Chapter Eight
The Temporality of Consciousness

"Past, present, and future are not discrete divisions among an orderly succession of life's events. Rather, past, present, and future fold backward and forward like Japanese origami. They collapse onto each other, emerge from each other, and constantly determine each other, as we construct and reconstruct both past and future in the present, and the past and future construct the present."
Marcia Johnson and Steven Sherman

Introduction

A common differentiation frequently made is the three-fold distinction of past, present, and future. We may think of the past as a discrete and distinctive reality that once existed but no longer does—we, in fact, have memories of some selected sample of these former realities—and conversely, we may also think of the future as a discrete and distinctive reality, which currently does not exist, but at some later point in time will exist. We commonly view the present as what actually does exist at a given point in time. Moreover, the present can be seen as the dividing line (moment of existence) separating the past—what is not but has been—and the future—what is not but will be.

The above quote by the psychologists Johnson and Sherman strongly questions whether this three-fold temporal distinction is clear cut at the level of human experience. In line with Johnson and Sherman, one of the central points (or conclusions) presented in this chapter is that past, present, and future cannot be absolutely separated at the level of individual consciousness; in important respects, at a conscious level, past, present, and future are interdependent rather than separate realities.

In this chapter I examine the temporal structure of consciousness—a fundamental feature of our experience—discussing both consciousness of time and the temporal form of consciousness. In this context, I discuss the temporal boundedness and flow of consciousness; the relationship of the past, present, and future; theories of time and the psychological impact of such theories on consciousness of time; the relationship between conscious time and physical-cosmic time; historical and future consciousness, and the connected psychological processes of memory and anticipation; the temporal narrative structure of consciousness; and evolutionary features of time. I connect a number of these topics and themes with my ecological-evolutionary theory of consciousness.

The Temporal Boundedness of Consciousness

I begin this chapter with the fundamental topic of the temporal boundedness of consciousness. Although some percentage of people believe that they (their conscious minds or souls) have lived before (reincarnation), and many people believe or hope with great faith, passion, and conviction that they will live beyond their physical death (e.g., realizing an immortal, timeless, and non-physical experiential reality in an "afterlife"), on

the face of it our individual consciousness seems bounded in time, by birth and death —a beginning and an end. If we reject the dualist notion that our consciousness has a distinct and independent existence from our physical bodies, and instead believe that our individual consciousness is embodied and inextricably tied to our biological bodies (as a living presence embedded in a physical environment), then in so far as our bodies clearly integrate and emerge in time, and eventually disintegrate and end, it would follow that our individual consciousness both emerges in time and eventually ends. Our consciousness seems bounded in time.

Even if it makes sense to believe that our individual consciousness emerges—begins or comes into existence—rather than extending indefinitely back in time, at an experiential level, for most of us, we do not have a memory of a distinctive beginning to our consciousness. Our memories of conscious states (of being conscious of one's own existence) only seem to extend so far back in time to early childhood. The beginnings or earliest recollections of our consciousness seem to consist of a selective and small set of childhood memories that blur out into an ambiguous haze. I have heard reports of people who believe they remember being born, or even being in the womb. Although it is plausible that the human fetus or embryo is conscious, most of us don't remember being conscious in the womb—perhaps our adult minds, for some psychological reason, are incapable of remembering such an experience. All in all, I won't absolutely discount the validity of reports of "birth consciousness" or "womb consciousness," but they are highly atypical and their credibility should be scrutinized. (I wonder if it plausible and conceivable that we could experience a distinctive first moment of conscious existence, which is recognized as such?) For most of us, our memories of our earliest conscious existence seem to consist of a sprinkling of a small set of remembered childhood experiences blurring out into a nothingness.

Regarding the end of our consciousness, of course we do not have an experience of this reality because while we are conscious and alive, that event, by definition, has not yet happen, although we all anticipate and think about it. Still, it should be noted that some people believe—in an act of presumably seeing into the future—that they are conscious of the moment of their coming death.[1]

Yet, even for the bulk of people who do not think they have "viewed" their own death, a huge percentage believe, primarily based on religious and spiritual grounds, in "life after death," in some manner or form. In support of such beliefs, there are many "after death" reports from people, who clinically die, and are then resuscitated, and state that they had various kinds of experiences during the period when they were medically dead. Yet, given the great fear, dread, and deep uncertainty associated with personal death, and the powerful human (and animal) drive for survival and persistence of existence, such reports need to be critically assessed.[2] Faith, hope, and belief in a reality does not imply the existence of that hypothetical reality. All these types of

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[1] Robert Heinlein, the science fiction writer, wrote a story titled "Lifeline" (1939) that explored one perspective on this possibility. The central character, Billy Pilgrim, in Kurt Vonnegut's *Slaughterhouse-Five* (1969), in a "transcendent" state of consciousness, experienced his death over and over again.

[2] See Ernest Becker's *The Denial of Death* (1973).

experiences and associated beliefs can plausibly be viewed as expressions of wishful thinking.

It should, though, be noted that various arguments and proposals, based on scientific and technological concepts and principles, have been presented regarding the future feasibility of indefinitely extended individual consciousness. With ongoing advances in medicine, biotechnology, genetics, robotics, and artificial intelligence, it is conceivable that in the future the consciousness of individuals could be prolonged without any clearly indefinable limit.[3] Although I find such proposals more plausible and credible than traditional religious and spiritual beliefs in immortality—identifiable procedures and technologies are articulated and explained, rather than relying on unexplained metaphysical powers—all these proposals only suggest the possibility of indefinite life/consciousness extension, rather than immortal conscious existence (without end). The one exception is Frank Tipler's ("Physics of Immortality") theory, which attempts to demonstrate the possibility of immortal individual conscious existence through scientific and evolutionary means (see references below).

