

Remembering and Anticipating: Two Faces of Time

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In ancient Roman religion and myth, Janus is the god of beginnings and endings, time, transitions, passages, and duality. He is usually depicted with one face forward and one face backward, since he looks to the future and to the past. His name is the source of the calendar word, January.

Tomorrow night, at midnight, we discontinue the calendar that has marked the passage of 365 days of the Year 2018 of our lives: A year we shall never live again, but only remember, as the “past”. In place of it we open a new calendar for the Year 2019, a time that we anticipate as the “future”. Even without thinking about it, we implicitly know that that past is “over with” and gone, irretrievable. And we similarly know that we cannot know what lies ahead in that future. We nevertheless experience a strong orientation to it. It seems that there has to be a future because there is nowhere else to go, time-wise. So the “saddle of time” that we sit astride of as the “now”, the “present”, in effect divides the *known* from the *unknown*. Thus, epistemologically, the “Now” is a time of great moment. But there are serious problems concerned with whether we really know what time IS at all. More on that later.

Time *as we commonly understand it* is a profound aspect of our existence. And we are reminded of this regularly by those who urge us to “pay attention to what really matters in the long haul” (Ford, 1996), to live fully in this very moment. Though sounding modern, this exhortation actually has a long history; the prophet Jeremiah uttered it as “Hear now this, O foolish people . . . who have eyes and see not; who have ears and hear not” (5:8).

Time is perhaps the greatest puzzle and challenge ever put to us humans. I know of no other aspect of life that presents so many puzzles, so many riddles. We are generally lulled in everyday existence into believing that we know what time IS, and the reason for that is simple. The aspect we are thinking of is called *clock time*, or *societal time*. It’s the conventional idea we deal with routinely every day. If we are working, we

get up at a time, leave home for work at a time, lunch . . . , leave work . . . , return home . . . , perhaps put the kids to bed at a time, etc. Retirement changes that significantly, but does not exempt us from attending to where and when we need to be. There are still mealtimes, appointments, community meeting times, Sunday services at 10 a.m. for UUFES, naps [let's not forget naps!], and so it goes.

Another kind of time is *scientific*, also completely dependent upon convention, where everything works in seconds in the International System of Units (SI). No need for minutes, hours, days, months, years, centuries, or millennia, because you have kilo-, mega-, giga-, all the way up to yotta-seconds. And one (1) yotta-second - - - one times ten to the 24th power - - - a one with 24 zeros after it, is over 30,000 million, million years. And going SMALL, you have milli-, micro-, nano-, all the way to yocto-seconds. And one (1) yocto-second - - - one times 10 to the negative 24th power, one OVER a one with 24 zeros after it - - - is a million, million, million, millionTH of a second.

A *very different* kind of time is *experiential*, or how we experience Time's passage. It is not governed by convention but rather, by our psychological makeup. For each person there is wide daily variation in our experiencing of time: Some days drag. But if you have a really important or critical task to complete, time is likely to whizz by; you're likely to say that "you run out of time". That's an example of Forsman's Third Law: "Things take longer to do than they do." (I have long forgotten what my First and Second Laws were.) Or, if you're completing an habitual task that goes almost "automatically", you may experience it finished before you realize that it actually required effort. Another effect relates to aging: as the years go by, they seem to go faster. I call this the "toilet-paper-roll effect": the closer to the end, the faster it goes.

There is wide variation *between* individuals also. For a child waiting for Christmas, the days go by slowly. And there's the proverbial "Are we there yet?"

Shakespeare highlighted the progression of time in his tragedy, Macbeth, Act V:

Tomorrow, and tomorrow, and tomorrow,
Creeps in this petty pace from day to day,
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusty death. Out, out, brief candle!

Life's but a walking shadow, a poor player
That struts and frets his hour upon the stage,
And then is heard no more; it is a tale
Told by an idiot, full of sound and fury,
Signifying nothing. V, v, 17

A compact and robust definition of time has proved to be remarkably tricky and elusive. Among the many *short* and *snappy* definitions of time that have been put forward are: * what clocks measure; *what prevents everything from happening at once; *a linear continuum of instants; * a certain period during which something is done; * a continuum that lacks spatial dimensions. *a dimension in which events can be ordered from the past through the present into the future, and also the measure of durations of events and the intervals between them.

