A NEW SYSTEM OF THE NATURE AND THE COMMUNICATION OF SUBSTANCES, AS WELL AS THE UNION BETWEEN THE SOUL AND THE BODY

Journal des savants, June 27, 1695

Leibniz's first published account of his metaphysical 'system'[1] *appeared in the well-established Paris journal to which he had contributed scientific articles since his Paris days. Since its contents are directly related to the writings and controversies on dynamics in which he had been involved, its emphasis is not theological, like that of the* Discourse *of 1686 (No. 35), but falls upon the problem of the individuality of created substance; the mind-body relation is treated by analogy to his analysis of the relationships of force in a compound material system.*

The essay brought Leibniz's thinking to a focus, since it stimulated the first public discussion of his metaphysics as such, Foucher, Beauval, Bayle, and Lami soon publishing criticisms of it, to which Leibniz wrote careful replies. The 'second explanation' made in reply to these critics is added as a supplement. The text is that of the published article, which Schmalenbach reproduces; G. gives a later revision. The paragraph numbers were added by Erdmann.

I

[Sch., I, 119–31 (G., IV, 477–87)]

1. It is some years ago that I conceived this system and began communicating with learned men about it, especially with one of the greatest theologians and philosophers of our time, who had been told about certain of my opinions by a person of the highest nobility and had found them very paradoxical.[2] After receiving my explanations, however, he retracted in the most generous and edifying way possible, and after approving a part of my propositions, he withheld his censure of the others upon which he still did not agree with me. Since that time I have continued my meditations as occasions offered, so as to give to the public only well-examined opinions, and I have tried also to answer the criticisms raised against my essays on dynamics which have some connection with this. Since some eminent persons have asked to see my opinions more clearly developed, I have ventured upon these meditations, though they are not at all popular or suited to the enjoyment of all sorts of minds. I have decided upon this chiefly in order to profit by the criticisms of those who are informed on such matters, since it would be too burdensome to seek out and call to my aid individually those who would be disposed to give me instruction. This I shall always be pleased to receive, provided that the love of truth be shown in it rather than a passionate attachment for preconceived opinions.

2. Although I am one of those who have done much work in mathematics, I have constantly meditated on philosophy from my youth up, for it has always seemed to me

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that here, too, there is a way to establish something sound through clear demonstrations. I had penetrated deeply into the land of the Scholastics, when mathematics and modern authors made me withdraw from it while I was still young. Their beautiful ways of explaining nature mechanically charmed me, and with good reason I despised the method of those who use only forms or faculties of which nothing is understood. But later, after trying to explore the principles of mechanics itself in order to account for the laws of nature which we learn from experience, I perceived that the sole consideration of *extended mass* was not enough but that it was necessary, in addition, to use the concept of *force*, which is fully intelligible, although it falls within the sphere of metaphysics. It seemed to me also that though the opinion of those who transform or degrade beasts into pure machines seems possible, it goes beyond appearances and is even contrary to the order of things.

3. At first, after freeing myself from bondage to Aristotle, I accepted the void and the atoms, for it is these that best satisfy the imagination. But in turning back to them after much thought, I perceived that it is impossible to find *the principles of a true unity* in matter alone or in what is merely passive, since everything in it is but a collection or aggregation of parts to infinity. Now a multitude can derive its reality only from the *true unities*, which have some other origin and are entirely different from points, for it is certain that the continuum cannot be compounded of points. To find these *real unities*, therefore, I was forced to have recourse to a formal atom, since a material being cannot be at the same time material and perfectly indivisible, or endowed with true unity.[3] It was thus necessary to restore and as it were, to rehabilitate the *substantial forms* which are in such disrepute today, but in a way which makes them intelligible and separates their proper use from their previous abuse. I found then that their nature consists of force and that there follows from this something analogous to sense and appetite, so that we must think of them in terms similar to the concept which we have of *souls*. But just as the soul ought not to be used to explain the details of the economy of the animal's body, so I concluded that one ought not to use these forms to explain the particular problems of nature, though they are necessary to establish its true general principles. Aristotle calls them *first entelechies*. I call them, more intelligibly perhaps, *primitive forces*, which contain not only the *actuality* or the *completion* of possibility but an original *activity* as well.[4]