Even granting the possibility of such radically extended life-spans through scientific-technological means, the temporal extent of an individual consciousness seems necessarily bounded by a terminal end point. Aside from the clearly temporally limited existence of our biological bodies, which age and eventually disintegrate, a deeper and broader reason for believing in the temporal boundedness of consciousness derives from the spatial-temporal boundedness of open systems in the universe. Just as open systems are relatively localized in space—their existence involving a distinctive separation of themselves relative to a surrounding context—open systems in the cosmos also appear universally finite or bounded in time. Open systems emerge in time and eventually dissipate. Indeed, the distinctive identity of any open system seems inextricably connected with its circumscribed and bounded nature. Open systems are individuated and localized in the context of a more encompassing surround. In my mind, conscious persons (or life forms), as open systems embedded and contextualized in the universe, fall into this general category. To be a distinctive conscious reality (as a type of open system) entails being bounded in space and time, always a microcosm within a more expansive macrocosm.

All in all, for a number of different reasons, it seems to me that our individual consciousness begins (emerges) and ends (even if, in the future, the "end" can be incredibly extended). Within these boundaries, of a beginning and an end, individual consciousness has an experienced temporal extent (the period of our life).

Adding to the complexity of this temporal boundedness, we can divide the overall duration of a lifetime of consciousness into a series of daily pulses of wakefulness, interspersed with periods of relative unconsciousness during sleep. Sleep itself can be divided into periods of relative unconsciousness and periods of dreaming

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[3] See, for example, Tipler, Frank *The Physics of Immortality* (1994); Cordeiro, José and Wood, David *The Death of Death* (2023); and Kurzweil, Ray *The Singularity is Nearer* (2024). A scientific-technologically grounded, high-powered science fiction novel dealing with individual virtual conscious minds that have indefinitely extended life-spans is elaborately articulated in Greg Egan's *Diaspora* (1997). See also Lombardo, *The Future of Science, Technology, and the Cosmos* (2002/2022), pp. 296-303, and Cixin Liu's *Death's End* (2016).

consciousness. As such, an individual consciousness, as a bounded reality, can be described as a finite series of temporally circumscribed shorter term pulses of consciousness.

In completing this section, I should discuss two additional and related considerations regarding the boundedness of our individuated consciousness. For those people who believe in a conscious existence after physical death, the anticipated immortal conscious existence following physical death provides meaning and purpose to the physically embodied mortal period of conscious existence. The mortal period serves the function of a pathway to the immortal after-life and, for many believers, the actions executed in the mortal period have an impact on the quality of the subsequent immortal period. The value of what an individual thinks and does in the mortal period is judged relative to its immortal consequences. It is the "after-life" that is seen as the centrally most important dimension of our conscious existence, with mortal consciousness as a prelude to this higher state.

Moreover, for many who believe in an after-life, the individual mortal sphere of conscious existence is also seen within the context of some type of cosmic eternal plan or trajectory, having meaning and purpose relative to this more encompassing reality. Does one's individual life align or not align with the grand eternal plan and direction for the universe? The big picture of reality provides a framework for determining the quality of one's mortal existence.

Yet, on the first point above, we could argue that our bounded conscious existence is not sufficiently appreciated or meaningfully understood if it is viewed as a temporary transition period that eventually leads to some kind of hypothesized higher state. We minimize and obscure our individual bounded conscious existence by treating it as a prelude to something greater (vaguely defined) coming after it. As has often been argued, we appreciate life much more deeply by acknowledging its bounded and finite reality; life becomes more precious and wondrous in our later years as we approach death. Supporting this argument, we can reference the psychological contrast effect: One reality becomes most salient and vivid in contrast to its opposite. Life and consciousness is most powerfully striking and meaningful relative to its opposites of death and unconsciousness. To deny the latter is to wash out the color of the former.

I do though support the view that an essential part of understanding our conscious existence involves contextualizing our individual existence in the context of the big cosmic picture. In some manner or form, I believe most people have some type of big picture understanding of "life, the universe, and everything," and moreover, people see their individual lives in the context of such big pictures. People believe in grand narratives of the universe and the history of humanity and situate their individual personal narratives (the story of their lives) within the context of their grand narratives. There is a bigger, more encompassing "time"—however we conceptualize it—in which we place the more circumscribed time of our lives. The transcendent, eternal plan big picture of reality is one such grand cosmic narrative for contextualizing one's individual temporal existence, but it is not the only one.

Later in this chapter, I discuss in more depth the concept of the grand narrative as a conscious framework for understanding cosmic-historical time, and also discuss the connection between personal and grand narratives. As I have already described at length, I believe the evolutionary grand narrative of the universe, life, and human history

is the most credible and well-articulated big picture we currently have regarding the time of cosmos. As such, I also think that in conceptualizing and understanding our personal narratives of our individual life-spans, we should place this individual time bounded narrative within the context of a cosmic evolutionary grand narrative. The time of our lives should be seen in the context of the time of the universe, as best as we understand the latter.

Past, Present, and Future

Not only is consciousness circumscribed in time, there is a complex multi-faceted structure to our consciousness *of time* and *in time*. One basic feature of our consciousness of time is that it is differentiated into an awareness of the present, a recollected awareness of the past[4], and an anticipatory awareness of the future. The past is experienced as the time before the present, and the future as the time yet to come after the present.

This three-fold division, though, does not involve three discrete and independent realities; it is in several respects a highly relational (relationally defined) triad. We can argue that our sense of the past and the future are relative to an experienced present, since without a present, past and future could not exist; the past is, by definition, what comes before the present, and the future, by definition, is what comes after the present. If one envisioned time as a linear dimension of existence—a continuance or duration of existence—one could not determine on such a line, what elements were in the past and what elements were in the future until one identified where on the line was the present. If we take away the present, the past and the future would by definition disappear. It is the (conscious) present that divides and determines what is the (conscious) past and what is the (conscious) future.

But reciprocally, the converse also seems true. Without a separation and identification of past and future, there could be no present. The present, by definition, exists at the boundary (area) between past and future. The conscious present requires a conscious past and conscious future, as much as the converse.

We could argue that the present has a powerful, raw, and perhaps absolute feeling of existence, distinguishable from both the (receded) past and the (yet-to-be) future, neither of which strictly exist in the present. But the present involves the experiences of becoming and passing away, the former pointing toward the future and the latter pointing toward the past. In becoming, there is the (experienced) transition from what is not to what is, and in passing away, there is the (experienced) transition from what is to what is not. Past and future seep into the present.

