The Correspondence between Leibniz and Arnauld

G. W. Leibniz and Antoine Arnauld

[Brackets] enclose editorial explanations. Small ·dots· enclose material that has been added, but can be read as though it were part of the original text. Occasional •bullets, and also indenting of passages that are not quotations, are meant as aids to grasping the structure of a sentence or a thought. Each four-point ellipsis . . . . indicates the omission of a brief passage that seems to present more difficulty than it is worth. –Leibniz was 34 years Arnauld's junior. Arnauld had had a distinguished exchange of views with Descartes 48 years before the time of the present exchange. –The nobleman through whom Leibniz and Arnauld communicated was a landgrave, German *Landgraf*, meaning a Count who ruled over his County—a kind of minor king. –In this version most of the polite modes of address and reference are replaced by pronouns and surnames. —Except for very short bits, anything by Arnauld, whether said directly or quoted by Leibniz, is in a slanted type similar to italics.

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As I have great regard for your judgment, I was delighted to see that you had moderated your criticism after seeing my explanation of the proposition that I consider important and you had found strange, namely that the individual notion of each person contains once for all everything that will ever happen to him. At first you took this to imply that from the single premise *God decided to create Adam* all other human events occurring to Adam and his posterity would have resulted through a fatal necessity, with God no longer being free to do what he wants with them, any more than he can *not create a creature that can think* after deciding to *create me*.

To this I had replied that because God's plans for this whole universe are interconnected in accordance with his sovereign wisdom, he didn't make any decision about Adam without making one about each thing in any way connected with Adam. What brings it about that God has made up his mind about all human events is not •his decision about Adam but •the decision taken at the same time about everything else, all this being in a perfect relationship with the one about Adam). I didn't see any 'fatal necessity' •in this, or anything contrary to God's freedom, any more than there is •in the uncontroversial hypothetical 'necessity' that even God is under, to carry out what he has decided.

In your reply you agree with me about this connection between divine decisions, and you have the honesty to admit that you had initially understood my proposition quite differently, because (using your own words):

> *It seems to me that we don't ordinarily think of the specific notion of a sphere in terms of •what is represented in the divine understanding, but in terms of •what it is in itself; and I thought that this was the case for the individual notion of each person.* [page 12]

As for me, I had believed that full and comprehensive notions are •represented in the divine understanding *as* •they are in themselves. But now that you know what my view is, you can go along with it and investigate to see if it clears up the difficulty; ·and it seems that you ought to concede that it *does*·. You seem to recognize that my opinion—explained in this way, as concerning full and comprehensive notions as they exist in the divine understanding—is not only innocent but even unquestionable. Here is what you say:

> *I agree that the knowledge God had of Adam when he decided to create him included the knowledge of everything that has happened to him, and of everything that did or will happen to his posterity; and so taking the individual notion of Adam in this sense, ·namely as defined by what is in God's mind·, what you say about it is quite certainly true.* [page 12]

I'll look into the question of why you still see a difficulty here; but before coming to that I shall say a little about why the notions of species differ from the notions of individual substances in ways that are relevant to our discussion. The reason is this: the notions of species contain only necessary or eternal truths, which don't depend on God's decrees . . . . , whereas any notion of an individual substance,

> which is complete and capable of uniquely identifying its subject, and which consequently includes contingent truths—truths of fact—and the individual details of time, place, and so on,

must also include free decrees of God, considered as possible, because such free decrees are the principal sources of existences or facts; whereas essences exist in the divine understanding independently of any thought of God's will.

That will help us to get a better grasp of everything else and to clear up the difficulties that seem still to remain in

my exposition, because you go on to say this:

> *It seems to me that I am still left with the question that creates my difficulty: Concerning the connection between •Adam and •everything that was to happen to him and his posterity—does that connection exist of itself, independently of all the free decrees of God or does it depend on those decrees? How did God know everything that would happen to Adam and his posterity? Was this knowledge a consequence of* **(a)** *God's own free decrees ordering everything that would happen to Adam and his posterity? Or was it rather a result of* **(b)** *·God's knowing all about· an intrinsic and necessary connection by which •Adam is linked, independently of God's decrees, with •what did and will happen to him and his posterity?* [page 12]

You take it that I'll choose **(b)**, because I said that God found among possible things an Adam who is detailed in such-and-such ways and who has among his predicates that of 'eventually having such-and-such a particular posterity'. And you think I'll concede that possible things are possible independently of any of God's free decrees. On the basis of this understanding of •my position regarding **(b)**, you hold that •it has insurmountable difficulties; for there is, as you very rightly say,

> *an infinity of human events that have occurred because of very particular orders of God—e.g. the Judeo-Christian religion and above all the Incarnation of the Divine Word. I don't know how it could said that all this* [which occurred through very free decrees of God] *was contained in the individual notion of the possible Adam, given that what is considered as possible must have all that one conceives of as belonging to it under this notion independently of the divine decrees.*

[page 13] I've tried to give an exact account of your difficulty, and now I proceed to resolve it, I hope to your satisfaction. For it must indeed be cleared up somehow, because it can't be denied that there really *is* such-and-such a full notion of Adam, complete with all his predicates and conceived of as possible—a notion that God knows before deciding to create Adam, as you have just conceded. The dilemma you confront me with—'Choose **(a)** or **(b)**'—can be escaped by a middle way: the connection that I conceive of between •Adam and •human events is *intrinsic*, but isn't *necessary* independently of the free decrees of God. Why not? Because the notion of the possible Adam involves God's free decrees, considered as possible, whereas the actual Adam is an effect of those same decrees when they became actual. I agree with you against the Cartesians that possible things are possible independently of any of all actual decrees of God, but not always independently of those same decrees considered as possible. For the possibilities of •individuals or of •contingent truths contain in their notion the possibility of their causes, namely God's free decrees; whereas the possibilities of •species or •eternal truths depend on God's understanding alone without bringing in his will in any way, as I have already explained.

That might be enough; but to make myself better understood I shall add this. I think there was an infinity of possible ways of creating the world according to the different designs that God could form, and that each possible world depends •on certain principal plans—certain *ends*—that are exclusive to it, i.e. •on certain primary free decrees (conceived of as possible) or laws of the general **order** of that possible universe, laws that fit it and determine the notion of the universe in question as well as the notions of all the individual substances that are to enter into it. That's because everything belongs to an **order**, even miracles, though

they are contrary to some secondary maxims or 'laws of nature'. Thus, given that Adam was chosen, no human event that actually ocurred could have failed to occur in exactly the way it did. But this is not so much •because of the individual notion of Adam (though it does contain all those events) as •because of God's plans, which are also included in this individual notion of Adam, and which determine the notion of this entire universe and consequently the notions of all the individual substances of this universe, including Adam. ·All those notions come into it· because each individual substance expresses the whole universe to which it belongs. . . .

The objection of yours that I have just dealt with concerned the apparently-contrary-to-liberty *consequences* of •my view about the notions of individual substances; but I see that you have another objection that has to do with •that view *itself* ·rather than with its supposed consequences·. It goes like this [not an exact quotation from Arnauld]:

> Since I have the notion of an individual substance, i.e. the notion of *Myself*, I should look to *it*—and not to God's way of conceiving of individuals—to get the truth about individual notions. And when I do this, I clearly find in the individual notion I have of myself that I shall be myself whether or not I go on the journey that I have planned; just as I find in the species-notion of *sphere* that this notion doesn't determine how big a sphere is.

Let me be clear about this: I agree that although the connection between events is •certain, it isn't •necessary, and that I am free to go on this journey or not. The notion of myself does contain *that I shall go on the journey*, but it also contains *that I shall go on the journey freely*. And in everything that can be conceived about me in general terms, i.e. in terms of essence or species-notion or incomplete notion, there is nothing from which it follows that I shall necessarily go on the journey (in the way it follows from my being a man that I am capable of thought); so if I don't go on this journey that won't conflict with any eternal or necessary truth. Still, since it is certain that I shall take the journey, there must be some connection between myself (the subject) and the carrying out of the journey (the predicate), because in a true proposition the notion of the predicate is always present in the subject. So if I didn't go on the journey there would be a *falsity* that would destroy •the individual or complete notion of myself, i.e. what God conceives of me or did conceive of me even before deciding to create me; because •this notion includes—as possibilities—

> existences,
> truths of fact,
> God's decrees, on which facts depend.