4. I saw that these forms and these souls must be indivisible, just as is our mind; in fact, I remembered that this was the opinion of St. Thomas with regard to the souls of beasts.[5] But this truth revived the great difficulties about the origin and duration of souls and forms. For since every substance[6] which has a true unity can begin and end only by a miracle, it follows that souls can begin only by creation and end only by annihilation. So I was obliged to recognize that except for the souls which God still expressly wills to create, the forms which constitute substances have been created with the world and that they will subsist always. Moreover, certain Scholastics like Albert the Great and John Bacon had glimpsed a part of the truth about the origin of these forms. Nor should this opinion appear extraordinary, since we are merely ascribing to the forms the duration which the Gassendists grant to their atoms.

5. I concluded, nevertheless, that we must not mix up indifferently, or confuse, minds or rational souls with other forms or souls, for they are of a superior order and have incomparably more perfection than have the forms which are sunk in matter, which I believe are found everywhere. For in comparison with these, minds or rational

souls are as little gods made in the image of God and having in them some ray of the light of the Divinity. This is why God governs minds as a prince governs his subjects or indeed as a father cares for his children, while he deals with other substances, instead, as an engineer handles his machines. Minds thus have special laws which place them beyond the revolutions of matter[7], and one can say that all the rest is made only for them, these revolutions themselves being adapted to the happiness of the good and the punishment of the evil.

6. To return to ordinary forms, however, or to material souls[8], this duration which we must acribe to them instead of that which was attributed to the atoms could lead us to doubt whether they do not pass from body to body. This would be *metempsychosis*, somewhat like the transmission of motion and of species in which some philosophers have believed.[9] But such a fancy is far from the nature of things. There is no such transfer; at this point the *transformations* of Swammerdam, Malpighi, and Leeuwenhoek, the best observers of our times, have come to my aid and led me to admit the more readily that animals and all other organized substances do not at all begin when we believe them to and that their apparent generation is merely a development and a form of augmentation. I have noticed, too, that the author of the *Recherche de la vérité* and Mr. Regis, Mr. Hartsoeker, and other able men have held opinions not far removed from this.[10]

7. The greatest question still remained, however: What becomes of the souls or forms at the death of the animal or at the destruction of the individual unit of organized substance? This question is the more difficult, inasmuch as it hardly seems reasonable that souls should remain, useless in a chaos of confused matter. This led me at length to conclude that there is only one reasonable view to take – that of the conservation not only of the soul but also of the animal itself and its organic machine, even though the destruction of its grosser parts may have reduced this machine to a size so small that it escapes our senses just as it did before birth. Moreover, no one can mark exactly the true time of death, which may for a long time be taken to be a simple suspension of observable actions and in the last analysis is never anything but this in the simple animals. Witness the *resuscitation* of flies which have been drowned and then buried under powdered chalk, and a number of similar examples which suffice to show that there would be other resuscitations, in cases much further gone, if men were in a position to restore the mechanism. It seems that the great Democritus spoke of something approaching this, extreme atomist though he was, though Pliny laughed at his opinion.[11] It is natural, then, that animals which have always been living and organized (as people of great penetration are beginning to recognize) will also always remain so. And since an animal has thus no first birth or entirely new generation, it follows that there will be no final extinction or complete death, in a strict metaphysical sense, and that as a result, there is no transmigration of souls but only a transformation of the same animal, as its organs are differently folded and are more or less developed.

8. Rational souls, however, follow much more elevated laws and are exempt from everything which might make them lose the quality of citizens of the society of minds, since God has provided so well that no changes in matter can make them lose the moral qualities of their personality. And one can say that everything tends to the perfection not merely of the universe in general but also of these created beings in particular, which are destined for so high a degree of happiness that the universe itself

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is concerned in it by virtue of the divine goodness which is communicated to each being to the extent which the sovereign wisdom can permit.