We can ask if the three-fold relational reality of past, present, and future within our consciousness of time is a universal phenomenon in human experience? Throughout history, especially in meditative and spiritual traditions, the claim has been repeatedly made that individual humans can experience a conscious timeless reality without past, present, or future, or without a sense of conscious flow and transformation (becoming

[4] More broadly, the past goes beyond simply what is remembered, but includes all events or occurrences that preceded the present; the past encompasses all of reality before our individual conscious existence.

and passing away) (see discussion of the temporal flow of consciousness below). Such timeless conscious states presumably align with (or are immersed within) the postulated timeless (eternal) state of ultimate reality. In essence, it is believed by some that such experiential states tap into a higher form of existence that transcends time.

In this regard, recall the earlier discussion of theories of reality in Chapter One. One prevalent view in history is the postulation of a higher eternal realm, transcendent to time, that is ontologically fundamental. I have already presented arguments for rejecting such theories of ultimate reality.

At this point, I could add that if—for the sake of argument—conscious timeless states could be realized, contrary to the idea that such states tap into a higher, more fundamental reality, such timeless conscious states would be decidedly primitive. A differentiated conscious time of past, present, and future and sequential temporal flow is a more evolved and complex state of existence than a postulated timeless consciousness or transcendent timeless existence. (See, for example, my previous discussion of Fraser's theory of the evolution of time in Chapter Three.)

Also, regarding the question of whether a timeless mode of consciousness can be realized in humans, I would propose that as differentiation and structure disappears in consciousness, the very reality of consciousness evaporates as well. As I explained at length in the previous chapter, a whole set of differentiated, integrated, localized, and individualized structures emerge in the cosmos supporting the existence of consciousness. Supported by such complex and individuated physical structures, consciousness manifests itself as a complex, contextualized, and individuated reality. In line with other realities in the cosmos, it does not seem to me that there can be anything like a pure consciousness that is not particularized, contextualized, and structured—this would include a temporally structure. (There does not seem to be pure absolute physical time or space, or absolute non-individuated matter or energy.)

Delving further into the three-fold (relationally defined) distinction of past, present, and future, there seems a clear experienced difference (or asymmetry) between the past and the future. The past is experienced as that which once existed relative to the present, and the future is experienced as that which, as of yet, does not exist relative to the present. We can remember the past—the past is a reality—but we can only anticipate the future—the future is not yet a definite reality. Indeed, the argument has been made that the future does not really exist; it is hypothetical and a possibility, but not (by definition) an actual reality. (The future is not something—a reality—out there in front of us.) Hence, the past is experienced as something definite in its reality, whereas the future is open and not yet determined.

On this distinction regarding the past and the future, we should though acknowledge that determining the exact nature of the past is not a simple or unambiguous process; the past can be debated and discussed, and we can keep learning new things about the past, revising our understanding of what actually happen in the past. There may be a reality to the past, but that reality is not necessarily clearly grasped or definable. In fact, it has been argued, as an even more extreme view, that we actually determine the past through our interpretations and mindsets in the present. How definite really is the past?

Conversely, some would argue that the future (at least to some degree) already exists (as probabilities or even immutable consequences of natural laws), and we can

ascertain and determine at least some features of the future.[5] Humanity has a long history of efforts, including both prophecies and scientifically grounded predictions, of identifying and describing the (possibilities and inevitabilities of the) future. See the previous extended discussion of the evolution of future consciousness in Chapter Two.

Of particular relevance to the issue of the comparative reality of the past and the future are science fiction time travel stories. There are time travel scenarios of traveling from the present into the future, as if the future somehow already exists (relative to the present) and we just need to develop the (technological) capacity to journey into this reality; see, for example, H. G. Wells *The Time Machine* (1895) and Stephen Baxter's *The Time Ships* (1995). Conversely, there are time travel scenarios of journeying from the present into the past, as if the past still exists relative to the present and can be visited using advanced technologies; see, for example, L. Sprague de Camp's *Lest Darkness Fall* (1939) and Michael Moorcock's *Behold the Man* (1969). There are also intricate time-travel scenarios involving back and forth "movements" into both the past and the future, creating interdependent temporal loops of causality in the story line; past determines the future and the future determines the past; see, for example, Robert Heinlein's "All You Zombies" (1959), David Gerrold's *The Man Who Folded Himself* (1973), and Baxter's *The Time Ships* (cited above).

When Wells proposed his hypothetical time machine for traveling into the future or the past, he assumed a particular theory of time: Past, present, and future all co-exist on some type of "simultaneous" sequential line; time travel is simply moving along this existent temporal line.[6] This theory aligned with Einstein's proposal that in our physical universe all temporal points or pathways are co-existent; there is, in reality, no past, present, or future in the physical universe—only a totally articulated and determined temporal sequence (or dimension). In Einstein's theory, our individual consciousness simply "moves" along the already existing line (or dimension); events further along the line, yet to be encountered, are the future; events already passed on the line are the experienced past; and the point we are at on the line is the present, but all points (moments) on the line co-exist. In Einstein's mind, past, present, and future are illusions of individuated consciousness; these differentiated conscious realities do not exist in the actual physical universe. [7]

Yet, one can argue that Einstein's (and Wells') theory of the co-existence of past, present, and future—even the (fundamental physical) unreality of this three-fold distinction—is based on the mistake of reductionism. Even is we assume that at the more primordial levels of physical existence—of atomic and subatomic constituents—there is no past, present, or future, it does not follow that at more evolved and complex levels of reality this three-fold temporal structure doesn't exist. (It should be noted that according to the special theory of relativity, there is no time at all for photons.) Past, present, and future at the level of living articulated conscious beings can be seen as

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[5] See Adams and Laughlin (1999) *The Five Ages of the Universe: Inside the Physics of Eternity*.

[6] Lombardo *Science Fiction: Volume Two*, pp. 35-45.

[7] See Leonard Susskind "Why You Are Already Dead and Don't Know It" - https://www.youtube.com/watch?v=TbOEJXikUL8 - for a discussion of this theory and the relativity of the now.

emergent temporal realities. Past, present, and future are just as real as whatever temporal properties exist at more primitive levels in the universe. In essence, this non-reductionist theory of the evolution of temporal complexity—of new emergent temporal realities—is the essence of Fraser's theory of the evolution of time (See Chapter Three and Fraser's (1978) *Time as Conflict*.)