But I needn't go into all that in order to make the point that if A is B then anything that isn't B isn't A either; so let 'A' stand for Myself and let 'B' stand for someone who will go on that voyage; then it follows that someone who won't go on that voyage isn't me; and this conclusion can be drawn simply from the certainty of my future voyage, with no need to attribute it to the proposition in question.

I also agree that if I am to judge concerning the notion of an individual substance, I would do well to consider the notion I have of myself, just as I need to consider the species-notion of *sphere* in order to judge concerning the properties of spheres—although there's a big difference here. For the notion of myself, like that of every other individual substance, is infinitely fuller and harder to take in than the species-notion of *sphere*, which is incomplete and doesn't contain all the details needed to pin down one particular sphere. What am I? To grasp the answer to that it isn't enough for me to •feel myself to be a thinking substance; I

would have to form a clear idea of what distinguishes me from all other possible minds, and that's something I have only a confused •experience of. The upshot of this is that while it is easy to judge that a sphere's size is not contained in the general notion of *sphere*, it's not so easy to judge with certainty (though it can be judged with a fair degree of probability) whether the journey that I plan to take is contained in the notion of me. If there weren't that difference, it would be as easy to be a prophet as to be a geometer! However, just as experience can't put me in touch with an infinity of imperceptible material things of whose existence I am convinced by general considerations about the nature of the body and of motion, so also •experience doesn't make me •feel all that is contained in the notion of me; yet I can know in a general way—through general considerations of what an individual notion is—that everything having to do with me is included in my individual notion.

Certainly, since God can and actually does form this complete notion whose content accounts for all the facts about me, this notion is *possible*, and it is the genuine complete notion of what I call *Myself*, by virtue of which all my predicates belong to me as their subject. So the whole proof could go through without any mention of God except as much as is necessary to indicate my dependence ·on him·; but this truth is expressed more *strongly* when the notion in question is derived from its source in God's mind. Admittedly there are plenty of things in God's knowledge that we can't understand, but it seems to me that we needn't dig into those in order to resolve our problem. Moreover, there is no obstacle to our saying that

> if in the life of some person (or in the course of this entire universe) something had happened differently from how it actually did, it would be another person (or another possible universe) that God would have chosen—other, that is, than the actual person (or universe).

Furthermore, there must be an *a priori* reason (independent of my experience) that makes it true to say that it is I who was in Paris and that it's still I and not someone else who am now in Germany, and consequently the notion of myself must connect or include the different states. [•Leibniz means that there must be something that *makes it the case* that this was one person all through, as distinct from something that *convinces us* that it was one person all through. See the note on '*a priori*' on page 20.] Otherwise it could be said that it's *not* the same individual, though it appears to be. And indeed certain philosophers who didn't know enough about the nature of substance and of indivisible entities or entities *per se* have thought that nothing remains truly the same. And that is *one* of my reasons for holding that bodies wouldn't be substances if there were nothing to them but extension. [An entity *per se* (Latin for 'entity through itself') is something whose own inherent nature qualifies it as a single thing, in contrast with 'entity *per accidens*', something that happens to count as a single thing because of how it relates to people's interests, how its parts spatially relate to one another, or the like.]

I think I have now cleared up the difficulties involving the main proposition. But since you also make some weighty remarks about things I said in passing, I'll try again to explain what I meant by them.

I had said that all human events can be deduced not from the creation of an indeterminate Adam but from the creation of a particular Adam complete in all his details, chosen from among an infinity of possible Adams. You have two substantial things to say about this.

(1) You rightly say that it's no more possible to conceive of many possible Adams—taking Adam as an individual nature—than to conceive of many *myself* [*plusieurs Moi*]. I agree, but in speaking of 'many Adams' I wasn't taking Adam

to be a determinate individual, but rather as someone or other conceived of in general terms, through features that seem to us to pin down Adam as an individual but don't really do so. For example, suppose Adam is thought of as someone who

> is the first man,
> is placed by God in a pleasure garden,
> leaves the garden because of sin, and
> has one of his ribs used by God to make a woman.

(We mustn't name Eve or Paradise in this, taking them to be determinate individuals, because then we wouldn't be trying to characterize Adam in purely *general* terms.) This doesn't pin down Adam as an individual; if *that* ·list of features· is what we take 'Adam' to stand for, there are many disjunctively possible Adams, i.e. many ·possible· individuals whom all of that would fit. And that will be true however long we make the list, i.e. whatever finite number of predicates (incapable of determining all the rest) we take. A notion that determines a certain ·individual· Adam must contain absolutely all his predicates, and it is this *complete* notion that determines general considerations to the individual [presumably meaning: 'offers a general description, piling on so much detail that eventually it fits only one possible individual']. I would add that I am so far removed from allowing a plurality of one individual that I'm quite convinced that what Aquinas taught regarding intelligences is true of ·individual substances· in general, namely that there can't possibly be individuals that are entirely alike, differing in number only [see note on page 19].

(2) You also question the reality of purely possible substances, i.e. ones that God will never create. You report being much inclined to think that they are chimeras [= 'figments of the imagination'], and I don't oppose that if you mean by it (as I believe you do) that their only reality is in the divine understanding and in the active power of God. So you see that we *do* have to bring in divine knowledge and power in order to explain them properly! I also find what you say afterwards to be very solid:

> *No-one ever conceives of any 'purely possible substances' except guided by the thought of one or other of the substances that God has created*

(or guided by ideas contained in ·the notion of· one or other of those substances). You go on to say:

> *Our picture of God's activity goes like this: Before he willed the creation of the world, God surveyed an infinity of possible things of which he chose some and rejected others—many possible Adams, each with a long series of resulting people and events with which he is intrinsically connected. Any one of these possible Adams is connected with the items in his series in just the way that the created Adam is (as we know) connected with the whole of his posterity. So this is the one among all the possible Adams that God chose; he didn't want any of the others. [page 14]*

[In this quotation from Arnauld, Leibniz interpolated '(first men)' after each of the first two occurrences of 'possible Adams']. I admit this that is how I think about this matter, provided •that the plurality of 'possible Adams' is understood in the way I have expounded, and •that all this is taken in such a way that it squares with our conception of God's thoughts and operations as *ordered*. You seem to acknowledge that this line of thought comes naturally to—and even that it can't be avoided by—anyone who thinks a little about this subject. Perhaps it displeased you only because you thought that the 'intrinsic connection' that is involved can't be reconciled with God's free decrees. Anything *actual* can be conceived of as *possible*, and if the actual Adam turns out to have a particular posterity, this same predicate can't be denied to him when he is conceived of as possible—especially given

your concession that God has all these predicates in mind when he decides to create Adam. So he does have them, and I don't see that your remark about the reality of possible things contradicts this. For something to count as *possible*, according to me, all that is needed is that there *can* be a notion of it, even if only in the divine understanding—which is the land of possible realities, so to speak. Possibilities are all right as long as one can build them into true propositions, e.g. in judging that *A perfect square doesn't imply a contradiction*, when there is no perfect square in the world. If we entirely rejected purely possible things, we would be destroying contingency and liberty. Here is the argument for that:

- Nothing is possible except what God in fact creates; so
- everything that God creates is necessary; and so
- when God wants create something, he has no freedom of choice about what to create.