9. As for the ordinary course[12] of animals and other corporeal substances, which have hitherto been thought to be entirely extinguished, and whose changes depend on mechanical rather than on moral laws, I have noted with pleasure that the ancient author of the book *De diaeta*, which is attributed to Hippocrates, caught sight of a part of the truth when he expressly said that animals neither are born nor die and that the things which are thought to have a beginning and to perish actually merely appear and disappear. According to Aristotle, this is also the opinion of Parmenides and Melissus, for these ancient thinkers were sounder than we think.[13]

10. I am as ready as any man to do justice to the moderns. Yet I find that they have carried reform too far, among other things in confusing natural with artificial matters, because they have not held high enough ideas of the majesty of nature. They think that the difference between natural machines and ours is merely the difference between great and small. This led a very able man, the author of the *Conversations on the Plurality of Worlds*, to say recently that when we examine nature closely we find it less admirable than has been thought, it being merely like a craftsman's workshop – a conception which I consider neither just enough nor worthy enough of it.[14] It is only our system which shows us, at length, the real and immense distance which lies between the least productions and mechanisms of the Divine Wisdom and the greatest masterpieces of the craft of a finite mind. This difference consists not merely in degree but also in kind. We must recognize that the machines of nature have a truly infinite number of organs, and are so well equipped and so completely proof against all accidents, that it is impossible to destroy them. A natural machine remains a machine even in its smallest parts, and what is more, it always remains the same machine that it has been, being merely transformed through the different foldings which it undergoes, and being now extended, now compressed and, as it were, concentrated, when it is thought to have perished.

11. Furthermore, by means of the soul or form there is a true unity corresponding to what is called 'I' in us. Such a unity could not occur in artificial machines or in a simple mass of matter, however organized it may be. For such a mass can be compared only to an army or a herd, or to a pond full of fish, or a watch made of springs and wheels. If there were no true substantial unities, however, there would be nothing substantial or real in the collection. It was this that forced Cordemoi to abandon Descartes and to support the Democritean theory of atoms in order to find a true unity in them.[15] But *material atoms* are contrary to reason, besides being still further composed of parts, since an invincible attachment of one part to another (if we could reasonably conceive or assume this) would not at all destroy the diversity of these parts. It is only *atoms of substance*, that is to say, real unities that are absolutely destitute of parts, which are the sources of action and the absolute first principles out of which things are compounded, and as it were, the ultimate elements in the analysis of substance. One could call them *metaphysical points*. They have something vital, and a kind of *perception*, and *mathematical points* are the *points of view* from which they express the universe. But when a corporeal substance is contracted, all its organs together make only one *physical point* with respect to us. Physical points are thus indivisible in appearance only, while mathematical points are exact but are nothing but modalities. It is only *metaphysical* points, or points of substance, constituted by forms or souls,

which are exact and real, and without them there would be nothing real, since there could be no multitude without true unities.[16]

12. Having established these things, I thought I had reached port. But when I began to think about the union of the soul with the body, it was like casting me back into the open sea, for I found no way to explain how the body causes anything to take place in the soul, or vice versa, or how one substance can communicate with another created substance. So far as we can know from his writings, Descartes gave up the struggle over this problem.[17] But seeing that the common opinion is inconceivable, his disciples concluded that we sense the qualities of bodies because God causes thoughts to arise in our soul on the occasion of material movements and that when our soul in its turn wishes to move the body, God moves the body for it. And since the communication of motion also seemed inconceivable to them, they believed that God imparts motion to a body on the occasion of the motion of another body. This they call the *System of Occasional Causes*; it has had great vogue as a result of the beautiful reflections of the author of the *Recherche de la vérité*.

13. It must be admitted that this has definitely penetrated the difficulty in showing us what cannot take place. But it does not seem to have removed the difficulty by showing us what actually does happen. It is quite true that speaking with metaphysical rigor, there is no real influence of one created substance upon another and that all things, with all their reality, are continually produced by the power of God. But problems are not solved merely by making use of a general cause and calling in what is called the *deus ex machina*. To do this without offering any other explanation drawn from the order of secondary causes is, properly speaking, to have recourse to miracle. In philosophy we must try to give a reason which will show how things are brought about by the Divine Wisdom in conformity with the particular concept of the subject in question.

