

INTRODUCTION

Time has a puzzling character. To ask the question “What is time?” is really to stand before many possible avenues of inquiry. Each avenue allows us to examine one or another aspect of time, but none is able to capture all the dimensions of time. Philosophy, religion, music, literature, history, anthropology, psychology, biology, physics, evolutionary studies, and business management are a few of the paths which can be taken to explore distinct facets of time. One may ask if our understandings of time are socially constructed or if time is absolute and independent of our perception of it. Leonard Doob, who studies cross-cultural contexts, holds that time systems are unrelated to other cultural developments. For him, time is absolute.¹ Edward T Hall presents time as a core system of cultural, social, and personal life. He claims that everything that happens occurs in some kind of time frame. Each culture operates within its own time frames, characterized by unique patterns. In learning about that culture, one must also learn about the language of time.² A measurement view is offered by the anthropologist E R Leach who says that time is created by marking intervals in life. Until this is done, there is no measurable time.³ All of the papers in this collection explore time within a Western cultural context.

In our North American culture, we commonly say that “time is money,” and refer to “time spent,” “time-savers,” and “running out of time.” Clocks and calendars regulate our personal and work lives. Cultural commentators talk about the significance of “now,” while some religions speak of the “End Time.” Scientists approach questions of time in terms of “space-time,” atomic time, and time in relativity theory. Seconds need to be added to years in order to keep time accurately. Prior to the arrival of the year 2000, huge amounts of money have been spent throughout the world to make sure that all the computers can acknowledge the correct date.

We experience time in a personal way as well. In terms of pregnancy, one may ask, “What month is it?” Once born, birthdays mark the passing years as our bodies age with time. Retirement is named by some as the “golden years.” One method of child discipline is the “time-out.” When someone is enjoying life, we might say that she is having the “time of her life.” Some people can “keep time” with the music. Our work life may be understood as a “nine to five” job. We say that we must “put in our hours.” When we are not working, it is “down time.” We anticipate our “time off.” Dylan Thomas captures our time relationship when he poetically says in his poem *Fern Hill*: “*Time held me green and dying, though I sang in my chains like the sea.*”⁴ Except for some mystics, who may temporarily enter into a timeless state, there is no escape from time.

¹ Leonard Doob, “Time: Cultural and Social Aspects,” cited in *Making Sense of Time*, Vol 1, eds. T Carlstein, D Parkes, and N Thrift (London: Edward Arnold, 1978).

² Edward T Hall, *The Dance of Life: The Other Dimension of Time* (Garden City NJ: Anchor Press, 1984), Introduction.

³ E R Leach, *Rethinking Anthropology* (London: Athlone Press, 1961).

⁴ Dylan Thomas, “Fern Hill” in *An Anthology of Verse*, ed. R Charlesworth and D Lee (Toronto: Oxford University Press, 1964), 3.

Numerous attempts have been made to organize our understanding of the different dimensions of time. E J McCulloch provides a helpful categorization in his introduction to the proceedings of a conference on time held at the University of Saskatchewan.⁵ He proposes four distinct approaches to time: foundational, functional, social and artistic. The foundational approach is conceptual; it addresses the philosophical and theological dimensions of time. The functional approach to time examines its physical, economic, and moral dimensions. The social approach considers aspects of time consciousness and community perceptions. Imagination and human experience are explored in the artistic approach. An example of this foundational approach is found in the thought of the late philosopher, Hans Jonas.⁶ He asserts the significance of temporality in his proposal of a new ethic of responsibility. Noting that Plato was concerned with eternity and essence, Jonas explains that neither a focus on eternity nor essence leads to an ethic of responsibility. He states: "The Platonic Eros, directed at eternity, at the non-temporal, is not responsible for its object. For this 'is' and never 'becomes'. Jonas claims that we become responsible only when there is change and mortality. He writes: "Only for the changeable and perishable can one be responsible, for what is threatened by corruption, for the mortal in its mortality."⁷ Time is foundational for Jonas because it results in a changed ontology, which in turn, leads him to propose a different understanding of responsibility.