All this makes me hope . . . . that in the end your thoughts will be closer to mine that they at first appeared to be. You agree that God's decisions are interconnected; you recognize that my article 13, when taken in the sense I gave it in my reply, is unquestionable. You were rightly distressed at the thought that I was making the connection—·e.g. between Adam and his posterity·—independent of God's free decrees; but I have shown you that according to me the connection does depend on those decrees, and that it isn't necessary though it is intrinsic. You pressed an objection to my saying that if I don't take the journey that I am supposed to take I shan't be myself, and I have explained how this might be all right to say and how it might not. Finally, I have given a decisive argument—one that I think has the force of a demonstration—that always, in every true affirmative proposition, necessary or contingent, universal or particular, the notion of the predicate is somehow included in that of the subject—*praedicatum inest subjecto* [Latin], or I don't know what truth is! [When Leibniz speaks of the 'terms' of a 'proposition', e.g. saying things like

- In the proposition *Adam sinned*, the terms of the proposition are Adam (the subject) and sinning (the predicate),

he **does not** mean anything like

- In the sentence 'Adam sinned', the subject is the noun 'Adam' and the predicate is the verb 'sinned'.

Rather, he means something more like

- In the fact that Adam sinned, the subject-ingredient is the man Adam and the predicate-ingredient is the activity of sinning.

So the language of 'propositions' and 'predicates' is about things and their properties, not about nouns and verbs.] Now, I don't ask for any more connection here than there is out there in the world between the terms of a true proposition, and it's only in *that* sense that I say that the notion of the individual substance contains all the events it ever goes through and everything else that is ever true of it, even the ones that are commonly called 'extrinsic'—·I mean such relational properties as *spending time in a garden* and *listening to a snake*·, which the individual has only because of the general connection of things and of the fact that the individual expresses the entire universe in its own way. I say this because there must always be some *basis* for the connection between the terms of a proposition, and it can be found only in their notions. This is my great principle with which I believe all philosophers must agree. One of its upshots is the common axiom that when anything happens there's a givable reason why it happened like that rather than in some other way. In many cases this reason inclines without necessitating, ·but nothing can happen without there being at least an inclining reason for it to happen; the alternative is· a state of perfect indifference, and that is a chimerical or incomplete supposition. [Those last seven words are an example of Leibniz's skillful though not always helpful use of extreme compression. What he means here is something like this: If you think you have a respectable conceptual picture of a state of perfect indifference then either you are merely fantasizing or you are thinking of something that isn't in a state of perfect

indifference but you are leaving out whatever it is that tilts it in one direction.] Consequences that I draw from the above-mentioned principle take people by surprise, but that is only because they aren't accustomed to pushing through hard enough the things that they clearly know.

I should add that the proposition we have been discussing is very important and deserves to be firmly established. It implies that every individual substance expresses the entire universe in its own way, ... i.e. according to the point of view from which it looks at the universe (so to speak); and that each of its states is an upshot (though free or contingent) of the preceding state. Thus each individual substance or complete entity is like a world apart, independent of everything except God; it's as though the world contained only God and this one substance. This is the most powerful demonstration that there is not only for

(1) the thesis that our soul is indestructible, but also for
(2) the thesis that our soul stores within itself traces of all previous states and
(3) retains a potential memory ·of them· that can always be aroused, because
(4) the soul is self-conscious—i.e. is familiar within itself with what everyone calls 'Myself'.

[It is not clear in the original whether **(4)**is offered as evidence for **(3)** or rather as what makes **(3)** true.] It's because of **(3)** that **(5)** the soul is capable of having moral qualities and is liable to receive reward and punishment, even after this life. For immortality without memory—·i.e. **(1)** without **(3)**·—would be useless.

But this independence ·from everything except God· doesn't prevent commerce [see note on page 23] between substances. All created substances are being continually produced by the same sovereign being in accordance with the same plans, and they express the same universe; so what goes on in any one of them is in perfect harmony with what goes on in all the others, and that opens the way for us to say that one substance 'acts on' another. What makes it all right for us to say that at a given time x 'acts on' y is that at that moment x expresses more clearly than y the cause of or reason for the changes ·in both of them·. Here is a comparable example [spelling it out a little more fully than Leibniz does]:

> We may accept a theory according to which motion is always relative, so that in any case of motion the rock-bottom fact is that the spatial relation between two things alters; down at that basic level there is no basis for saying of two things that one stays still while the other moves. But we *do* use the language of motion and rest—'the ship moves through the sea (which doesn't move)'—and this is an acceptable way of speaking, because it is governed by known criteria.

In my view *that* is how we must understand the commerce between created substances—*not* in terms of a real physical influence or dependence, which is something we can never think about clearly.

That's why many people, when thinking about the soul's union with the body and about whether a mind can act on or be acted on by another created thing, have been forced to accept that **(a)** direct physical commerce [= outright causal influence] between them is inconceivable. But it seems to me that the hypothesis of **(b)** occasional causes [see page 23] doesn't give the philosopher what he wants, because it introduces a sort of continual miracle, with God constantly changing the laws of bodies on the 'occasion' of events in minds or changing the laws of minds so as to give them certain thoughts on the 'occasion' of the movements of bodies. This theory implies that God's ordinary dealings with the world involve ad hoc interferences that go far beyond maintaining each substance in its course of action and in the laws established

for it. So the only hypothesis that gives the facts an explanation that is both intelligible (·unlike **(a)**·) and worthy of God (·unlike **(b)**·) is the theory of the **(c)** concomitance or harmony between substances. In my opinion, ·**(c)** isn't merely the best hypothesis we can find·; the proposition that I have just demonstrated makes **(c)** inevitable, rigorously *proved*. It seems to me also that **(c)** agrees much better with the liberty of thinking creatures than does either **(a)** the hypothesis of causal influence or **(b)** that of occasional causes. God created the soul in such a way that ordinarily he has no need of these changes. What happens in the soul comes to it from its own depths; it doesn't have to change course so as to fit what the body is doing, any more than the body has to adapt itself to the soul. With each of them obeying its own laws—one of them freely, the other acting without choice—they come together in the same phenomena. But the soul *is* the form of its body—·as the Aristotelians say it is·—because it expresses the states of all other bodies in accordance with their relations to its own body.

It may be found more surprising that I deny that any bodily substance can act on any other .... But I am by no means the first to have taken this line; and anyway I put it to you that *physical causal influence* is a •play of the imagination rather than a •clear concept. If the body is a substance and not

- •a mere phenomenon like the rainbow, or
- •an entity that is 'united' only in the casual loose way in which a heap of stones gets to count as *on*e heap,

then it can't consist of extension; and we have to think of it as involving something called 'substantial form', something that corresponds, in a way, to what we call the soul. I came to be convinced of this, *finally*, as though against my will—having first had views that were very different. But however much I agree with the Scholastics in this •general explanation of the principles of bodies—this metaphysical explanation of them, so to speak—I am as corpuscular as one can be when it comes to explaining •particular phenomena; ·'explaining' those by· saying that 'the things have forms or qualities' is saying *nothing*. Nature should always be explained in terms of mathematics and mechanisms, provided one knows that the principles or laws of mechanics or of force ·used *in* the explanations· don't themselves depend on mathematical extension alone but on certain metaphysical reasons.

After all that, I believe that now the propositions contained in the summary that was sent to you will appear not only more intelligible but perhaps even more solid and important than you could initially have thought them to be.

9. Leibniz to Arnauld, 4.vi.1686

[This letter goes on at considerable length expressing Leibniz's admiration for Arnauld, his sense of the importance of getting agreement with him, his gratitude to Arnauld for giving time to Leibniz's work when there are other more urgent calls on his time. And so on. Then:] I must take this occasion to tell you of certain thoughts I have had since I had the honour of meeting you. [He reports his interest in a properly organized jurisprudence, which would be worthwhile for theoretical and practical purposes. His interest in mines, and some discoveries he has made relating to that interest, e.g. his discovery of how slate is formed. His researches into the history of Brunswick, including a recent discovery of a document seeming to imply that, contrary to common opinion, the Emperor Henry II did have sexual relations with his wife, Saint Cunegond. Then:] Also, I have often passed the time with abstract thoughts of metaphysics or of geometry. I have discovered and published a new method of *tangents*.