14. Being constrained, then, to admit that it is impossible for the soul or any other true substance to receive something from without, except by the divine omnipotence, I was led insensibly to an opinion which surprised me, but which seems inevitable, and which has in fact very great advantages and very significant beauties. This is that we must say that God has originally created the soul, and every other real unity, in such a way that everything in it must arise from its own nature by a perfect *spontaneity* with regard to itself, yet by a perfect *conformity* to things without. And thus, since our internal sensations, that is, those which are in the soul itself and not in the brain or in the subtle parts of the body, are merely phenomena which follow upon external events or better, are really appearances or like well-ordered dreams, it follows that these perceptions internal to the soul itself come to it through its own original constitution, that is to say, through its representative nature, which is capable of expressing entities outside of itself in agreement with its organs – this nature having been given it from its creation and constituting its individual character. It is this that makes each substance represent the entire universe accurately in its own way and according to a definite point of view. And the perceptions or expressions of external things reach the soul at the proper time by virtue of its own laws, as in a world apart, and as if there existed nothing but God and itself (to make use of the expression of a person of exalted mind and renowned piety). So there will be a perfect accord between all these substances which produces the same effect that would be noticed if they all communicated with each other by a transmission of species or of qualities, as the common run of philo-

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sophers imagine. Furthermore, the organized mass in which the point of view of the soul is found is itself expressed more immediately by the soul and is in turn ready to act by itself following the laws of the corporeal mechanism, at the moment at which the soul wills but without either disturbing the laws of the other, the animal spirits and the blood taking on, at exactly the right moment, the motions required to correspond to the passions and the perceptions of the soul. It is this mutual agreement, regulated in advance in every substance of the universe, which produces what we call their communication and which alone constitutes the union of soul and body. This makes it clear how the soul has its seat in the body by an immediate presence which could not be closer, since the soul is in it as a unity is in the resultant of unities which is a multitude.

15. This hypothesis is entirely possible. For why should God be unable to give to substance in the beginning a nature or internal force which enables it to produce in regular order – as in an *automaton that is spiritual or formal but free* in the case of that substance which has a share of reason – everything which is to happen to it, that is, all the appearances or expressions which it is to have, and this without the help of any created being? Especially since the nature of substance necessarily demands and essentially involves progress or change and would have no force of action without it. And since it is the nature of the soul to represent the universe in a very exact way, though with relative degrees of distinctness, the sequence of representations which the soul produces will correspond naturally to the sequence of changes in the universe itself. So the body, in turn, has also been adapted to the soul to fit those situations in which the soul is thought of as acting externally. This is all the more reasonable inasmuch as bodies are made solely for the spirits themselves, who are capable of entering into a society with God and of extolling his glory. Thus as soon as one sees the possibility of this *hypothesis of agreement*, one sees also that it is the most reasonable one and that it gives a wonderful idea of the harmony of the universe and of the perfection of the works of God.

16. There is also in it the great advantage that instead of saying that we are free only in appearance and in a manner adequate for practical purposes, as several intelligent persons have thought, we must rather say that we are determined only in appearance and that in metaphysical strictness we are in a state of perfect independence as concerns the influence of all the other created beings. This throws a wonderful light on the immortality of our soul as well and on the always uniform conservation of our individual being, which is perfectly regulated by its own nature and fully sheltered from all accidents from without, whatever appearance there may be to the contrary. Never has a system so clearly exhibited our elevation. Since each mind is as a world apart and sufficient unto itself, independent of every other created being, enveloping the infinite and expressing the universe, it is as durable, as subsistent, as absolute as the universe of creatures itself. We must therefore conclude that it must always play such a part as is most fitting to contribute to the perfection of the society of all minds, which is their moral union in the City of God. A new proof of the existence of God can also be found here, one of surprising clarity. For the perfect agreement of so many substances which have no communication whatever with each other can come only from a common source.

17. In addition to all these advantages which recommend this hypothesis, we can say that it is something more than a hypothesis, since it seems hardly possible to explain things in any other intelligible way, and since a number of serious difficulties

which have heretofore troubled thinkers seem to disappear of themselves when we rightly understand it. Ordinary ways of speaking can still be preserved. For one may say that when the particular disposition of one substance provides a reason for a change occurring in an intelligible manner, in such a way that we can conclude that the other substances have been adapted to it on this point from the beginning according to the order of the divine decree, then that substance should be thought of as *acting* upon the others in this sense. Further, the action of one substance upon another is not an emission or a transplanting of some entity, as is commonly supposed; and it can be understood reasonably only in the way just shown. It is true that we can easily conceive of both the emission and the reception of parts in matter and can in this way reasonably explain all the phenomena of physics mechanically. But since material mass is not a substance, it is clear that the action of substance itself can be only what I have just described.