Keeping in mind the above arguments and counter-arguments regarding the reality of past, present, and future, all in all, our normal experience of the past and the future relative to the present, involves a fundamental asymmetry or difference between the experience of the past and our experience of the future: The past once existed—even if it no longer does—whereas the future does not yet exist, although it can be conceptualized as an arena of possibilities and probabilities.

The Temporal Flow of Consciousness

Having direct relevance to understanding in more detail the reality of the present, past, and future, the next important feature to our consciousness of time to be examined is the experienced ongoing succession of events within our conscious temporal existence. We experience the temporal extent of our conscious existence as a succession of events in which new events emerge into the present and current experienced events become part of the past. If the dimension of experiential time is conceptualized like a line, then on this line is a series of adjacent events, and our consciousness of time involves sequentially experiencing these successive events. (If the future does not exist relative to the present, this temporal line, out in "front," is being created in successive moments of the present.) This experience of a linear succession of a series of events has been referred to as the "flow of consciousness."

Past, present, and future are all features within this experienced succession of conscious events. The past consists of those events previously experienced in the succession, and the future consists of those events yet to be experienced in the succession. The present consists of those events in the succession that we are currently experiencing.

But if experienced time is a flow of successive events, this flow has a fundamental directionality. The present continuously opens up into an emergent future and the past is continuously receding away from the experienced present. Conscious time perpetually keeps moving into the future and away from the past. This directionality of experience is referred to as the "psychological arrow of time." (The physical arrow of time—among other factors—includes the asymmetry of entropy in the universe, increasing in one temporal direction—subsequent events—and decreasing in the other direction—previous events.)

The present is clearly enveloped, and experienced as such, within the temporal directionality of consciousness. The conscious present is experienced as occurring within the experienced succession of events running from the past into the future. As such, the present is temporally asymmetrical. There is a direct experience "in the present" of the directional flow of psychological time. In the present, there is the experienced flow into the future away from the past. Things become and things pass away in the present. An experienced present requires the complementary directional experiences of a receding past and an emerging future. Regarding the experience of

temporal directionality embedded in the present, there is no absolute now, divorced of past and future**.**

The experiential present contains features of both continuance and change. The experiential present is not a static momentary snapshot of awareness, and time is not experienced as a series of instantaneous, intrinsically determinate, and distinct states of consciousness. In the present, there are experiences of change, relative stabilities, and extended durations. Within the experiential present there are dimensions of both continuance and transformation, and neither of these complementary temporal qualities can be realized (or defined) if the present was simply an instant without temporal duration. Rather than the present being experienced as a series of successive ('timeless") discrete states—with neither change nor duration within each individual state—like a succession of photos on a film strip, the present has the quality of continuance, and possesses a complex temporal structure involving both experienced transitions and durations.

In this regard, I should also highlight that the experienced qualities of continuance/ relative stability and change are complementary and reciprocal realities. Relative stability and continuance are experienced in relationship to experience change and vice versa. If nothing changed, there would be no sense of continuance or stability, and if nothing remained relatively stable there would be no sense of anything changing. (See Chapter Three on invariance and transformation in perception.)

To recall, the expression "flow of consciousness" is attributed to the nineteenth-century American psychologist, William James. Based on the idea that conscious time is perpetual flow, we can argue that the present is perpetually fleeting, always flowing into a different (future) state of affairs. Try to grab hold of the present within our consciousness; it keeps slipping away through our attentional grasp transforming into a different and yet continuously connected new present (the emerging future).

But James also stated that it would perhaps be more accurate to describe conscious time as "flights" and "perchings," with momentary stops in attention coupled with intermittent jumps to new focal points of attention. From this perspective, conscious time is like a series of saccadic eye movements, rather than a smooth and continuous flow. There is flow, but it is a jumpy pulsatory flow, with periods of momentary relative stability in attention ("perchings"), punctuated by relatively abrupt transformations ("flights").

Following the lead of contemporary writers on consciousness, such as Bernard Baars and Galen Strawson, individual conscious states can be described as integrated temporal "wholes" (momentary synthesized configurations of thoughts, emotions, and perceptions). Consciousness pulses, through "perching" and "flights," from one integrated configuration to the next one (Baars, 1997; Blackmore, 2004). Still, within each successful "perching" we find the qualities of experienced change, stability, and duration, giving that temporal integration structure and complexity.

Past and Future Consciousness in Perception and Behavior

We should note that consciousness of time begins at the foundational level of perception—in seeing, hearing, and touching. It could be argued that perception appears limited to the present; we can not perceive the past nor the future through our

senses. But even at the basic level of the perceptual awareness of time, humans (and undoubtedly other animals as well) are aware of (see, hear, and feel) both relative persistence and relative change in the world around them. We can perceive things changing; we can perceive things, at least for the relative moment, remaining relatively the same.

Beginning at the perceptual level, consciousness of stability and change are relational, each anchoring the other; we perceive change relative to stability and perceive stability relative to change. Relative persistence and change, though, as noted above, cannot be defined or experienced in an instant; both require temporal extent. Things change over time; things remain the same over time; neither reality—change or stability—makes any sense in the confines of an instant without duration. The experiences of becoming and passing away, which also occur as part of our perceptual consciousness, also require a sense of duration.

Hence, at the most primordial level of consciousness, within perception, there is no instantaneous or absolute present, for there is duration, persistence, and transformation experienced within the perception of the "present state of affairs," which by necessity is an extended and transforming present. Perception may be confined to the "relative now," but our experiences at this fundamental level are temporally extended and complex.

As noted above our awareness of the present, which includes our ongoing perceptual experiences, involves an ongoing sense of flow into the future and away from the past. This contextualization of the present relative to the past and the future is further enriched by the higher cognitive capacities of memory and anticipation. What is experienced as the now is contextualized and understood in relationship to a remembered past and an anticipated future. Objects or events apprehended in the present are interpreted and identified in terms of the repository of knowledge gained through past experiences—we see the present through the eyes of memory and conceptual understanding—and further and equally so, in terms of expectations of where things appear to be leading in the future. Our memories (and past learning) and our expectations enrich the meaning and experience of the present. The anticipated future can be very short term, such as, we expect the ball in our hands to fall to the ground if released from our grip, but there is still an ongoing sense of the anticipated flow into the future always within the experience of the present. We can also add that it is our memories of similar events in the past that inform the expectations of the future; we expect ongoing events to follow similar patterns of change as have been observed in similar types of events in the past. In summary, future and past consciousness, manifested through memory and anticipation, invariably accompany and structure our consciousness and understanding of the present.

