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Space

(Manuscript)

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To the question "where are you in this moment?" a pilot will answer "at longitude x, latitude y, altitude z." But if I ask you "where do you live?" your answer may instead evoke neighborly relations weaved through the years, a climate, old stones, the freshness of water. Depending on who is asked about what, the "where?" question can be answered by space determinations or by the memories of a concrete place. Space and place are two different ways of conceiving the "where," or, using the Latin word for "where" as a terminus technicus, two answers to the ubi question.

Place is an order of beings vis–à-vis my body. This order (Gr: kosmos) always mirrors the great cosmos. This vis-à-vis or mirroring is the essence of what Ivan Illich called proportionality (Illich and Rieger, 1991.) According to Einstein, the concept of space disembedded itself from the "simpler concept of place" and "achieve[d] a meaning which is freed from any connection with a particular material object" ([1954], p. xv.) Yet, Einstein insisted that space is a free creation of imagination, a "means devised for easier comprehension of our sense experience." In pure space however, my body would be out of place and in a state of perceptual deprivation.

This article concentrates on the radical monopoly that space determinations exert today on the ubi question. Wheels and motors seem to belong to space as feet do to places. And just as the radical monopoly of motorized transportation on human mobility leaves some freedom to walk, space determinations leave remnants of placeness to linger in perception and memory. It will be contended that ethics can only be rebuilt by a recovery of placeness.

A general conception of space is conspicuously absent from ancient mathematics, physics and astronomy. The Greek language, so rich in locational terms, had no word for space (Bochner, 1973.) Topos meant place, and when Plato in Timaeus located the demiurge in an uncreated ubi of which we can have no perception because it does not exist, he called it chôra, fallow land, the temporary void between the fullness of the wild and cultivation. According to Plato, the demiurge's chôra could only be conceived "by a kind of spurious reason", "as in a dream", in a state in which "we are unable to cast off sleep and determine the truth about it" (Plato, Timaeus 52.) In hindsight, it can be conceded that this was a first intuition of the antinomy between place and what is today called "space." In the XIVth century, Nicolas d'Oresme imagined an incorporeal void beyond the last heavenly sphere, but still insisted that, in contrast, all real places are full and material. Space, still only a pure logical possibility, became a possibile realis between d'Oresme and Galileo (Funkenstein, 1986, p. 62).

Following the canons of Antique and medieval cartography, a chart had to summarize bodily scouting and measuring gestures. Pilgrims followed itineraria; sailors, charts of ports; and surveyors consigned ritually performed acts of mensuration on marmor or brass plates. These were no maps in the modern sense, because they did not postulate a disembodied eye contemplating a land or a sea from above. The first maps in the modern sense were contemporary of the early experimentations of central perspective and, like these, construed an abstract "eye" contemplating a distant grid in which particulars could be relatively situated. In

1574, Peter Ramus wrote a "lytle booke" in which he exposed a calculus of reality in which all topics were divided in mental spaces that immobilized objects in their definitions precluding the understanding of knowledge as an act (Pickstock, 1998). Cartesian coordinates and projective geometry gave the first mathematical justification to the idea of an immaterial vessel, unlimited in extent, in which all material objects are contained.

Had "space" been invented as Einstein contended, or discovered? In the XVIIIth century, Kant announced that space was an a priori of perception. For him, Euclidean geometry and its axioms were the mathematical expression of an entity -- space- that cannot be perceived, but, like time, underlies all perceptions. The first attempt to contradict Euclidean geometry was published in Russian in 1829 by Lobachevsky, whose ideas were rooted in his opposition to Kant. For him, space was an a posteriori concept. He thought that he could prove this by demonstrating that axioms different from Euclid's can generate different spaces. In the light of Lobachevsky's - and then Riemann's - non-Euclidean geometry, Euclidean geometry appears ex post as just another axiomatic construct. There is no a-priori space experience, no "natural", "universal" space. Space is not an empirical fact but a construct, an arbitrary frame that "carpenters" the modern imagination (Heelan, 1983).

Einstein occupies an axial and simultaneously ambiguous position in the history of this understanding. In order to express alterations of classical physics that seemed offensive to common sense, he adopted a four-dimensional mathematically constructed manifold (coordinate "space") in which the space coordinates of one coordinate system depend on both the time and space coordinates of another relatively moving system. On the one hand, like Lobachevsy and Riemann ([1854]), Einstein insisted on the constructed character of space: different axioms generate different spaces. On the other hand, he not only came to consider his construct as ruling the unreachable realms of the universe, but reduced earthly human experience to a particular case of it. In Einstein's space, time can become extension; mass, energy; gravity, a geometric curvature; and reality a distant shore, indifferent to ethics. This space has reigned over the modern imagination since about a century. Yet, the idea that the realm of everyday experience is a particular case of this construct has not raised fundamental ethical questions.

The subsumption of the neighborhood where I live into the same category as distant galaxies transforms my neighbors into disembodied particularities. This loss of the sense of immediate reality invites a moral suicide. Hence, ethics requires today an epistemological distinction that evokes d'Oresme's: contrary to outer space, the perceptual milieu is a place of fullness. According to its oldest etymology, ethos means a place's gait. Space recognizes no gait, no body, no concreteness and, accordingly, no ethics. The ubi question must thus be ethically restated.

Body historians and phenomenologists provide tracks towards an ethical recovery of placeness in the space age. Barbara Duden has shown that fundamental ethical questions related to pregnancy can only be raised by relocating the body in its historical places (1991). For their part, phenomenologists, these philosophers who cling to the primacy of perception in spite of tantalizing science-borne and technogenic "certainties," restore some proportionality between body and place. For Bachelard, for instance, there is not the individual body immersed in the apathetic void of space, but an experience of mutual seizure of the body and its natural ubi.

Merleau-Ponty (1964) further articulates the complementarity of these two sides of reality. These can be steps toward a recovery of the sense of the vis-à-vis without which there is no immediate reality, and hence no ethics.

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