18. However metaphysical these considerations may seem, they are also of remarkable service to physics in establishing the laws of motion, as my *Dynamics* will be able to show. For it can be said that in the collision of bodies each suffers only from its own elasticity, caused by the motion which is already within it. As for absolute motion, nothing can determine it mathematically, since everything ends in relations. The results is always a perfect equivalence in hypotheses, as in astronomy, so that no matter how many bodies one takes, one may arbitrarily assign rest or some degree of velocity to any one of them we wish, without possibly being refuted by the phenomena of straight, circular, or composite motion.[18] However, it is reasonable to attribute true motions to bodies if we follow the assumption which explains the phenomena in the most intelligible way, for to do this is in confrormity with the concept of activity which we have just established.

II. "SECOND EXPLANATION OF THE NEW SYSTEM"[19]

(Postscript of a Letter to Basnage de Beauval, January 3/13, 1696)
[G., IV, 498–500]

I see clearly from your reflections that my thoughts, which a friend has had inserted in the Paris journal, are in need of clarification.

You say that you do not understand how I can prove what I have suggested about the communication or harmony of two substances as different as the soul and the body. It is true that I thought I provided a way to do so. And this is how I propose to satisfy you.

Imagine two clocks or watches which are in perfect agreement.[20] Now this can happen in *three ways*. The *first* is that of a natural influence. This is the way with which Mr. Huygens experimented, with results that greatly surprised him. He suspended two pendulums from the same piece of wood. The continued strokes of the pendulums transmitted similar vibrations to the particles of wood, but these vibrations could not continue in their own frequency without interfering with each other, at least when the two pendulums did not beat together. The result, by a kind of miracle, was that even when their strokes had been intentionally disturbed, they came to beat together again, somewhat like two strings tuned to each other. The *second* way of making two clocks, even poor ones, agree always is to assign a skilled craftsman to them who adjusts them

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and constantly sets them in agreement. The *third* way is to construct these two timepieces at the beginning with such skill and accuracy that one can be assured of their subsequent agreement.

Now put the soul and the body in the place of these two timepieces. Then their agreement or sympathy will also come about in one of these three ways. The *way of influence* is that of the common philosophy. But since it is impossible to conceive of material particles or of species or immaterial qualities which can pass from one of these substances into the other, this view must be rejected. The *way of assistance* is that of the system of occasional causes. But I hold that this makes a *deus ex machina* intervene in a natural and ordinary matter where reason requires that God should help only in the way in which he concurs in all other natural things. Thus there remains only my hypothesis, that is, the *way of preestablished harmony*[21], according to which God has made each of the two substances from the beginning in such a way that though each follows only its own laws which it has received with its being, each agrees throughout with the other, entirely as if they were mutually influenced or as if God were always putting forth his hand, beyond his general concurrence. I do not think that there is anything more than tbis that I need to prove – unless someone should demand that I prove that God is skilful enough to make use of this foresighted artifice, of which we see samples even among men, to the extent that they are able men. And assuming that God can do it, it is clear that this way is the most beautiful and the most worthy of him. You had suspected that my explanation would be opposed to the different idea we have of the mind and of the body. But now you clearly see that no one could establish their independence more effectively. For as long as one was obliged to explain their communication by means of a miracle, one always gave opportunity for some people to fear that the distinction between body and soul is not as real as is thought, since we were forced to go to such lengths to maintain it. Now all these scruples will cease. My *Essays on Dynamics* are related to this, for in them it was necessary to explore the concept of corporeal substance, which I found in the force of action and resistance rather than in extension, the latter being merely a repetition or diffusion of something prior to it, namely, this force. These thoughts, which some people found paradoxical, have led to an exchange of letters with several famous people. I could publish a *commercium epistolicum* from them, which would also contain my correspondence with Mr. Arnauld, of which I spoke in my preceding letter. It would contain an interesting mixture of philosophic and mathematical ideas, which would perhaps sometimes have the grace of novelty. You yourself can judge, Sir, whether the explanations which I have given are suitable for sounding out the opinions of intelligent people if published in your journal – though without my name, as I was also unnamed in the Paris journal.