[Leibniz goes into the technical reasons why his work on this topic is more powerful than that of two others whom he names; and also claims that his work shows that certain things that Descartes wanted to exclude from geometry really do belong there. He remarks that 'the English' have highly praised this work of his, and says that it constitutes a giant stride forward for 'analysis'. Then:] And as for metaphysics, I claim to give rigorous proofs in it, using hardly any premises other than these two:

(1) the principle of contradiction,

·which must be all right, because· if it were false then two contradictory propositions could be true at the same time, and all reasoning would become useless; and

(2) the thesis that nothing exists without reason,

i.e. that every truth has its a priori proof, derivable from the notions of its terms; although *we* aren't always able to achieve this analysis. I bring all mechanics down to a single metaphysical proposition; and I have ·established· many important geometrical propositions about cause and effect, and concerning ·geometrical· congruence, which I define in a way that lets me demonstrate easily ·and straightforwardly· many truths that Euclid handles in a round-about way. I should add that I don't care for the procedure of those who when they run out of proofs resort to their 'ideas'. They are relying on the principle that every vivid and clear conception is good, but they are misusing it. [•'vivid and clear' translates *claire et distincte*. The standard translation, 'clear and distinct', is wrong. See note on page 1. •The next sentence expands what Leibniz wrote in a way that the ·small dots· convention cannot easily handle.] I contend that we oughtn't to avail ourselves of any premise saying that we have a *clear* idea or item of knowledge unless we base this on •*signs* of clarity, *criteria* for something to count as clear; a mere strong conviction that something in one's mind is clear isn't good enough; but it is all that the people I am criticizing here have to go by. Sometimes we think not with ideas but with mere *words*—ones that we wrongly think we have meanings for!—and this can lead us to form impossible chimeras ·in place of ideas·. The •sign of a true idea, I hold, is that one can prove it to be ·an idea of •something that is· possible—either *a priori* by conceiving •its cause or reason, or *a posteriori* when experience tells us that •it does exist in nature. That gives me my way of distinguishing •real definitions from •nominal ones: a definition is real when one knows that the thing defined is possible; any other definition is only nominal, and isn't to be trusted. [Leibniz goes on to say that Arnauld had rightly taken the same line in a criticism of Malebranche; and he winds up the letter with a further flourish of compliments.]

10. Leibniz to the Count, 14.vi and 2.viii.1686

I beg you to ask Arnauld certain questions, as though they were your own. **(1)** Does he really think it is so very wrong to say that every species, every individual thing, and every individual person has a certain perfect notion which includes everything that can be truly said about it; and that it is through this notion that God, who conceives of everything in an absolutely complete way, conceives of the thing in question? **(2)** Does he sincerely think that someone who held this opinion couldn't be tolerated in the Catholic Church, even if he sincerely denied the doctrine of fatal necessity that is *said* to follow from it? And you might also ask him (·if he says Yes to the second question·): **(3)** How does he reconcile that answer with what he has written in the past, that in the Church a man wouldn't be troubled for his views on this sort of thing? And also: **(4)** Casually condemning all sorts

of opinions that have nothing in common with faith—isn't that rebuffing people with needless and untimely severity? [Leibniz then adds a paragraph defending the view of his that has caused all the trouble, among other things citing a thesis of Aquinas's which gives to his (Leibniz's) position a certain innocence by association [see page 28].]

[A fortnight later Leibniz wrote to the Count about a book that he had returned to him by post, and adding:] I took the liberty of adding to the parcel a letter and some documents for Arnauld. And I cherish some hope that when he has read them his insight and sincerity may cause him to express complete approval of what had appeared strange to him at the outset. [There is more along the same familiar lines, including a renewal of the view that the church should and sometimes does tolerate errors, even ones 'that are thought to be destructive to the faith', if the person whose errors they are doesn't think that they have such an effect. For example:] The Thomists say that the Molinist hypothesis •destroys God's perfection, while the Molinists imagine that the Thomist doctrine of predetermination •destroys human liberty; but the Church hasn't yet ruled on this, so that neither group can be thought to be heretics or their opinions heresies.

[There is no evidence that the Count agreed to act as Leibniz's front man, and some that he wouldn't have been willing to do so. In this Leibniz-Arnauld context the Count seems to have written to Leibniz only twice more. One of the letters, about Leibniz's soul, will be reported in item 18 below (page 60. The other said:] I enclose a letter from Arnauld [item 11 below] which through some negligence has been here for two weeks. I have been too busy to read it; and anyway these matters are far too lofty and speculative for me.

11. Arnauld to Leibniz, 28.ix.1686

. . . . Nothing could be more open and polite than the way you accepted my apologies. That was more than enough to make me decide to acknowledge sincerely that I am satisfied by your explanation of your thesis about the notion of an individual nature [here = 'individual thing']—the thesis that had at first shocked me. . . . I was especially struck by the argument that in every true affirmative proposition—necessary or contingent, universal or particular—the notion of the attribute is included somehow in the notion of the subject: the predicate is present in the subject.

The only difficulty that remains for me concerns the possibility of things, and your line of thought about the actual universe being the one that God chose to create, out of an infinity of other possible universes that he saw at the same time and did not will to create. But that isn't strictly relevant to the notion of an individual nature, and anyway it would take me too long to work out ways of making clear •my views on that subject—or rather •what I object to in the ideas of others because they seem to be unworthy of God; so you'll agree with me that I had better say nothing about it!

There are, however, two things in your last letter which strike me as important but which I don't clearly understand. Please clarify them for me. ***(i)*** *You write of 'the concomitance or harmony between substances', and claim that we need this hypothesis if we are to explain •what happens in the union of soul and body, and •what it is for a mind to act on or be acted on by another created thing. I don't understand your account of this view, which you say conflicts both with •the thesis that soul and body act physically on one another, and •with the view that God alone is the physical cause of these effects, and that soul and body are only their occa-*

sional causes. You say:

> God created the soul in such a way that ordinarily he has no need of these changes. What happens in the soul comes to it from its own depths; it doesn't have to change course so as to fit what the body is doing, any more than the body has to adapt itself to the soul. Each of them obeys its own laws—one of them freely, the other acting without choice. [page 31]

You can make your thought better understood by examples. Someone wounds me in the arm. So far as my body is concerned this is only a bodily movement, but my soul immediately feels a pain that it wouldn't have felt if my arm hadn't been damaged. What causes this pain? You won't allow that my body caused it, or that it was caused by God's creating the pain on the 'occasion' of the damage to my arm. So it has to be your view that the soul itself causes the pain*, and this is what you mean when you say that* what happens in the soul on the occasion of the body comes from its own depths. Augustine was of this opinion, because he believed that bodily pain was nothing but the soul's sadness over the trouble of its body. *But this is open to an objection:*

> *On this view the soul must know that its body is in trouble before being sad about it. But it seems that in fact it's the pain that gives the soul its ·first· warning that the body is in trouble.*

How are you going to respond to that? Let's take another example, in which my body makes a certain movement on the occasion of my soul. If I want to take off my hat, I raise my arm. This upward movement of my arm is not in accordance with the ordinary rules of movements. What then is its cause? It is that the spirits that have entered certain nerves have swollen them. [This reflects the then-popular theory that human physiology involves 'animal spirits'—an *extremely* finely divided fluid that transmits pressures through tiny cracks and tunnels—the body's 'hydraulic system', as it has been called.] *But these spirits haven't* determined themselves *to enter these nerves; they haven't given themselves the movement that has driven them into these nerves. So who* has *given it to them? You won't allow that God caused them to move on the occasion of my wanting to raise my arm. And you won't admit either that the spirits are caused to move through physical influence from the soul, apparently because you think that no substance acts physically on any other.* ***(ii)*** *I would also like help in understanding this:*

> If the body is a substance and not a mere phenomenon like the rainbow, or an entity that is 'united' only in the casual loose way in which a heap of stones gets to count as *on*e heap, then it can't consist of extension; and we have to think of it as involving something called 'substantial form', something that corresponds, in a way, to what we call the soul. [page 31]

This raises many questions.