J T Fraser offers what he believes is an integrated understanding of time. He presents a rather complicated theory comprised of a hierarchy of stable integrative levels, along a scale of increasing structural and functional complexity. He claims that his approach does not eliminate the distinctiveness of the academic fields which contribute to it. It is a theory guided by pluralities of jargon, proof, personality, and schooling.⁸ Edward Hall, who uses time as a means to gain insight into culture, has created a time mandala which maps sacred and profane, physical and metaphysical, biological and personal, and what he calls sync time and micro time. These different categories of time are integrated by meta-time.⁹ The Humanities Research Group's Distinguished Speaker Series has explored time in a number of its dimensions, which remain open to possible inclusive and integrated approaches, such as those proposed by Fraser or Hall.

Three of the papers given by the Distinguished Speakers demonstrate how knowledge about a particular culture is revealed by examining time. Wesley Stevens introduces us to some of the scientific work which was done in the Middle Ages. Elizabeth Grosz asks feminist scholars to look seriously at Darwin's thought as a source of knowledge about biology

⁵ E J McCulloch, "Introduction," *Time as a Human Resource*, ed. E J McCulloch and R L Calder (Calgary: University of Calgary Press: 1991), 1.

⁶ Hans Jonas, *The Imperative of Responsibility: In Search of an Ethics for a Technological Age* (Chicago: University of Chicago Press, 1984).

⁷ Jonas, *The Imperative of Responsibility*, 125-26.

⁸ J T Fraser, "Introduction," *The Voices of Time: A Cooperative Survey of Man's Views of Time as Expressed by the Sciences and by the Humanities* 2nd ed, Ed. J T Fraser (Amherst: University of Massachusetts Press, 1981).

⁹ Hall, *The Dance of Life*, 13-29.

and nature. Stephen Bertman examines the implications of the fast pace of life in the late twentieth century. Norman Ramsey introduces us to the most contemporary form of time keeping, the atomic clock. These papers fall within the functional and social approaches to time.

Wesley Stevens, a medieval historian, takes us into the cultural world of Carolingian scientific thought between the sixth and eleventh centuries CE. He retrieves knowledge about the so-called Dark Ages, a time about which there is even today much popular misconception and ignorance. But Stevens wants to set the historical record straight. In the ninth century, it was only in large churches and monasteries, the stable institutions of this time, that schools and libraries could be located. Education was primarily for the monks and priests, supposedly to aid them in their spiritual tasks. When the corpus of surviving Latin manuscripts is examined, however, scientific texts and diagrams are found among the religious and grammatical texts. These scientific texts appear to have been used for *computus*, the subject of calendar reckoning, which serves to set the date for religious events such as Easter.

Astronomy was also of interest to the Carolingians. Ptolemy's mathematical theories of planetary orbits were written in Greek. In fact, these Greek teachings were absent or not widely known in the Carolingian schools. Ptolemy postulated that planets moved in an epicycle. Its centre was centred upon a larger circle which centred on the earth. Stevens asks if there were any alternatives to Ptolemy. Through use of diagrams from the time, he presents some of the varied ways that planets were viewed in relation to one another. In one diagram, for example, Mercury and Venus were depicted as orbiting around the Sun, while five planets circled the earth. Other manuscripts show that the manner in which the planets cycled did not need the earth as centre. Academics put forward theories on many astronomical phenomena and invented observational instruments. These included complex theories on apsides, latitudes, epicycles on the sun, and the use of the zodiac. By the late ninth century, methods were advanced to establish the correct times for solstices and equinoxes. Thus, in his study of time, Stevens offers us a richer appreciation of science in this period of the Middle Ages by examining the Carolingian scholars theories, methods, and depictions.

