

Temporal and spiritual

C.J.S. Clarke

Time, The Familiar Stranger. By J.T. Fraser. *University of Massachusetts Press: 1987.* Pp. 389. \$24.95.*

It is not a new idea that time is multiple, that there is more than one structure to which the word refers; this explains why the discussion of time is so often fraught with confusion and paradox. But Fraser is the first to have developed the idea into a universal vision, condensed into the modest space of this book.

His temporal categories, identifying the different sorts of time appropriate to different levels of organization, are: atemporal, for the most fundamental constituents of the universe; proto-temporal, for massive particles; eotemporal, for macroscopic non-living objects; biotemporal for life; nootemporal for thinking organisms; and perhaps socio-temporal for humanity. The time of our immediate experience, with which Fraser starts his analysis, is the nootemporal one, and each lower form has less structure. Pedagogically this is a wise approach. It is easy for the physicist to forget that, though the time of special relativity is structurally much simpler than the "devouring time" of Shakespeare's sonnets (of which Fraser is agreeably fond), it is for that very reason more remote and harder to understand.

A deeper lesson which the physicist can learn from this approach lies in the possibility that the time at one level may not necessarily be derivable from that at the previous level simply by adding structure, such as adding directionality to a continuum. There may in fact be no simple relation between them. It is becoming increasingly clear, for example, that, if a successful unified theory of fundamental interactions emerges from the current investigation of string-theories, it will involve a 'space-time' whose relation to the space and time of observation is indirect and has to be worked out through a suitable theory of measurement.

Much of the appeal of the book lies in its wealth of charming detail: in the information that the *Farmer's Almanac* gives the year-number of the current Roman Indiction ("useful for farmers who pay taxes to the emperor"); in Proustian vignettes of encounters under beech-trees; in the assessment of political ambition by the

remark that "English people stand for office, Americans run for it".

Only once does this civilized style become heated, when the author contemplates thermodynamic treatments of 'the arrow of time'. Although he has made it clear that the central meaning of the arrow of time must be sought in nootemporality (specifically, in memory and anticipation), it remains the case that there are important links between this and circumstances that are not time-symmetric

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A deeper lesson which the physicist can learn from this *J.T. Fraser — anticipating the Anthill.*

obtaining at lower levels. Nootemporality could not evolve in a universe where the temporal direction of electromagnetic radiation is not related to the expansion of the universe in the way that is the case; nor would it make sense if charges were to radiate to the nootemporal past. Physicists have much to say about these links, between time at one level and physical processes in time at another level, and by using phrases such as "knee-jerk metaphysics" Fraser does less than justice to the achievements of Reichenbach, Gold, Sciama and others.

Almost nothing of interest is excluded from the scope of this book, and contention is therefore to be expected. There is much religious material, mostly well handled. But it was surprising, for instance, to see such a deeply Platonic thinker as Rumi enlisted at the end of Chapter 3 in support of an evolutionary view, and my surprise increased when the experience of the Mevlevi dervishes, stemming from him, was compared to

"the mass hysteria of screaming, weeping, and fainting generated by the rock 'n' roll in the 1960s". This forms part of a section arguing that experiences of timelessness are regressions to lower levels of temporality rather than glimpses of a higher one, but no reference is made to any of the main Western mystical writers.

The section with the biggest impact is the final dark anticipation of the emergence of a new level of temporality that has become possible with the establishment of a single present for the whole of humanity, linked together through global communications. Acknowledging that he is working more on intuition than cast-iron logic, Fraser points to many signs of "preadaptation" for this next evolutionary step. Our established attitudes to time weaken. The sense of history is lost as people and governments concentrate on the present and on short-term goals. The

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rhythm of the calendar is lost. Skills of analysis and interpretation become the preserve of a small élite, because "In the coevolution of people and their computers, the most significant step has not been that computers have become user-friendly, but that people have become computer-friendly".

As the machineries of multi-national capitalism and state-capitalism become increasingly alike, the Utopia offered to humanity is of "an orderly world, one without problems, a society where the needs of the citizen for bodily comfort are taken care of by magic invisible powers, where his demands for mental stimulation are satisfied by simple questions and undisturbing answers, and where disturbing individuals are joyfully disposed of". The new

global society, if it comes into being, unchecked by any external constraint but troubled by internal tensions and shortages of resources, will be prone to wild instability which it may or may not survive. We are now at the transitional phase, called by Fraser "the Anthill Threshold".

We might reply that social evolution is a matter for conscious choice, and no path is inevitable. But in practice humanity has muddled along with little reflection, until we now find ourselves at the point where the resources needed to avert global starvation are being devoted to the means of global incineration. Fraser reveals a chilling third alternative, the Anthill which will be ours if we opt for short-term technological solutions with no long-term goal. As well as setting the context for future work on time, this book will add to our understanding of the choice before us for the future direction of humanity. □

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*In Britain the book is available from Eurospan, 3 Henrietta Street, London WC2E 8LU. Price is £20.