(1) *Our body and soul are two substances that are really distinct. Now, if the body has a substantial form in addition to extension, one can't imagine that they—the body and this substantial form—are two distinct substances. So what can this substantial form have to do with what we call the soul?*

(2) *Is this substantial form of the body •extended and divisible or •unextended and indivisible? If you say 'the latter', it seems to follow that the substantial form of the body is indestructible in the way our soul is. And if you say 'the former', the ·so-called substantial form· hasn't done anything towards making the body in question intrinsically* one *rather than accidentally* one *like a heap of stones. What makes it hard to think of a merely extended body as intrinsically unitary is, precisely, its being divisible into an infinity of parts; and a substantial form won't fix that if •it is as divisible as •extension itself.*

(3) *Does the substantial form of a block of marble make it* one*? If so, what becomes of this substantial form when the block stops being* one *because it has been broken into* two*? ·There seem to be just two possible answers·:*

- ***(a)*** *The substantial form is destroyed. But that's impossible if this substantial form is itself a substance. One might say: 'It isn't a substance—it's a state or property of the body'; but that would make it a state or property of extension; and it seems that you don't accept that.*
- ***(b)*** *The substantial form becomes* two*. But if this substantial form can go from being one to being two, why shouldn't we say as much about extension alone without this substantial form?*

(4) *Do you assign to extension a general substantial form like the one certain Scholastics have accepted under the label 'the form of corporeity'* [= 'the form of bodyness']*; or do you hold that there are as many different substantial forms as there are different bodies, and as many species-forms as there are different species of bodies?*

(5) *We say that there is only* one *earth that we inhabit, only one sun that gives us light, only* one *moon that turns around the earth in so many days? Where do you place the substantial forms that make these statements true? Do you think, for example, that the earth, composed of so many different kinds of parts, gets its unity from a substantial form that it has all of its own? There is no indication that you think so. I'll raise the same question about a tree, about a horse. And from there I shall pass to mixtures such as milk: it is made up of whey, cream and curds; does it have three substantial forms or only one?*

(6) *It will be said •that it's not worthy of a philosopher to admit entities of which we has no vivid and clear idea; •that we* don't *have any such idea of these 'substantial forms', and •that you yourself hold that they can't be proved by their effects, because you acknowledge that all the particular phenomena of nature must be explained by the corpuscular philosophy, and that introducing substantial forms ·into such explanations· is 'saying nothing'.*

(7) *Some Cartesians have tried to find unity in bodies by denying that matter is infinitely divisible, saying that we must admit indivisible atoms. But I don't think that you share their opinion.*

[Arnauld now switches to a new topic, Leibniz's paper 'Brief demonstration of a memorable error of the Cartesians', which Leibniz had sent to him along with the letters of July 1686.] *I have studied your little article and found it very subtle. But be warned: the Cartesians may be able to answer you that your attack doesn't hurt them because it seems to assume something that they believe to be false, namely when a falling stone speeds up during its fall, it* gives itself *that increasing velocity. They will say •that this acceleration comes from the corpuscles ·that the falling stone displaces·, which as they rise cause everything they find in their path to fall, and transfer to them a part of their motion; and •that it's therefore not surprising that body B, having four times ·the mass of· body A, has more motion when it has fallen one foot than A has after falling four feet. It's because the corpuscles that have pushed A or B have communicated to that body motion proportionate to its mass. I don't say that this reply is correct, but I think you should at least work on it to see whether it achieves anything. And I would really like to know what the Cartesians* have *said about your paper. . . .*

I don't want to distract you from any *of your pursuits—even the minor ones—in order to deal with the two doubts that I have put to you. Deal with them as you please and at your leisure.*

I would greatly like to know whether you have brought to the pitch of perfection two machines that you invented when you were in Paris: •*a machine for doing arithmetic, which seemed to work much better than Pascal's, and* •*a watch that kept perfect time.*

12. Leibniz to Arnauld (draft), about 30.ix.1686

The hypothesis of concomitance is a consequence of the notion I have of substance. In my view the individual notion of a substance contains everything that is ever to happen to it; and this is what makes the difference between •complete entities and •incomplete ones. [Incomplete entities might be such items as the blush on someone's face, the height of a mountain, and so on. Elsewhere in this correspondence Leibniz writes only of incomplete *notions*, usually with his favourite example, the notion of *sphere*.] Now, since the soul is an individual substance, its notion or idea or essence or nature must include everything that is to happen to it; and God, who sees it through and through, sees everything that it will *ever* do or have happen to it, and all the thoughts it will have. So, since our thoughts are only consequences of the nature of our soul, and arise in it by virtue of its *notion*, there's no point in requiring another particular substance to exert an influence—even supposing such influence made sense, which it doesn't. It's true that certain thoughts occur to us when certain bodily movements are happening, and certain bodily movements occur when we are having certain thoughts; but that is because each substance expresses the whole universe in its own way, and it can happen that one expression of the universe constitutes a movement in the body and another constitutes a pain in the soul. Some of our turns of speech seem to suggest that the soul acts on the body and vice versa, but that is just a manner of speaking. In any given case, ·we attribute activeness to substance x—calling it 'the cause'· of what happens in substance y—·because x's expression of the universe is clearer than y's·. Here is an analogous case [expanded a little in ways that small dots can't easily indicate]:

> Here is a ship moving through the ocean; we have here **(1)** the movement of the ship and **(2)** an infinity of movements by the parts of the water. We *say* that the ship's movement causes the water's movements, but this can't be strictly objectively true. All motion is relative, so that the basic fact is just that some spatial relations between the ship and some particles of water have altered; and there is no mathematically precise basis for saying of anything that *it* moved while *the rest* didn't. But the clearest account we can give of what is going on says that the ship moves through the water and the water-particles move so as to fill by the shortest possible path each place that the ship vacates.

Although the ship is not an efficient physical cause of these effects, the idea of it is (so to speak) their final cause—or if you like their exemplary cause—in God's understanding. [For 'final cause' see the note in item 22 on page 3.] An exemplary cause in God's understanding is something that God steered by, had in mind as a picture of what he was aiming at, when engaged in his creative activity. If you want to learn whether something real exists in motion, try this thought-experiment: think of God as setting out to produce all the changes of location in the universe that would occur if this vessel were producing them by sailing through the water. If *that* is what he was aiming at, wouldn't we get precisely what we *do* get? It is impossible to establish any real difference.

Speaking in precise metaphysical terms, it is no more correct to say that •the ship pushes the water to make these many circles that serve to fill in behind the ship than it is to say that •the water is pushed ·by something· to make all these circles and that it pushes the ship to move accordingly. But our only way of accounting for all these circular movements is to say that God deliberately chose to make the water move in harmony ·with the movement of the ship·; and since it is unreasonable to bring in •God to explain detailed facts, we bring in •the ship. Still, in the last analysis the harmony among the phenomena [here = 'the life-histories'] of all the different substances comes only from their all being produced by a single cause, namely God, who makes each individual substance express the decision he has made regarding the whole universe.

·Don't think of ship-in-water as a special case·. In *every* phenomenon, large or small, there is just one hypothesis that serves to explain clearly the whole phenomenon. That is what is going on when we explain pains in terms of bodily movements ·such as the puncturing of the skin by a knife·: we handle the situation in that way because it provides us with something *clear*. And that is useful to us for acquiring or preventing phenomena. [The rest of this paragraph is extremely compressed. Here now is a fairly conservative translation of it, followed by a less dense paraphrase. Numerals are inserted as an aid to connecting the two.] However, **(1)** so as not to put anything forward without necessity, **(2)** all we do is to think; so **(3)** all that we can acquire are thoughts, and **(4)** phenomena are only thoughts. But because **(5)** not all our thoughts are efficacious, and **(6)** they are ·often· useless for bringing to us others of a certain nature, and because **(7)** we can't possibly decipher the mystery of the universal connection between phenomena, **(8)** we must take notice, through experience, of those that bring them to us at other times. **(9)** And the use of the senses and what is called external action consists in this.