Elizabeth Grosz claims that Charles Darwin was an original thinker, who was able to link "difference and becoming" and "matter and futurity." He offers an account of our biologies which helps to explain the diverse viability in our social and political life. In the nature/nurture debate, many feminist scholars believe that social constructionism is the major influence in how we live as women and men. Grosz, a philosopher, notes that these scholars show some resistance to attending sufficiently to biological analysis. She thinks that it is important, however, to ask how biology brings about cultural and social change. For her, Darwin's work has the potential to be for feminism a rich source of "workable" concepts of time, nature, and transformation. Grosz develops tentatively some of the ways that Darwin's thought can enlarge and critique feminist thought. With respect to the cul-ture/nature dualism, for example, culture has been associated with the masculine and therefore more highly valued in patriarchy. Grosz asserts that Darwin offers another way to conceptualize this relationship. She explains that, when understood in terms of Darwin's theory of natural selection, culture is not the completion of nature, or its *telos*, but a product or effect. She also

presents Darwin's work as offering ways to understand the complexity of the relationship between sexual and racial difference.

Grosz challenges feminists to examine the ramifications of Darwin's understanding of evolution. She suggests how feminist discourses and methods may be re-evaluated by such an exercise. Darwin's work describes how the operations of the environment on the individual constitute a force which results in transformation and the development of viable and successful strategies for survival. Following from this observation, Grosz argues that what is true for the survival of the species is also true for the survival of political strategies and stances. This being the case, feminist presumptions, methods, and values must also undergo transformation in order to survive the forces which prevail upon them.

Stephen Bertman, a social critic and professor of classics, examines time in a way most of us experience it in our everyday lives. We live in a world where everything is speeding up and there is never enough time. Even if we wanted to slow down, we could not. In consequence, it has been necessary to adapt to fast times, but at the human cost of increased stress. Bertman traces how the technologies of speed, both in dramatic and in more subtle ways, have pervaded every aspect of our public and personal lives.

As a result of this social acceleration, there is a radical change in our behaviour and sensitivities. We become disengaged from the past; we are propelled into the future; we end up in "now" time. "Now" is characterized by focus on the short-term, on immediacy, transience, sensation and impulse rather than on what follows from a more long term horizon, permanence, memory, and insight. He explains that we live by a "random trajectory" rather than a "reasoned destination."

Can we find a place to slow down and reflect about what it means to live a whole life in this speed driven culture? Bertman believes that education in the humanities will allow us to connect to the "abiding values of an earlier time." He claims that the humanities serve as a counter-culture. He argues that because of the technologies of speed which dominate and drive our culture, alternative ways of living are lost. We no longer have the freedom to choose.

By their own reflections on time, Wesley Stevens, Elizabeth Grosz and Stephen Bertman, each offer us insights, methods, and strategies to understand our history and our culture. The fourth Distinguished Speaker, physicist and Nobel Laureate, Norman Ramsey, presents the science of atomic clocks to explore the whole universe!

Ramsey begins by describing the principles operative in the leading atomic clocks. He notes that the three properties related to the characteristics of clocks are accuracy, reproducibility, and stability, and he explains how time and frequency are related. He acknowledges that even though the earliest clocks served the purpose of measuring the passage of time, atomic clocks and other related devices serve to measure frequency.

Many people think of clocks as informing us of the hour and minute of the day. It is therefore surprising to learn from Ramsey about the many applications of atomic clocks. Radio astronomy, pulsar periods, variability of earth rotations and other periodic phenomena, precision navigation and navigation, in outer space are a few of the uses of atomic clocks.

But even this scientific approach to time through the use of atomic clocks begs us to ask what assumptions about time are operative within our own culture. In the centuries to come, scholars will examine our clocks and the uses we give them. They will examine the social phenomenon of feminism, its influences, sources, and methods. They will

study our historians and social critics to see how ideas and social developments of the current time have contributed to future social developments. Our Distinguished Speakers have enriched us by their diverse studies of time. It is hoped that this scholarly collection of essays will become, both now and in the future, a resource that represents one way our culture has attempted to explore the dimensions of time.

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