

Carlos Montemayor

Minding Time: A Philosophical and Theoretical Approach to the Psychology of Time.

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For much of the history of human inquiry into the mysteries of time, the dominant approach has resided with philosophers who have always asked questions about the fundamental nature of being. Using iatrogenic tools such as logic and rationale thought, as well as direct empirical observation and prolonged contemplation, the outstanding philosophical thinkers of the past have generated any number of possible perspectives, notions, ideas, conceptions, hypotheses, postulations and just plain guesses as to what time may or may not be. Many of these insights form the foundation of the little that we actually do know and understand about time today. But these respective offerings have each suffered from one very evident weakness—they are each over-powerful. That is, they explore what might be but have very rarely been strictly constrained by what is. Indeed, one can cogently argue that this very unboundedness is part of their very *raison d'être*. However, as a human conception, time (as opposed to duration or, more formally, endurance) must necessarily be constrained by human capabilities, and we, unlike many of the philosophers of old, know that such abilities are subject to evolution and in particular the emerging and changing capacities of the active, functioning brain.

Many existing philosophical conceptions of time then form pretty puzzles for any inquiring mind and are the source of virtually endless speculation and debate; but too rarely have any such philosophical formulations been specifically and intentionally abandoned in light of the rising tide of empirical knowledge. This observation is especially true for the human dimensions of time. But now such unconstrained expansiveness will hopefully be corralled, or at least to a degree better informed, for here comes a threshold text by Montemayor, *Minding Time: A Philosophical and Theoretical Approach to the Psychology of Time*, that asks, nay mandates, that we discipline our philosophical speculations in the face of the hard facts of neuroscience and experimental psychology. It is a stricture that we ought to readily embrace if substantive rather than speculative progress is to be envisaged.

1 A Pretty Puzzle Indeed

Montemayor's book then labors at the intersection of philosophical thought and empirical evidence from the modern neurosciences and the behavioral assessments of empirical psychology in order to address the mystery of

experienced time. Initially, we might think that this crucial, fertile, and indeed critical ground for all of human understanding would have been thoroughly covered, fully explained, and exhaustively articulated, so important it is for the comprehension of all behavior and the human relationship with the universe around us. However, as Montemayor demonstrates, and as is sadly clear from the innovations he is able to articulate, the landscape at this intersection of knowledge here is both arid and near virgin territory. So, as we read with him, it is clear that he is an explorer in a new land; his introduction to this necessary interdisciplinary continent is assured as he proves an articulate and facile guide.

Montemayor is careful first to establish the bounds and constraints of his own work. Much though he can tell us about time, his text does not seek to explicate time itself. Rather, his aspiration is more directed and more practical in that it focuses on how living organisms (mostly humans) have a sense of prospect and of duration. While I strongly suspect that positive answers to these latter questions can help us make vital strides toward the former goal (as I suspect Montemayor does also), I applaud his clear delineation, as should my reader in this necessarily complex area.

Montemayor's search begins with the absolute necessity to establish how the sensory-motor system of any living organism is able to 'synchronize' its actions with the external world. Although I have previously argued that the spatio-temporal separation of self from non-self is an even more primitive requirement (Hancock 2010), I would not dispute Montemayor's point that sensory-motor integration and synchronization with the world represents a perfectly reasonable point of departure for his argument. This endeavor naturally leads Montemayor to a contemplation of the nature of timekeeping capacities of living systems and, like others before him, he seeks to draw description and comprehension of such chronometric capacities from natural (mimetic and biomimetic) forebears. It leads directly to his consideration of represented time in periodic and interval clocks.

2 Periodic and Interval Clocks

Montemayor makes much of the putative differences between periodic and interval clocks, and some points are well made and thoroughly articulated. Yet, at heart, many of the characteristic differences that he points to are actually highly arguable propositions. When subject to sufficient scrutiny, the apparent difference between these forms of time-keepers are neither so pristine nor so determinative as Montemayor implies. Initially, this might seem to be a minor

issue, yet, as is subsequently explored, these timing differentiations are actually central when we extend the argument as to how humans perceive, use, and exist in time. For example, Montemayor notes: "Periodic and interval clocks correlate with cyclical and linear conceptions of time, which have generated so much debate in historical, sociological, and anthropological studies. The distinction between cyclical and linear conceptions of time is also of interest to scientists, because the asymmetry of time that generates a direction (or arrow of time) from the past towards the future only makes sense in linear time. If time loops back in a cycle and time travel is possible, then no distinction between past and future is tenable" (24). Yet periodic clocks are crucially characterized by their period and what is also important here is the magnitude and dimensionality of these respective periods. Such periods can range from perceptually sub-threshold intervals of microseconds for transient human observers to, potentially, the cyclic fluctuation of our whole universe whose period may extend to even hundreds of billions of years. Such periods necessarily subserve very different functions; at least as far as individual human beings are concerned (and see Morrison and Morrison 1985; http://en.wikipedia.org/wiki/Cosmic_View; and http://en.wikipedia.org/wiki/Powers_of_Ten).

Montemayor's discussion of the temporal intuitions that can be derived from interval versus periodic clocks is truly fascinating. The necessary transformation of the representational media of the former interval mechanisms serves to facilitate the conception that time is transient, ephemeral and progressive (that is, an arrow or conscious directionality of time from past through present to future). However, these very intuitions may be anachronistic, in both senses of the word. That is, world-views change and evolve, and it may well be that the essence of a culture or an age is encapsulated in the way that it approaches time. While Montemayor is perfectly correct that accumulation (or decay) and therefore linear interpretations are our present zeitgeist, this need not necessarily be so. In fact, one of the most profound of all changes that "time-smiths" have ever wrought is the ability to change attitudes towards the conception of time.

What is clear from Montemayor's exposition is his position that interval clocks are largely cognitive and perceptual accumulators whereas periodic (for example, circadian) human clocks are much more physiological in nature—and of course, they interact. In his essential resolution of the issues he raises, Montemayor argues for a form of category error in which time in a physiological sense is confounded in and conflated by time in a psychological sense. Among others, I have argued that this is an hierarchical relation and that the latter is necessarily erected upon the forever, where the human apperception of time then eventually proves sufficiently qualitatively different from other

living systems as to be unique. Montemayor's position is somewhat allied to this proposition but also somewhat different, and his new and innovative two phase model of the present approaches the question so as to open original and exciting vistas for our collective progress. The integration of ecological psychology, evolutionary psychology, and summarized philosophy provides an integrative and heady brew.

3 In Conclusion

In the welter of today's information tsunami, it is statistically likely that this gem of a contribution will go unnoticed. Any such oversight would be a sad mistake. This is complex and involved discourse; but then, when are real evaluations of any facet of time not? It should be compulsory reading for all "time-smiths" but would not be out of place in an essential reading list for all those entering any form of advanced education, most especially those trying to understand the behavior of living systems in all their manifold complexities. Laudatory encomia for texts are all very well but let me simply say this—I am very glad that I read it, and I wish I had written it.

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References

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