·WHAT LEIBNIZ WAS GETTING AT IN THAT PASSAGE·

(1) In any theoretical project it's a mistake to say things that you don't need to say. **(2)** Any account of *us* has to credit us with having mental states and performing mental actions (here called 'thoughts', for short, following Descartes); but that is all it has any need to say. We are under no pressure to credit ourselves with more than that. So **(3)** all that we can get—all that we can want or fear—are thoughts, states of our own minds. What about such phenomena as being cut by a knife or seeing a fine picture? **(4)** Those too are only thoughts; our attitudes to them are basically just attitudes to our having certain mental states—'thoughts' for short. **(5)** Plenty of our thoughts don't lead to anything, so far as we can tell; and **(6)** if, for instance, I want to avoid a sensation of pain that I think may be threatening me, I don't have in my repertoire any thought—any mental action—that will fend off that sensation. **(7)** All the events in my mental life are connected with one another in some grand over-arching plan or system; can't I consult *that* in order to learn how to avoid this perhaps-coming pain? No! Working out the details of that plan or system is something I can't possibly do. **(8)** So the best I can do is to remember past occasions when pain seemed to threaten and I avoided it; I have to remember what I physically did on those occasions, i.e. remember what sensations I gave myself, to see if there is something I can do on the present occasion. Of the past occasions I can remember that were like the present one, the ones where I didn't suffer pain were ones where I gave myself the complex sensory state that goes with what I call 'putting up a shield in front of me'; that is a sensory state I can give myself now; I'll give it a try. **(9)** In all this I have taken what we ordinarily call 'consulting our senses to see what is going on in the

world', and redescribed it in the more fundamentally truthful manner that reflects our being only things that think. ·From now on, I shall move from that basic level to the more usual and comfortable level at which we are said to have minds and bodies, or at any rate to be minds that have bodies, though there will be passing references to this idea on each of the next two pages and in some later passages·.
·END OF DECOMPRESSION·

The hypothesis of the harmony among substances follows from what I have said about each individual substance containing for ever all the events that will occur to it, and expressing the whole universe in its own way—so that what is expressed in the body by a movement may be expressed in the soul by a pain. Since pains are only thoughts, it's not surprising that they should be consequences of a substance whose nature is to think. And if certain thoughts are repeatedly associated with certain movements, the reason is that God at the outset created all substances so that subsequently all their phenomena might correspond, with no need for two-way physical influence (which seems not even to make sense). Descartes may have been in favour of this concomitance rather than the hypothesis of occasional causes; he didn't explicitly give his opinion on this point, so far as I know.

I'm surprised at your remarking [page 34] that Augustine expressed views like mine when he maintained that pain is nothing but the soul's sadness over the troubles of its body. This great man certainly probed deeply into things. But why does the soul feel that its body is in trouble? Not •through being causally influenced by the body, and not •through a message sent on this particular occasion by God. Rather, it is •because it's the nature of the soul to express what happens in bodies, being created at the outset in such a way that the series of its thoughts would harmonize with the series of movements.

The same can be said of the upward movement of my arm. What makes the spirits enter nerves in a certain way? I reply that the ordinary laws of motion are at work in the production of this effect both by •the impression made by ·other· objects and by •the way the spirits and nerves are arranged within the body. But by the *general* harmony of things this whole ·complex physiological· event occurs only when there is also occurring in the soul an act of will—the one to which we ordinarily ascribe the operation. So souls make no change in bodily order, nor bodies in the order of souls. (That is why 'forms' mustn't be used to explain natural phenomena.)

One soul doesn't cause any change in the thought-series of another *soul*, either. Quite generally, no individual substance has any physical influence on any other. . . . But it is all right to say things like 'An act of my will caused this movement of my arm' and 'That damage to my body causes this pain'. ·Such a statement is acceptable if· one of the items expresses clearly what the other expresses more confusedly, and the statement casts in the role of the agent, i.e. the cause, the one whose expression is clearer. All the more so because that's all we need in practice for acquiring phenomena—·i.e. for getting the mental states and events that we want·. If ·the item that we pick on as 'the cause·' isn't a physical cause, we can call it a final cause—or, to put it better, an *exemplary* cause, i.e. when God was deciding on the course of events in the universe as a whole, the notion of this item in God's understanding contributed to his decision about how things were to go in this particular case.

The other difficulty—about substantial forms and the souls of bodies—is incomparably greater, and I admit to being unsure what to think about it. First, one would have to be sure that bodies are •substances and not merely •true phenomena, like the rainbow. [That remark does not concern this:

> Is this body •a single substance or rather •a collection?

It concerns this:

> Does this body •exists in the real world independently of any facts about any minds rather than •existing only as a 'phenomenon', a complex fact about events in certain minds?

On the latter view, what would make a phenomenon *true* is a set of facts about the steady reliability with which the relevant mental events occur.] But if we take it that bodies *are* substances, I believe we can infer that bodily substance doesn't consist ·merely· of extension or divisibility, ·by the following line of argument·:

> No-one would deny that two bodies at a distance from one another—e.g. two triangular tiles—are not really one substance. If they come together to make up a square, will their mere *contact* turn them into one substance? I don't think so! Now, *any* extended mass can be thought of as composed of two smaller masses or a thousand of them; all it has is **extension through contact**. So we'll never find a body that can be said to be truly one substance. It will always be a collection of many. Or rather, it won't be a real entity ·at all—it won't even be a real *collection*·—because the same difficulty crops up with the parts making it up. We'll never arrive at any real entity, because 'entities' that have parts have only as much reality as their constituent parts have. It follows from this that the substance of a body, if bodies have one, must be indivisible. I'm not concerned with whether it is called 'soul' or 'form'.

The same thing can be proved from the general notion of *individual substance* that you seem to favour. Here is how:

> Extension is an attribute that can't make up a complete entity; no action or change can be deduced from it; it expresses only a present state, and nothing of the future or the past as the notion of a substance must do. When two triangles are found joined together, we can't infer from them how they came to be joined, because that could have occurred in many ways; and nothing that could have ·any one of· many different causes is a complete entity—·i.e. an individual substance·.

But I grant that many of the problems you raise are very hard to solve. I think we have to say that if bodies have substantial forms—e.g. if animals have souls—then these souls are indivisible. . . . Are these souls then indestructible? I say Yes. According to Leeuwenhoeck [a notable pioneer in the use of the microscope] the •generation [= 'start in life'] of every animal is merely a transformation of an animal already alive; if that is right, then there's reason to think that •death is merely another transformation. But the human soul is something more divine: as well as being indestructible, it always knows itself and remains self-conscious. What about its origin? Well, we might suppose that it went like this:

> When •this animate body was still in the seed [ovum or sperm], it had only an animal soul. When •it was caused to take the human form, either **(1)** God destroyed that animal soul and brought into existence a rational soul ·to go with the human body·, or **(2)** God transformed the animal soul into a rational soul.

This is a detail about which I don't know much. [Leibniz says that if **(2)** happens, the influence of God is 'out of the ordinary'; he doesn't explain how it can be *extraordinaire* if it happens every time a human being is generated.] I don't know whether the body, setting aside its soul or substantial form, can be called a substance. It may well be a machine, a collection of many substances, in which case I have to conclude that a •corpse is like a •block of marble in the way that both are like a •heap of stones, namely in being 'united' only by aggregation and thus not being substances. The same thing holds for the

sun, the earth, and machines; indeed, apart from man there is no body about which I can say positively that it is a substance rather than a collection of many ·things· or perhaps a phenomenon. Still, it seems to me certain that if there are bodily substances, human bodies aren't the only ones, and it appears probable that animals have souls although they lack consciousness.

In short, although I agree that the study of forms or souls is of no use in the natural scientist's study of particular facts, it is nonetheless important in metaphysics. Just as geometers don't worry about the composition of the continuum, physicists aren't troubled by the question of whether a ball is pushed by another ball or by God. It would be unworthy of a philosopher to admit these souls or forms without any reason, but ·there is an excellent reason, namely that· without them it is incomprehensible how bodies can be substances.