I propose that the contextualization of the future-directional flow of consciousness through memory and anticipation is the foundation of the narrative structure of human consciousness. Our storytelling capacity and narrative mode of understanding reality emerges out of the primordial, sequentially structure of the memory-anticipatory interpreted flow within human consciousness. Experiencing reality in the form of connected sequences of events provides the basic form for narrative consciousness. As such, we are psychologically primed or predisposed to make sense of reality, both of the outside world and of ourselves (and the interaction of the two), in the form of

stories or narratives, in which ordered sequences of events flowing from the relative past into the relative future provide temporal order and meaning to existence. Within a narrative mindset, we identify causal connections between earlier and subsequent events; the sequential flow of events is interpreted as causally determined.[8]

If we shift the focus from perceptual and narrative consciousness to basic behavior, almost all human actions, and most animal behaviors, are purposeful, showing intent that is directed toward some future goal or consequence, even if the goal is relatively short term. We act to realize ends and these ends pertain to the (anticipated) future. Our present actions are guided and informed by anticipated future results. As such, most behavior is purposefully future-directional. And moreover, our purposeful behavior, especially but not exclusively in humans, is invariably informed by the remembered past, of what we have learned through experience and our engagement with the world. As with perception, behavior shows the influence of the past, in that learning and memory influence our present actions. Learning and memory are brought to bear on our present actions as an informational foundation for guiding behavior toward purposeful ends. Learning and memory also serve as an informational foundation for our own personal purposeful self-development; we apply what we learn (at least some of the time) to growing as a person. For both external goals and internal self-development, we learn from the past to better realize what we want and desire and intend in the future. All in all, our present purposeful actions—what we are doing in the moment of the “now"—are contextualized (interpreted and guided) in terms of a remembered past and anticipated future.

In purposeful action, we go beyond the more elementary processes and activities studied in the physical sciences. Although it is the general scientific view that there is no “telos” (purposeful ends) guiding the initial evolution of the universe, the motions of planets, stars, and galaxies, or the chemical interactions in atoms or molecules, humans and animals exhibit future-directed purposeful behaviors. Animal and human behavior is guided toward intentional ends. Not only does consciousness perpetually flow into the future, but we are continuously anticipating the future direction of the flow and attempting to guide the flow and direction of events, through attention, thought, values, and behavior. (These qualities apply to various degrees in animal consciousness as well.) This temporal structure of purposeful behavior—a teleological directionality—in humans and animals transcends in temporal complexity the temporal structure of non-purposeful natural entities and processes.

It is the nature of human consciousness (and the same is true of animal consciousness to relative lesser degrees) that we act with purpose and perceive (and proprioceive) with anticipation. Future consciousness is infused into the fundamental processes of our psychological existence. It is within this future-directional context that the conscious human mind purposefully evolves both itself, as well as the surrounding world.

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[8] An interesting point of discussion, debate, and experimental research concerns whether we are able to perceive (through vision, for example) causal connections; do we “see” one event causing the next one? David Hume had argued that we only infer causal connections between observed events, rather than actually perceiving them, but his view has been questioned within psychological research and theory.

Complementarily the (remembered) past also infuses itself into perception, proprioception, and purposeful behavior. What we have learned guides our sensory-perceptual processes and informs our actions. Indeed, as I noted above, future consciousness builds upon past experiences and as such our anticipations and intentions influencing and structuring our sensory-behavioral consciousness are informed and articulated based upon past experiences.

All in all, past and future consciousness are both infused into our basic conscious processes of sensing ourselves and the world and acting upon the world. Psychological time—an integrated time of past, present, and future—is a basic feature of foundational consciousness. (I should also note, in reference to the previous chapter on the foundational conscious processes of emotion and motivation, that past and future consciousness powerfully impact these processes as well.)

Presentism and the Conscious Now

Based on their level of psychological maturity and cognitive development, people may predominately live within a relative present. People may have a hard time in thinking out their future very far, or with much clarity, passion, or focus. Complementarily, people may have limited or impoverished historical consciousness. They may not have much interest in history or the past. In such cases, we see young or undeveloped minds. Such conscious minds have limited temporal vistas. But these are limiting cases, and only relative, for learning/memory, expectation, and purposeful intention can be found in almost all human behavior. [9]

Individuals, to various degrees, can intentionally focus on the task at hand, or to various degrees attempt to free their conscious minds of distracting memories or expectations. It is not that the individual can't think ahead—from a maturational or competence point of view—but rather the individual is intentionally immersed in what is going on right now. Expert performance requires such dedicated attention and focus. Such states are seen as a heightening of consciousness involving an increased clarity and focus of mind.

But even if we are intentionally attempting to focus on the present, the conscious present is always a relative present. As noted above, there is no absolute, instantaneous, or timeless present within conscious experience. Moreover, there is no absolute separation of past, present, and future within consciousness. The present is always embedded in the ongoing complex flow of consciousness, and this directional experience of time is past/present/future integrative, whereby our flowing conscious present is always contextualized by a remembered past and an anticipated future. It is psychologically impossible to experience reality exclusively in the present devoid of the (remembered) past and the (anticipated) future.

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[9] See Zimbardo and Boyd's work (*The Time Paradox*, 2008) on "time perspective;" individuals may show temporal preferences, with some people more focused on the past, with others more focused on the present, and others more focused on the future. These preferences are relative, with no one absolutely and exclusively focused on one of these three aspects of temporal consciousness. See Lombardo, 2017, pp. 85-90, for a discussion of Zimbardo/Boyd's work.

If a person shows the capacity to focus and attend—to "get into the flow"—this capacity is not a simple unstructured pure reception of what is happening in themselves or in the world.[10] Focus is disciplined; focus is anticipatory; focus is informed and selective. Focus is purposeful. Through learning and discipline, we educate our attention to focus on the relative present.[11]

There is the argument that all that consciously exists is the present. When we remember the past, we always remember it "within" the present, and when we anticipate the future, our experienced anticipations are always taking place within the present as well. I will refer to this thesis about the psychological primacy—indeed inclusivity—of the present within consciousness (conscious existence) as "presentism." Within this view neither the past nor the future consciously exist.