I wish now to return to the point about Time's riddles. Philosophers are deeply divided about several issues. One concerns what sort of ontological differences there are among the present, past, and the future? That is to say, are they REAL? There are three competing theories. *Presentists* argue that necessarily only present objects and present experiences are real. We conscious beings recognize this in the special vividness of our present experience compared to our dim memories of past experiences and our expectations of future experiences. So, the dinosaurs have slipped out of reality. They are not real, even though our current ideas of them are.

In a second view, the *growing-past theory*, the past and present are real, but the future is not because the future is indeterminate or merely potential. Dinosaurs are real but our future death is not because it has not yet happened.

The third theory is that there are no objective ontological differences among present, past, and future because the differences are merely subjective. This view is called *eternalism*. The Viet Nam War is past for you but future for Aristotle.

Some other issues are: *What time actually *is*; * Whether time exists when nothing is changing; *Why time exists at all; *How to correctly analyze the metaphor of time's flow; *Did time have a beginning; *If and when time will end; *Whether there are points of time; *Is time continuous, or infinitely segmented; *Whether time is objective, or subjective; *Whether there is a timeless substratum from which time emerges;

*Whether time is unreal either by being an illusion or by being wholly conventional.

Even if we grant that the triumvirate Future-Present-Past is real, when does the oncoming Future dissolve into the present Now? And how long does Now exist before dissolving into the Past; i.e., What is the duration of Now? In terms of our perception of present events, what we think we are perceiving now has actually receded into the past. By the time I am aware of “seeing” a stimulus, therefore perceiving it, several milliseconds have elapsed during which the neural impulses triggered in my retina have traveled through several levels of my optic system, reached the visual centers in my occipital cortex, and met up there with information from other parts of my brain. It is then and only then that I “perceive” a bicyclist approaching me. And note this: what I become aware of, then and there, is already an event of the Past.

Now, suppose that the event occurred some years ago, and I call upon my memory to describe it to a friend. I would like to believe that I could accurately do so, but I know that I will not because I cannot. My recall is not some playback of an electronic recording. Rather, it is a RE-construction of neural excitations pertaining to where I was on the Long Trail, my feelings about being nearly run over by a mountain biker, the physical pain I felt as a result of having to pitch myself off the trail to avoid being struck, my irritation at seeing the damage that bikes do in accelerating trail erosion, etc. In other words, my brain uses a variety of materials encoded in electrochemical circuits to “fashion” a memory. The memory is, in a sense, a fiction, i.e. “made up”.

In giving this account of an attempted remembering, I am relying on a large and growing scientific literature which establishes unequivocal evidence that the act of remembering is not from some repository of “photographic memory” we once thought it to be. Thus has “eyewitness testimony” lost credibility in many police systems and courts of law.

Many of us observe an annual ritual of making new year’s resolutions. In doing so we are implicitly acknowledging those two faces of time: looking backward through the act of remembering, and seeing aspects of ourselves or our behaviors that we anticipate changing in the months ahead.

I am sure that other animals experience time in some fashion, but that is another

very broad topic I leave aside. I don't think we know much about it anyway. We do know that many of them index time by following diurnal or nocturnal patterns of living. The biosphere is closely tied to cycles of all sorts. Many biological cycles are governed as much by temporal influences as by innate factors. We see that especially now in the responses of many species to global warming. Not only is memory of past events highly influenced by our experiences, so also are our expectations of future events. We use the terms *optimism* and *pessimism* to categorize these expectations. We are living in a time right now which strongly predisposes many of us to feel pessimistic. I have to struggle each day to try to recapture the optimism that I used to embrace by habit. I typically rely on humor, my Balm of Gilead, in the spirit of which I offer you this image of time: "Time flies like an arrow", to which I add, "Fruit flies like a banana."

I do wish you all a Prosperous New Year. So be it.