13. Leibniz to Arnauld, 28.xi.1686

Since I have found something quite unusual in your sincere and open acceptance of certain arguments that I had used, I am bound to acknowledge and admire it. I did think that you might be somewhat affected by the argument from the general nature of propositions; but I admit that few people can appreciate such abstract truths, and you may be the only man alive who could so easily have seen the argument's force.

I would like to learn about your thoughts regarding the possibility of things, for they are certain to be profound and important, especially since it's a matter of speaking of these possibilities in a manner worthy of God. But this will be at your convenience. As for the two difficulties that you find in my letter, concerning **(1)** the hypothesis of the concomitance or harmony amongst substances and **(2)** the nature of the forms of bodily substances, I confess that they are considerable; if I could clear them up completely, I would think I could decode the greatest secrets of universal nature! Still, some progress is better than none. In discussing **(1)**, you expound quite well the point that you had found to be obscure in my view about concomitance. When the soul feels pain at the moment the arm is wounded, what is happening—and this is pretty much how you put it—is that the soul creates this pain in itself, this being a natural consequence of its own state or notion. It is amazing that Augustine, as you remarked, seems to have been saying the same thing in his thesis that the pain the soul feels in such cases is merely a sadness accompanying body's trouble. That great man did indeed have very solid and profound thoughts! But (it will be asked) how does the soul know of this trouble in the body? I answer that it isn't through any impression or action of bodies on the soul. Rather, it happens because •the nature of every substance bears a general expression of the whole universe, and •the nature of the soul in particular bears ·at each moment· a clearer expression of what is happening just then in its body. That's why it is natural for it to register and know the states and events of its body by its own states and events. And it's the same for the body when it is adapted to the thoughts of the soul: when I will to raise my arm, that is at the very moment when the body is all set to carry this out by virtue of its own laws. That this happens at the exact moment when the will is inclined to it is due to God's having had this ·pair of events· in mind when he made his decision about the sequence of all events in the universe, thereby setting up the amazing but unfailing harmony between things. All these ·events· are merely consequences of the notions of the individual substances, each of which contains all the phenomena of that substance in such a way

that nothing can happen to a substance that doesn't come from its own depths, but in conformity with what happens to another substance—although it may be that one acts freely while the other acts without choice. And this harmony is one of the finest proofs that can be given of the necessity of a sovereign substance that is the cause of everything. I wish I were able to express my ideas as clearly and decisively on the other question, concerning substantial forms. [The ensuing discussion relates to items **(1)**-**(7)** starting on page 34.]

(1) The first difficulty that you point out is that our body and soul are two substances that are really distinct; which seems to imply that one of them isn't the substantial form of the other. I reply that in my opinion our body in itself, considered without the soul—i.e. considered as a corpse—isn't properly a substance, any more than a machine or a heap of stones—entities through aggregation—are substances. Besides, the last Lateran Council ·of the Roman Catholic Church, in 1512-17· asserts that the soul is truly the substantial form of our body.

(2) I accept that the substantial form of the body is indivisible, which seems to be what Aquinas thought too; and I also accept that no substantial form—and indeed no substance—can be destroyed or generated [here = 'driven out of existence or brought into existence by natural means'] .... So substances come into existence only through an act of creation. What about animals that lack reason and ·so· don't merit a new creation? I'm much inclined to think that the start in life of such an animal is merely the transformation of another animal that is already alive but may be too small to see, along the lines of the change that a silkworm undergoes, ·though in that case the animal *can* be seen both before and after the transformation·—nature often does that, revealing in some cases procedures that it employs secretly in others. On this account, the souls of the lower animals have all been in existence since the beginning of the world .... whereas the rational soul is created only at the time of the formation of its body. ·It is reasonable that a rational soul should be different in this way·, because it •is capable of reflection and •imitates in miniature the nature of God, making it totally different from the other souls that we know.

[Regarding this next paragraph: French does not distinguish 'one pair of diamonds' from 'a pair of diamonds'. It is all right to use 'one' throughout, and even to emphasize it, because the central topic of the paragraph is unity, oneness.]

(3) I believe that a block of marble may be only the same as a heap of stones and thus can't be regarded as a single substance .... Take for example two diamonds: in an inventory they can both be covered by **one** collective name, listed as **one pair** of diamonds, even if they are miles apart; but we wouldn't say that this makes these two diamonds constitute **one** substance. And however close they are brought to one another, even to the point of contact, that won't bring them any closer to being **one** substance—matters of degree ·such as closeness· have no place here. Even if after contact they were held together by some other body—e.g. by being set in **one** ring—that would only make what is called *unum per accidens* [Latin for 'one through contingent circumstances'], on a par with their being forced to move together. So I maintain that a block of marble isn't **one** complete substance, any more than the water in a pool together with all the fish would count as **one** substance, even if all the water with all these fish were frozen.... There's as much difference between a substance and an entity like that as there is between a man and a community—a people—an army—a society—a college. These are social constructs that contain an element of something imaginary, something contributed by our minds. Substantial unity—the unity possessed by **one** substance—is possessed only by a complete, indivisible and naturally

indestructible entity. Why? Because the notion of a single substance contains everything that is to happen to it, and this can't be found in •shape or in motion (both of which include something imaginary, as I could prove), but in •a soul or substantial form such as the item one calls *Myself*.

Those are the only truly complete entities, as the ancients had recognized, especially Plato, who demonstrated very clearly that a substance can't be formed from matter. And this *Myself*, like its counterpart in each individual substance, can't be made or unmade by placing the parts nearer together or further apart .... I can't say for sure whether there are any genuine bodily substances other than the animate ones, but at least souls are useful in giving us through analogy some knowledge of the others. [In the early modern period 'animate' (French *animé*, Latin *animatus*) could mean •'alive', as it does for us. But it could mean more strongly •'breathing', so that plants are not animate; or even more strongly •possessed of a soul or spirit etc., so that it might be open to question whether non-numan animals are 'animate'. This third sense, with all its vagueness, seems to be at work here.]

(4) All this may contribute to dealing with the fourth difficulty. Without troubling myself about what the Scholastics call 'the form of corporeity', I grant substantial forms to all bodily substances that are united more than just mechanically.

(5) What do I think about the sun, the globe of the earth, the moon, trees and similar bodies, even animals? Are they

•animate?

•substances?

•mere machines or aggregates of many substances?

I can't give absolutely certain answers to any of those questions. But at least I can say this: If there are no bodily substances of the kind I defend, then bodies are nothing but *true phenomena*, like the rainbow. It's not just that the continuum is infinitely •divisible; every particle of matter is actually •divided into smaller parts that are as distinct from another as the two diamonds; and since this goes on for ever, we'll never arrive at a thing of which we can say 'That really is **one** entity' unless and until we find *animate machines* whose soul or substantial form creates substantial unity independently of any facts about spatial closeness. If there aren't any of those, then apart from *man* there is nothing substantial in the visible world.

(6) The general notion of *individual substance* that I have presented is as lively [French *claire*] as the notion of truth; so the same holds for the notion of *bodily substance* and, therefore, the notion of *substantial form*. But even if this were not the case, ·that wouldn't disqualify my use of these concepts, because· we are obliged to admit many things of which we don't have sufficiently vivid and clear knowledge. I maintain that our notion of *extension* is even less vivid and clear, as witness the strange problems concerning the composition of the continuum; and it can even be said that *because of the actual subdivision of every particle of matter, bodies have no fixed and precise shapes*. The upshot is that if there were only matter and its states, bodies would be merely imaginary and apparent. Still, when we are trying to explain particular natural phenomena it is useless to bring in the unity of bodies, the notion of bodies, or the substantial form of bodies; just as it's useless for a geometer who is trying to solve a particular problem to bring in the difficulties about the composition of the continuum. These topics are nevertheless important and significant in their place. All bodily phenomena can be explained mechanically—i.e. by the corpuscular philosophy, in terms of certain principles of mechanics taken as premises—without raising the question of whether souls exist; but when the analysis of the principles of physics and even of mechanics is carried the whole way ·down·, these

principles turn out not to be explicable purely in terms of the modifications of extension [= 'in terms of facts about things' sizes, shapes, movements, spatial relations and the like']. We find that the nature of *force* already requires something else. [Why 'already'? The thought is that quite early in our journey into the intellectual depths of physics—long before we have plumbed the depths—we encounter the concept of *force*, which **already** puts us in need of something other than the set of concepts tied to extension.]