I should, though, distinguish between two forms of presentism: One form is an ontological thesis and one form is an ethical thesis. Ontological presentism is the thesis, just introduced, that all that exists psychologically and within consciousness is the present. Ethical presentism is the thesis that we should focus our attention on present, live as best as we can within the present, appreciating and enjoying it, and not worry or concern ourselves with either what happen in the past (not dwell on it), or what might happen in the future, worrying about it. We *should* focus on the now.

Yet, as discussed above, it is psychologically impossible to focus on some imagined kind of absolute present, independent of the influence of memory (the past) or anticipation (the future). The best our consciousness can realize is a relative present, rather than some kind of absolute now, and this relative now is invariably impacted by both past and future consciousness.

Moreover, it seems to me that a memory-empowered and expansive future-focused consciousness is more evolved and efficacious regarding the management and guidance of life. Meaning and purpose in life arise as a consequence of past and future consciousness. I would propose that living (or trying to live) in the relative present (short-term consciousness) is the cause of many of our problems in life, both individually and collectively.

Living in the relative present is the least evolved and most primitive mode of temporal consciousness. If we examine our collective evolutionary history, as noted earlier, one of the most distinctive features of the evolution of consciousness is that it has progressively extended in both spatial and temporal scope; the evolution of consciousness has been moving away from the relative "immediate here and now." As discussed earlier, it has been the growing temporal expansiveness of human consciousness at the collective level that has, more than anything else, provoked and guided the rise of human civilization and its ongoing evolutionary development.

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[10] See my discussion of Csikszentmihalyi's concept of "flow" in Lombardo (2017) pp. 465-467.

[11] The counter-argument is that a child can demonstrate highly immersive focused attention on the present state of affairs in a spontaneous and relatively impulsive state of consciousness. Presumably a child's mind is relatively uninformed and undisciplined, minimally impacted by learning or anticipation. Such frequently observed states of consciousness in children may, though, be a result of the ongoing experience of novelty. They are immersed in the present because they are encountering "something new," recognized as such, relative to what they already know (have learned).

Similarly, the development of an individual human consciousness from infancy to adulthood moves outward from a relative egocentric present to "greater vistas" in space and time.

Stability and Change

A fundamental reciprocal polarity in our temporal consciousness is stability (or constancy) and change (transformation); we are aware of both these basic features in the world around us and within ourselves (See above and Chapter Three). Indeed in the cosmos as a whole, we find both temporal properties, inextricably woven together—a Yin-Yang of time (See Chapter One). At the levels of (planetary) ecology and biology the same coupled polarity manifests itself in numerous ways (See Chapter Seven). This polarity also manifests itself in human motivation. As discussed earlier (Chapter Six), humans possess the complementary motivational drives toward stability (e.g. homeostatic theory) and change (growth theories of motivation); as such, in the flow of individualized consciousness there exists both the purposeful effort to maintain and protect the current structure of consciousness (and life space) and the purposeful effort to evolve and transform our minds and our surrounding reality. It seems to be the case that the relative psychological power of each of these two motivational drives varies among individuals—stability-based versus change/growth-based mindsets—and even within the same individual both motivational drives manifest themselves in different strengths for different aspects of life (e.g., in personal versus professional spheres) and at different times. But it should be noted that in general humans (and probably animals as well) find the extreme states of both stability and change aversive; too much stability generates boredom or agitation, and too much change generates anxiety, fear, and defensiveness (See the studies of psychological flow). Some type of balance of these two reciprocal factors seems a basic feature in all conscious lives.

The motivational drives toward stability and change also manifest themselves at the collective level in human history. The collective human drive toward stability shows up in conservative and tradition-bound mindsets and paradigms—an intentional effort toward the preservation of the past/present—and the drive toward change manifests itself in progressive/transformative mindsets and paradigms pushing for a transcendence or abandonment of the past/present in favor of something new and different. These oppositional paradigms of consciousness often conflict in history generating war and revolution. It should be noted that this ongoing historical conflict actually pertains to different preferable visions of the future: Tradition/stability paradigms wish that the future will be similar to the past/present, whereas transformational mindsets aspire toward a future that is different than the present/past. As a variation on this oppositional theme, there is also the regressive mindset, which aspires toward a return to some imagined past that no longer exists. To regress involves change (relative to the present), but a change that brings one back to something that (presumably) once existed yet no longer does.[12]

Yet overall, even with the ongoing oppositional tension and conflict of stability versus change, and periodic episodes of disruption, destruction, and chaos, the temporal

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[12] Lombardo, *Contemporary Futurist Thought*, pp. 255-258.

trajectory of both historical-collective and individual consciousness is toward change and evolution and this ongoing evolution, at both levels—individual and collective—is purposefully directed. At the level of personal consciousness, memories and habits of life accumulate across the life-span, providing a dimension of stability and continuance to our individual lives, but there is clearly also an evolutionary (or developmental) transformation that occurs across the temporal dimension of the human life span. At the collective level, traditions persist and cultural and technological knowledge accumulates—at times punctuated by efforts to undo what has been done and return to the "good old days"—but human society over the millennia has clearly transformed and evolved and frequently intentionally so. Conscious time is bounded (at least at the individual level), but within the boundaries of beginning and end there is, often purposefully initiated, conscious transformation and development, individually and collectively.

Temporal Integration within Consciousness

Although there is clearly flow within consciousness, as new items of attention emerge and then pass away, there is also a dimension of ongoing integration occurring across time within consciousness. As noted above, previous events in consciousness —in the form of memories and learned habits and associations—are continuously connected together with current experiences. Current experiences are also routinely consciously connected with anticipations of future events. Recognitions or identifications of constancies and relative stabilities within our experiences involve integration across time—what is remaining the same across time—and conversely, identification of changes involves integration across time—what is transforming across time. In general, temporal integration within consciousness is a ubiquitous phenomena, whether the integration is across short time spans or much longer ones. Elements of the "flow of consciousness" are continuously being connected together with other previously experienced elements, as well as future anticipated elements in the conscious temporal flow. In essence, consciousness of the present is temporally integrated with the conscious past and conscious future.

