

Leibniz's Correspondence with Princess Sophia

Letter of 12th June, 1700

“Everyone agrees that *matter* has parts, and that consequently it is a *multitude* of several substances, as a flock of sheep would be. But since every multitude presupposes *true unities*, it is evident that these unities could not be [made] of matter, otherwise they would still be multiplicities, and not at all true and pure unities, such as are necessary finally to make a multitude. Thus the unities are properly substances apart, which are not divisible, nor consequently perishable. For everything that is divisible has parts that one can distinguish even before their separation. However, since we are concerned with *unities of substance*, there must be force and perception in these unities themselves, for without this there would be no force or perception in everything which is formed from them, which can only contain repetitions and relations [*rappports*] of what is already in the unities. Thus it is necessary that in bodies that have sensation [*sentiment*], there should be *unique substances*, or unities, which have sensation. And it is this simple substance, this unity of substance or this *Monad*, which one calls the *Soul*, and consequently souls, like all other unities of substance, are immaterial, indivisible, and imperishable, since all destruction of *substantial things* can only be a dissolution. ...

Each unity makes a single substance uniquely, the rest being only beings by aggregation, and accumulations [*des amas*] or multiplicities; or else they are accidents, that is to say, durable attributes or transitory modifications that belong to substances.” (GP vii 552)

Letter of 31st October, 1705

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“Now as for the difficulty [of the infinite divisibility of matter], I answer that it is true that nothing prevents matter from being composed of simple and indivisible substances, since the multitude of these substances or unities is infinite. However, it is not the same in mathematical body or in space, which is something ideal, and which is not at all composed of points, just as an abstract number considered in itself is not composed of the extreme or very smallest fractions. (GP vii 561; transl. Hartz and Cover)

Thus although matter consists in an accumulation of innumerable simple substances, and although the duration of created things, just like actual motion, consists in an accumulation [*un amas*] of momentaneous states, nonetheless it must be said that space is certainly not composed of points, nor time of instants, nor mathematical motion of moments, nor intensity

of extreme degrees. Rather matter, the course of things, and finally every actual composite, is a discrete quantity, but space, time, mathematical motion, intensity or the continual increase that one conceives in velocity and in other quantities, and finally everything that gives an estimate which extends to possibilities, is a continuous quantity; it is indeterminate in itself, or indifferent to the parts that one can take, and that are actually taken in nature. The mass of bodies is actually divided in a determinate way, and nothing in it is exactly continuous; but space, or the perfect continuity which is in the idea, only marks an indeterminate possibility of dividing as one would like. In matter and in the actual realities the whole is a result of the parts; but in ideas or possibles (which comprise not only this universe, but every other universe which can be conceived, and which are in fact represented in the divine understanding), the indeterminate whole is prior to the divisions, as the notion of the whole is simpler than that of fractions, and precedes it.

And although each fraction (like each tone in a harmony) always subsists in the region of eternal truths, realised by the divine understanding, nevertheless a number and a fraction should not be conceived as an accumulation of other smaller fractions. Also points, moments, as well as extrema in a continuous increase or decrease of qualities that follow mathematical laws, are not parts, but extremities of space, time etc. (GP vii 562)

... There are therefore always actual divisions and variations in the masses of existing bodies, to whatever degree of smallness one might go. It is our imperfections and the fault of our senses that makes us conceive physical things as mathematical beings, where there is some indeterminacy. And one could show that there is no line or figure in nature which displays exactly and keeps uniformly for the least space and time the properties of a straight line or a circle, or anything else of which a finite spirit can comprehend the definition. ... (GP vii 563; transl. Hartz and Cover)

One can easily see that time is not a substance, since an hour or whatever other part of time one takes, never exists in its entirety and with all its parts together. It is nothing but a principle of relations [*rappports*], a foundation of the order in things, insofar as one conceives their successive existence, or without them existing together. It must be the same for space. It is the foundation of the relation [*rapport*] of the order of things, but insofar as one conceives them as existing together. Each of these foundations is veridical, though ideal. Uniformly regulated continuity, although it is only supposition and abstraction, forms the basis for eternal truths and knowledge of the necessary [*des sciences necessaires*]: it is the

object of divine understanding, as are all the truths, and the rays of the divine understanding also correspond to ours. The imaginary possible participates as much as does the actual in the foundations of order, and a novel could be as well regulated, in regard to places and times, as a genuine history. Matter appears to us as continuous, but it only appears that way, as does actual movement. It is similar to how alabaster dust appears to form a continuous fluid when one boils it over the fire, or how a spoked wheel appears as continuously translucent when it turns with great speed, without one's being able to distinguish the places of the spokes from the empty spaces between them, our perception running together the separate places and times.

One can thus conclude that a mass of matter is not a genuine substance, that its unity is only ideal, and that (setting the understanding aside) it is only an *aggregatum*, an accumulation, a multitude of an infinity of genuine substances, a well-founded phenomenon, never contradicting the rules of pure mathematics, but always containing something beyond. And one can also conclude that the duration of things, or the multitude of momentaneous states, is the accumulation of an infinity of bursts of light of the Divinity, each one of which at each instant is a creation or reproduction of all things, there being no continuous transition [*point de passage continuel*], properly speaking, from one state to the next.

This proves that celebrated truth of the theologians and the Christian philosophers, that the conservation of things is a continuous creation [*creation continuel*], and gives a wholly specific way of verifying the dependence of all changing things on the immutable divinity, which is the primitive and absolutely necessary substance, without which nothing could either be or endure. Here, it seems, is the best use that one can make of the labyrinth of the composition of the continuum, so famous among the philosophers: the analysis of the actual duration of things in time leads us demonstratively to the existence of God, just as the analysis of the matter that is actually found in space leads us demonstratively to unities of substance, to indivisible, imperishable, simple substances, and consequently to souls, or to principles of life, which can only be immortal, which are spread throughout all of nature. One sees that Entelechies or primitive forces, joined to what is passive in each unity (for created things are active and passive at the same time), are the source of everything. I have demonstrated, moreover, how souls always keep some body, and that even animals themselves subsist" (GP vii 564-5)