REFERENCES

[1] Leibniz soon found it necessary to deny that he had a system (see Nos. 49, I, and 54).

[2] Leibniz notes, "Mr. Arnauld" (cf. Nos. 35 and 36).

[3] In his final revision Leibniz altered the last two sentences as follows: "Now a multitude can derive its reality only from true unities which have some other origin and are entirely different from mathematical points, these being merely the extremities of what is extended, and modifications of which it is certain the continuum cannot be composed. To find the real unities, therefore, I was forced to have recourse to a *real and animated point*, so to speak, or an atom of substance which must include a certain active form to make a complete being."

[4] See No. 45 and p. 434, note 2.
[5] Leibniz is in error in ascribing to Thomas Aquinas the doctrine of the indivisibility and immortality of all souls. In the *Summa theologica*, Part II, chap. 82, Aquinas argues against the immortality of beasts, holding that only perfect souls are indivisible.
[6] Later revision: "every simple substance".
[7] Later addition: "through the very order which God has put in them".
[8] Later revision: "brute souls".
[9] That is, abstracted qualities whether regarded as immaterial or material, like the Scholastic 'species volantes', which are passed from one substance to another (see p. 329, note 30).
[10] Pierre Sylvain Regis, *Cours entier de philosophie ou système général d'après les principes de Descartes* (1691). Nicolas Hartsoeker, Dutch microscopist, published an *Essai de dioptrique* in 1694 in which he developed an atomic theory. Regis criticized Leibniz's attacks on Descartes in 1697 (G., IV, 333–36), and Hartsoeker later corresponded with Leibniz on problems in the philosophy of nature (G., III, 488–90).
[11] In the 'Doctrine of a Single Universal Spirit' (1702) (No. 58), Leibniz attributes this account of Democritus' theory of resuscitation to Plotinus. Pliny had ridiculed the concept as "put forth by Democritus, who did not himself come to life again".
[12] Reading *cours* with Erd. and Sch., instead of *corps* (G.).
[13] *De caelo* iii. 1. 298*b*.
[14] Fontenelle's *Entretiens sur la pluralité des mondes* was published in 1686.
[15] See p. 271, note 12. Cordemoi had supplemented Descartes with an atomic and an occasionalistic theory.
[16] Metaphysical points are not spatial in Leibniz's mature thought, though he has not yet asserted, in 1695, that there is no absolute motion, but only that it cannot be known in a closed physical system. The spatial correlates to the three kinds of points are perceptual space to physical points, conceptual space to mathematical points, and the complex harmony of representational perspectives or points of view to metaphysical points.
[17] Leibniz probably alludes here to Descartes's letter to Elizabeth, June 18, 1643 (*Correspondence*, ed. Adam and Tannery, III, 690–91).
[18] Cf. No. 42, Part II, Art. 25, and No. 43. The allusion to relativism in astronomy is to the interpretations of celestial motions by Copernicus, Ptolemy, and Brahe, which Leibniz was interested in harmonizing through a phenomenalistic interpretation (cf. p. 420, note 12).
[19] In 1697 Leibniz wrote brief replies to three critics of his *New System* – Foucher, Beauval, and Hartsoeker. Since the most thorough criticism was that of Bayle, and Leibniz's answer is most extended (No. 52), we print only one of the 'three explanations' made earlier – the 'second explanation' sent to Beauval, editor of the *Histoire des ouvrages des savants*.
[20] The figure of the two clocks is not original with Leibniz but was in general use among the occasionalists. Its first use is generally attributed to Geulincx, *Ethica*, I, ii, 2, n. 19, though Leibniz need not have secured it from that source. The figure is not a fortunate one for Leibniz, since it throws no light upon the representative and functional nature of the relations between monads and also neglects the distinction between the passive and active roles of the monads in the divine harmony.
[21] It is noteworthy that the adjective 'pre-established', so popular in the descriptions of Leibniz's system, does not appear until late in his thought, and then with particular reference to the mind-body problem. Any deistic implications are inconsistent with the immediacy of God in the perceptions and appetites of the monads. Leibniz was, however, already charged with deism by his contemporaries (see the *Philosophical Transactions of the Royal Society*, 1714–1716, p. 224).