Not only are memories and learned habits and associations consciously integrated with the present, our memories and components of learning are continuously being integrated among themselves into complex patterns of the recollected past; memories not only accumulate across experiential time, but memories are woven together forming a relatively organized psychological tapestry representing the past "time of our life." Memories are chronologically ordered with relative degrees of accuracy, creating connected sequences of previously experienced events. Themes in life emerge and memories are pulled together that have associated personal meanings. Memories do not sit within consciousness as a set of discrete and independent elements but form into complex patterns—often ordered sequences—giving our long-term temporal consciousness order, meaning, and integration. This is not to say that everything we have experienced and remembered is fitted together into a coherent temporal whole— there is a good deal of chaos in the memories of our life—but there is still a good deal of temporal integration as well—of memories connected together and sequentially ordered—within human consciousness.

A key feature of our temporally integrated consciousness is the particular "theory of time" we adopt through which we interpret and understand the flow of time, both individually and collectively. Throughout human history, different general theories of time have emerged.

In ancient times, the dominant view of time was that time was cyclic. Within this mindset, sequential events are conceptualized as moving in circles: Night follows day and day follows night; wakefulness follows sleep and sleep follows wakefulness; the seasons move in a repeating cycle. Cycles are recognized in both human consciousness and in the natural world. As noted earlier, numerous natural processes move in cyclic patterns and human consciousness has recognized this pervasive pattern to the flow of natural time, giving rise to the cyclic theory of time. Within such a mindset, humans may see cycles of order and chaos—of achievement and disaster—in the flow of time; humans may see such a rhythmic oscillation of order and chaos in the sequence of events in their own lives.

In contrast to the cyclic theory, the linear view of time, which emerged in human thought at least as early as 500 BCE, interprets the flow of time as a line; events move in a sequential direction. Events do not simply repeat themselves, but new events appear and time moves in a direction The ideas of progress and evolution are both associated with the linear theory of time. Order and chaos can be conceptualized in a linear fashion, in which history (both collective and individual) is viewed as a movement away from chaos toward increasing order.

Humans in their interpretations of the flow of events may "see" numerous examples of cycles—indeed humans may view their entire life as a circle of birth (emergence) and death (passing away)—or humans may perceive the flow of events as moving in a direction—life can be seen as a process of maturation from infancy to maturity. Humans may see the flow of historical events as cyclic—empires rise and fall—or they may see the historical flow as progressive—the present/future transcends and moves beyond the past/present.

All in all, the cyclic theory of time highlights the phenomenon of stability across time, whereas the linear theory highlights the phenomenon of change across time. There are theories of time, combining elements of stability and change, which synthesize cyclic and linear perspectives, such as Hegel's dialectical theory, in which cycles and linearity are woven together creating the complex pattern of time.[13] I proposed such a synthesis in my discussion of cosmic evolution in Chapter One.[14]

At least in humans, the cumulative growth of memories and the sequential ordering of these memories within individual consciousness progressively evolves into a remembered self-narrative. (A remembered self-narrative can have elements of both cyclicality/stability and linearity/change, as well as order and chaos.) As introduced above, a key feature of the temporal structure of consciousness is its narrative form. Narratives (or stories), by definition, have a temporal structure, depicting a series of

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[13] See Lombardo, *The Evolution of Future Consciousness*, pp. 339-348 for an examination of Hegel's philosophy of reality and time.

[14] See Lombardo, *Contemporary Futurist Thought*, pp. 255-281, for an extended examination of theories of time.

events that transpire across time, often with antecedent events in the series interpreted as causing or provoking later events in the series. As such, narratives have temporal coherence or integration—a connected causal flow—in which the events in the story are sequentially/dramatically/thematically related together. We frequently remember events of the past in the form of stories (or narratives) we have created as depictions of such past events.

As the neurophysiologist Antonio Damasio has proposed, humans in their individual development evolve an "auto-biographical self," which is a personal story we have progressively created describing our lives and our personal selves. Our autobiographical self develops through the cumulative growth of memories and the sequential ordering of those memories into a (relatively) coherent sequence. Built out of this accumulation and ordering of memories, we carry in our consciousness an ever-developing self-narrative, which provides us with a sense of temporal coherence and personal identity and meaning. This self-narrative provides both an explanation of how we became who we are, as well as a framework for guiding ourselves in the future.

As noted above, humans are psychologically inclined to make sense of reality in terms of stories, and in particular, we are inclined to make sense of ourselves in terms of a personal story highlighting key events and actions in our lives. As such, the temporal flow of our consciousness is structured and interpreted in terms of a continually developing narrative describing who we are and what our lives are all about. The experienced "time of our life"—of the temporal extent of our self-identity—is structured and interpreted in terms of a personal narrative we have created out of our memories. I would suggest, basically in agreement with Damasio, that the auto-biographical self—consciously interpreting who I am in the form of a story—is layered on top of—but also impacting—the proprioceptual bodily-anchored sense of self.[15]

Expansive Temporal Consciousness

As I argued at the beginning of this chapter our temporal existence—the "time of our life"—seems bounded in beginning and end. Our evolving self-narrative is composed of memories, self-reflections, and interpretations of this bounded personal temporal existence.

Yet, to recall, I also argued that a distinctive evolutionary (and personal developmental) trajectory within consciousness is toward greater, more expansive vistas in time. Our human sense of time goes beyond the relatively limited expanse of perceptual time, and moreover even beyond the considerably more extended sense of personal time built up through memories and our self-narrative. Our consciousness of time also includes a sense and understanding of time beyond the boundaries of our personal existence, extending to human history, the history of the universe, and the possible future of these more expansive realities.

Early on in our personal development—when we are young children—we learn that there was an extended time before our birth and there will be a future time after the end of our bodily existence. (We may or may not be told that there is an "after-life" beyond our personal bodily death, or that our personal reality or consciousness—a soul—

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[15] Lombardo, *Future Consciousness*, pp. 685-691.

existed prior to our physical birth.) As we mature, our understanding and appreciation of the depth and detail of this pre-personal past and post-personal future evolve to different degrees, depending upon our personal interest and our social education; our temporal vistas expand and evolve.

