by the eye except in partially decayed bodies. We can therefore say of these composites and similar things what Democritus said so well of them, namely, they depend for their being on opinion or custom.[128] And Plato held the same opinion about everything which is purely material. Our mind notices or conceives some true substances which have certain modes; these modes involve relations to other substances, so the mind takes the occasion to join them together in thought and to make one name account for all these things together. This is useful for reasoning, but we must not allow ourselves to be misled into making substances or true beings of them; this is suitable only for those who stop at appearances, or for those who make realities out of all abstractions of the mind, and who conceive number, time, place, motion, shape, [[and sensible qualities]] as so many separate beings. Instead I hold that philosophy cannot be better reestablished and reduced to something precise, than by recognizing only substances or complete beings endowed with a true unity, together with the different states that succeed one another; everything else is only phenomena, abstractions, or relations.

No regularity will ever be found which can make a true substance out of several beings by aggregation. For example, if parts fitting together in the same plan are more suitable for composing a true substance than those touching, then all the officers of the Dutch East India Company will make up a real substance, far better than a heap of stones. But what is a common plan other than a resemblance, or an order of actions and passions that our mind notices in different things? But if we prefer the unity of contact, we will find other difficulties. Perhaps solid bodies have nothing uniting their parts except the pressure of the surrounding bodies, and have no more union in themselves and in their substance than does a pile of sand without lime.[129] Why should several rings, interlaced so as to make a chain, compose a genuine substance any more than if they had openings so that they could be separated? It may be that no part of the chain touches another, and even that none encloses another, and that, nevertheless, they are so interlaced that, unless they are approached in a certain way, they cannot be separated, as in the enclosed figure. Are we to say, in this case, that the substance composed of these things is, as it were, in abeyance and dependent of the future skill of whoever may wish to disentangle them? These

128. See Diogenes Laertius, *Lives of the Eminent Philosophers,* IX 45 (Loeb ed., vol. II, pp. 454–55).

129. I.e., shifting sands with nothing to bind them.

are all fictions of the mind, and as long as we do not discern what a complete being, or rather a substance, really is, we will never have something at which we can stop; [[and this is the only way of establishing solid and real principles.]] In conclusion, nothing should be posited without good grounds. Therefore, those who imagine beings and substances without genuine unity are left to prove that there is more reality than what we have just said,[130] and I am waiting for a notion of substance or of being which can include all these things—after which mock suns* and perhaps even dreams will someday lay claim to reality, unless very precise limits are set for this *droit de bourgeoisie*[131] that is to be granted to beings formed by aggregation.

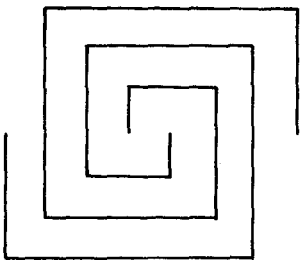

Figure 2

I have treated these matters so that you may be able to judge not only my opinions, but also, the arguments which forced me to adopt them. I submit them to your judgment, whose fairness and exactness I know. I also send something which you could have found in the *Nouvelles de la république des lettres,* to serve as a response to the Abbé Catelan.[132] I consider him an able man, given what you say of him; but what he has written against Huygens and against me makes it clear that he goes a little too fast. We will see what use he will make of this now.

I am delighted to learn of the good state of your health, and I hope for its continuation with all the zeal and all the passion which makes me what I am, etc.

P.S. I reserve for another time some other matters you have touched upon in your letter.

On Copernicanism and the Relativity of Motion (1689)[133]

Leibniz was in Italy from March 1689 to March 1690. While there, he wrote this essay, in which he confronts a particularly sensitive issue for his Italian colleagues, the Church's condemnation of Copernicanism, and offers an

130. Writing to Arnauld, Leibniz continued: "and to show what it consists in."

131. A kind of inferior citizenship.

132. The paper in question is probably the "Réplique de M. L. à M. l'Abbé D. C. . . . ," published in the *Nouvelles* in February 1687. It was part of the so-called *vis-viva* controversy. See the *Discourse on Metaphysics,* sec. 18.

133. Editors' title. C 590–93. Latin. On the identification of the text, see section 2 of Domenico Bertoloni Meli, "Leibniz on the Censorship of the Copernican System," *Studia Leibniziana* 20 (1988), 19–42.