

such a concept enjoys "a progressively increasing degree of richness" in passing from the time of physical phenomena to that of biology and psychology.

In the second part of the book Denbigh discusses three distinctive kinds of temporal change: processes occurring in inanimate nature, those of animate nature, and processes related to consciousness. He studies the identification of irreversible time with the increase of entropy, often called the "thermodynamic arrow of time," then compares this "arrow" with the "cosmological arrow," based on the expansion of the universe.

In dealing with time in consciousness, he convincingly points out its inherent irreversibility. For example, it is very difficult to conceive realistically reading a book backwards, progressively erasing from one's memory the knowledge of its contents. Denbigh argues in support of the conviction held by some thinkers that time provides a link between the physical and the mental, that is, between the material brain and mental activity. He concludes by sharing some opinions and speculations, one of which is that because of its greater comprehensiveness the time of consciousness has some primacy in reality over the other two concepts. This is perhaps the basis for another speculation, reminiscent of Pierre Teilhard de Chardin, that there is a progressive increase of total consciousness in the cosmos.

Three Concepts of Time is a well and carefully written book which gives a thought-provoking analysis of time for anyone with some background in one of the natural sciences. It is an outgrowth of extensive study of time involving a previous book (*An Inventive Universe*, George Braziller, New York, 1975) and chapters in several publications of *The Study of Time* (edited by J. T. Fraser, Springer-Verlag, Berlin), which is essentially the proceedings of the International Society for the Study of Time. For any scientifically oriented college graduate interested in a closer look at many aspects of time it is well worth reading and is comparable in quality to the well-respected *Voices of Time* (edited by J. T. Fraser, University of Massachusetts Press, Amherst, 1981).

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