(7) Finally, I recall that Cordemoy in his book *Distinguishing the Soul from the Body* thought he had to admit atoms—indivisible extended bodies—so as to have something definite as a candidate for the role of simple entity; but you were right in thinking that I wouldn't agree. He seems to have recognized a part of the truth, but hadn't yet seen what constitutes the true notion of *a substance*; and *that* notion is the key to the most important knowledge. ·Something extended and absolutely indivisible would have to be infinitely hard; and· I consider infinite hardness to be no more consistent with divine wisdom than absolutely empty space is. But if there *were* atoms consisting of a shaped and infinitely hard mass of matter, an atom couldn't contain within itself •all its own past and future states, let alone •those of the whole universe.

Turning now to your remarks [page 35] about my objection to the Cartesian principle regarding the quantity of movement, I agree ·with what you say a Cartesian might say, namely· that a falling body accelerates because it is being pushed by some invisible fluid, like a ship that the wind drives along very slowly at first and then faster. But my demonstration doesn't depend on any hypothesis. Without going into the question of how the ·falling· body *gets* its speed, I take its speed ·at any time· as a given, and I say that

> a one-pound body ·falling· with a speed of two degrees has twice as much force as
>
> a two-pound body ·falling· with a speed of one degree,

because it can raise a given weight twice as high. And I maintain that when two bodies collide the distribution of the ·post-collision· movement between them depends not on the quantity of •movement (as Descartes says in his rules) but on the quantity of •force. If Descartes were right about this we could have perpetual mechanical movement, as I now show. [Leibniz proceeds to argue that if Descartes's rules were correct, the falling 1kg weight could raise a second 1kg weight to a height such that when it fell back to the ground it could raise a third 1kg weight even higher, and so on, with surplus energy being generated at each stage. The details of proof are not given here because the preparer of this text hasn't been able to understand them. Apologies! Having given his proof, Leibniz continues:] I have found that Descartes in some of his letters said—as you say he did—that when he was dealing with the ratios of ordinary moving forces he had deliberately tried to keep velocity out of it and to attend only to height. If he had remembered this while writing his principles of physics, he might have avoided the errors that he fell into regarding the laws of nature. What he succeeded in doing was **(i)** to exclude velocity where he could have kept it in, and **(ii)** to include it where ·he should have kept it out because· it leads to errors. I shall explain this. **(i)** Where forces that I call 'dead' are concerned—for example

- •when a body makes its initial effort to fall without yet having acquired any impetus from any continuing movement, or
- •when two bodies are as it were *balancing* one another, so that the first effort that each exerts against the other is a dead one

- it turns out that velocities are like spaces. On the other hand, **(ii)** when one considers the absolute force of bodies that have a certain impetus (and *they* are what we have to

look at to establish the laws of motion), our estimate ·of the amount of force at work in a given body· must be made from the •cause or the •effect ·of its movement·—i.e. from •the height from which it must have fallen to attain this speed or •the height to which this speed can take it. And if one ·instead· introduced *velocity* into these cases, one would lose or gain a great deal of force without any reason [i.e. one would be telling a theoretical story in which force was lost or gained with no reason]. Instead of height one might presuppose a spring or some other cause or effect, which will always come down to the same thing, namely the squares of the speeds.

[Then a paragraph discussing a recent article in one of the journals defending Descartes against Leibniz. The defence is thoroughly incompetent, Leibniz says, concluding:] I would therefore like my objection to be examined by a Cartesian who is a geometer and versed in these matters. [Finally, a short paragraph of personal good wishes etc.]

14. Leibniz to the Count, 28.xi.1686

I take the liberty of asking you to arrange for the enclosed papers to be sent on to Arnauld. Because they deal with subjects that •depend upon pure intellect and •are far removed from the external senses, subjects that •are unattractive and •are usually scorned by the liveliest and most worldly-wise people, I shall say something here in favour of these meditations. I'm not doing this in the hope that you will give any of your time to *engaging in* them; that would be absurd of me, as unreasonable as wanting a general to study algebra .... All I want is to enable you to better judge what such thoughts aim at, what they are good for .... ·Sometimes they are not good for anything·! The way they are generally conducted by the scholastics turns them into mere quarrels, hair-splitting, plays on words; but there *are* veins of gold in these sterile rocks. I state as a matter of fact that thought is the main and constant function of our soul. What naturally *perfects* us is whatever enables us to think more perfectly about the most perfect objects, ·Why is that so? Why doesn't perfecting us equally involve our learning more about how the world works? Because· **we will always •think, but we won't always •live here!** The present state of our life forces us into a host of confused thoughts that don't make us more perfect. I include in this

> the knowledge of customs, genealogies, languages; every item of historical knowledge of facts, both civil and natural; everything that helps us to avoid dangers and to manage the physical objects and the people in our environment, but doesn't enlighten the mind.

While someone is travelling ·homewards·, it is useful for him to know the roads; but that isn't as important as knowing things relating to the functions that will be assigned to him when he gets home. Well, *we* have an assignment: we will eventually live a spiritual life in which we'll think much more about •substances separate from matter than we will about •bodies.

Here are two tradesman's examples that can help to draw a clear line between what •enlightens the mind and what •merely leads it on blindly. **(i)** A workman knows—from experience or from tradition—that if a circle has a 7-foot diameter its circumference will be a bit under 22 feet. **(ii)** A gunner knows—by hearsay or from often having measured it—that bodies are thrown furthest at an angle of 45 degrees. In each case we have the confused knowledge of a working-man who will make very good use of it in earning his living and serving others; but the items of knowledge that enlighten our mind are the *clear* ones, i.e. the ones that contain causes or reasons, as when Archimedes proved the rule that un-

derlies **(i)** and Galileo proved the rule that underlies **(ii)**. In short, the only thing that can perfect us is the knowledge of reasons in themselves—i.e. of necessary and eternal truths, particularly the ones that are the most comprehensive and have the most connection with the sovereign being. This is the only knowledge that is good in itself; everything else is bread-and-butter stuff which shouldn't be learned except from necessity, because of the needs of this life and in order to be better equipped for attending to the perfection of the mind after the means of living have been squared away. However, •the disorderly state of men and •their concern for 'earning a crust', and often •vanity too, cause them .... focus on means and forget the end. Now, since what perfects our mind (apart from the light of grace) is demonstrative knowledge of the greatest truths through their causes or reasons, it has to be admitted that the most important of all ·the sciences· is metaphysics—i.e. natural theology—which deals with immaterial substances, and particularly with God and the soul. And no-one can make much progress in that without knowing the true notion of *substance* .... Finally, these meditations provide us with consequences that are surprising but wonderfully useful for freeing oneself from the greatest worries about

- •how God works together with his creatures,
- •how he knows in advance and commands in advance,
- •the soul's union with the body,
- •the origin of evil,

and other matters of this kind. I won't talk here about the great uses these principles can have in the human sciences; I'll just say that they elevate our mind to the knowledge and love of God, so far as nature helps us along that path, more than anything else does. I admit that all this is useless without grace, and that God grants grace to people who have never so much as *dreamed* of these meditations; but God nevertheless wants us not to neglect anything that is ours, and wants us to *use* the perfections he has given to human nature, when the time is right, and each according to his calling [here = 'his trade or profession or status']. He created us only so that we might know and love him, so we can't work enough towards that end or make a better use of our time and strength, unless we are occupied elsewhere by public affairs and the welfare of others.