For humanity as a whole, our understanding of the vastness and complexity of time—of the past and potential futures—has decidedly enriched through the ages, as a consequence of historical and scientific inquiry.[16] (In our history, spiritual-religious and philosophical thinking also contributed significantly to our growing consciousness of extended time.) As I discussed in Chapter Two, both our historical consciousness and future consciousness have evolved through the ages. Clearly our collective temporal vistas of the evolution of life and humanity, of the development of human societies and cultures, and of the "life of the cosmos" as a whole, have become vastly more detailed and accurate over the millennia of human history. Through this growing understanding of the complex flow of time we have collectively articulated various grand narratives of the big picture, which transcend the much more limited boundaries of our individual self-narratives.

Depending upon the particular culture and religious and philosophical mindsets, different grand narratives of "life, the universe, and everything" have emerged in human history. In this respect, the different theories of time, which have emerged in human history, have had a powerful impact upon the types of grand narratives that have developed in different cultures. A cyclic theory conceptualizes the entire history of humanity, nature, and the universe as a story of (repeated) oscillation—of ups and downs, for example—whereas the linear theory of time sees human and cosmic history, from the past into the future, as manifesting a direction. The cyclic theory-based grand narrative depicts time as repetition, whereas the linear theory-based grand narrative depicts time as manifesting novelty, with the sequential emergence of new elements in existence.

As various religious, philosophical, and scientific perspectives have argued, it is important for us as individuals to place (or contextualize) our individual existence—our temporally bounded self-narratives—within the framework of a grand narrative of human and cosmic history. We find meaning and purpose in our individual existence by placing it in the context of the whole or the big picture of things. As such, many, if not the majority of people have at least some rudimentary perspective on how their individual lives fit within the context of the whole. Our sense of personal time—the time of our life—is understood within some type of grand narrative and expansive picture of the time of human existence and the cosmos. The philosopher Spinoza argued that the meaning of anything can only be truly understood through the "eyes of eternity"—the totality of the whole. Hence, our consciousness of time (as humans) encompasses both the remembered and interpreted individual time of our lives—our personal self-narrative—but also the temporal extent and details of the more expansive grand narrative of the human and cosmic history which we believe in and embrace, and the relationship, as we understand it, between these personal and the grand narratives.

Within the evolutionary and ecological vision of consciousness being articulated in this volume, it seems to me that we should view our individual existence (and its

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[16] See Lombardo, *The Evolution of Future Consciousness*, pp. 375-391.

purposeful evolution)—as we understand it within our personal self-narrative—as participatory and contributory to the ongoing evolution of collective human existence and the future evolution of the cosmos. Our individual actions contribute to the evolution of the whole. This acknowledged active role of each of us in the ongoing saga of time is how I view—through the "eyes" of an ecological-evolutionary mindset—the connection between the personal narrative of our individual existence and the grand narrative of the human history, life, and the cosmos. How do we conceptualize our individual lives and then act upon this personal vision, such that we participate and contribute to the whole cosmic saga (grand narrative) of evolutionary time?[17]

Conclusion and Summary

The above discussions on the "auto-biographical self" and grand narratives and theories of time bring to the forefront certain aspects of consciousness that thus far have not been examined in any depth. These conscious processes include thought, imagination, anticipation/foresight, and interpretive understanding. I focus on such higher order conscious processes in the next chapter. A big part of our experience of time derives from how we think about, interpret, and imagine time. Our consciousness of time may begin with perception and purposeful behavior, but in human evolution our temporal vistas and the complexity of our understanding of the flow of time have vastly expanded and enriched with the emergence of various higher order forms of consciousness.

Regarding the main points made in this chapter, in summary: Contrary to certain views regarding the temporality of consciousness, our consciousness clearly appears to be bounded in time, with a beginning and an end; we do though contextualize and understand our temporally bounded personal existence (personal narrative) in some type of big picture grand narrative framework (the time of the cosmos and human history); our consciousness of time is divided into a remembered past, an ongoing experienced present, and an anticipated future, but these temporal realities are relational and interdependent; the reality of timeless consciousness without a past, present, and future is highly questionable; there is an experienced asymmetry of past and future, although there are physical arguments for the non-existence of past, present, and future at the fundamental cosmic level; the temporal flow of consciousness—the experience of succession—has a directionality, the "psychological arrow of time;" consciousness flows, perhaps in a pulsatory fashion, with embedded qualities of relative stability, change, and duration; consciousness of stability, change, and duration occur at the perceptual level of awareness; awareness of the present is contextualized through memory and anticipation; the sequentially structured pattern of temporal consciousness provides the foundation for our psychological predisposition to understand reality in the form of narratives or stories; purposeful behavior is also informed and guided by both anticipation and memory; past and future consciousness are infused in perceptual and behavioral consciousness; individuals show variability in their grasp of and focus on the past, present, and future; focus and flow within consciousness is impacted by past and future consciousness; ontological presentism

[17] Lombardo, 2017, pp. 82-85.

argues that all that exists in consciousness is the present, and ethical presentism argues that we should focus on the now; contrariwise, present focused consciousness is the most primitive and least evolved form of consciousness; a balance of stability and change seems basic to all individual conscious beings; there is an ongoing collective historical conflict between stability and transformative mindsets (or paradigms of consciousness); the overall trajectory, though, at both individual and collective levels is transformative and evolutionary, often purposefully initiated; the temporal integration of past, present, and future is ongoing; memories are integrated into complex recollected patterns; theories of time provide general frameworks for organizing and integrating the flow of time; the two major theories are the cyclic and linear views of time, applied both to the natural world and human history, the latter including both collective and individual history; humans develop a "self-narrative" and "auto-biographical self" as mental frameworks for temporally organizing and meaningfully interpreting their accumulating memories, in doing so consciously integrating the time of their lives; human consciousness of the vast extent of time has evolved going way beyond the bounded limits of personal time; grand narratives of human history and the cosmos have emerged; our personal narratives are consciously connected with (or encompassed by) our grand narratives; and within an ecological-evolutionary theory of consciousness (and grand narrative) we should view our individual existence as contributing to the evolution of the whole.