

35. There is no Perfect Shape in Bodiesⁱ

Aiv310

[April to October 1686?]ⁱⁱ

1478 There is no precise and fixed shape in bodies, because of the actual division of the parts to infinity.

[—TO THE TYPE SETTER: insert *figure* here—]

Let there be, for example, a straight line ABC: I say that it is not exactly straight. For with each part of the universe sympathizing with all the others, it is necessarily the case that if the point A tends along the straight line AB, the point B should have a tendency in another direction. For with each part A striving to carry with it every other, but particularly the nearest B, the direction of B will be composed of that of A and some others; and it is not at all possible that B, which is indefinitely near to A, should be exposed to the whole universe in precisely the same fashion as A, in such a way that AB composes one whole which has no subdivision.

It is true that it will always be possible to draw an imaginary line at each instant; but that line will endure in the same parts only for this instant, because each part has a motion different from every other, since it expresses the whole universe differently. Thus there is no body that has any shape for a definite time, however short it might be. Now I believe that what exists only at a moment has no existence, since it starts and finishes at the same time. I have proved elsewhere that there is no middle moment, or moment of change, but only the last moment of the preceding state and the first moment of the following state.ⁱⁱⁱ But that supposes an enduring state. Now all enduring states are vague; and there is nothing precise about them. For example, one can say that a body will not leave some place greater than itself for a definite time, but there is no place where the body may endure that is precise or equal to it.

One can thus conclude that there is no moving thing of a definite shape. For example, it is impossible for there to be found in nature a perfect sphere 1479 which would compose a moving body in such a way that this sphere could be moved through the least space. In a pile of stones, one could easily conceive an imaginary sphere which passes through all these stones, but one could never find any body whose surface would be precisely spherical.^{iv}

In an instant, with motion not being considered, it is as if the mass were all united; and thus one can give it any such shapes as one wants. But also all variety in bodies ceases; and, consequently, all bodies are destroyed. For motion or endeavour makes their essence or difference. And in this moment everything reverts to chaos. Endeavour cannot be conceived in mass by itself.

Endnotes

1. LH IV, 3: 5 pages. Edited for the Akademie by Gerhard Biller as Ve321: 1478-9 (Fascicule 7, 1988).
2. The provisional dating is based on the watermark, which gives April to October 1686.
3. This refers to the proof in the Pacidius in part II above (Aiii78: 566-67).
4. Leibniz had originally continued: "One can even doubt whether that happens in an instant at least, for with each body being acted on by all the others in the universe, it cannot at all be the case that these infinitely variable impressions accord with one another precisely to place... ."

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