

## Human aging, finite lives and the idealization of clocks

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### Abstract

Aging and time are interconnected because aging is basically living seen in a temporal perspective. This makes 'time' an important concept in trying to explain aging. However, throughout modernity time has increasingly been identified as clock time: perfectly fit to measure 'age' as time since birth but failing to explain 'age' as an indicator of aging processes and even less adequate to grasp the lived time of human beings. Moreover, the clock as a cultural idol of instrumentalist perfection has led to approaching human aging in terms of maintenance and repair, inspiring a neglect and depreciation of human vulnerability. The instrumentalist culture of late modern society, including its health care system, has difficulties to relate to the elusive but inevitable limitations of finite life. This tendency is supported by outspoken approaches in biogerontology indulging in perspectives of infinite human lives; a message that is eagerly consumed by the mass media. Moreover, as most people can be expected to survive into old age, thinking about finitude is easily postponed and reserved for those who are 'really old'. Instead of reducing aging to the opposite or mere continuation of vital adulthood, it should be seen as something with a potentially broad and deep significance: a process of learning to live a finite life.

Usually, the connection between 'aging' and 'time' is sought - or supposed to be found - in the concept of 'age'. Although 'age' (as time since birth) may be used to regulate life course transitions such as retirement, age can hardly be seen as a reliable indicator of aging processes. The major differences in life expectancies between historical and contemporary populations and the continuing differences between and within birth cohorts demonstrate that human aging does not develop in synchrony with clock time (Baars & Visser 2007; Baars 2012).

While the articulation of 'time' has probably begun with the experience of *change*, the development of clock time has focused on regular, *repetitive* changes in the surrounding world that are not the result of human actions but stem from forces beyond human control. The solar system can easily convince as a clock that functions independently, undisturbed by external interference, so that the measurements of time that are based on it can be accepted as fully objective. Meanwhile highly stable and precise atomic clocks have their own foundation and are even able to measure the irregular movements of the solar system. By means of such elementary distinctions such as 'later than', 'earlier than' or 'simultaneous with' clock time enables us to order all events in one organized whole. In a developed form this provides a complete continuous and linear ordering that can be represented either numerically or as a

straight line. The ordering is continuous in the sense that for any two distant instants  $t_1$  and  $t_2$  there exists a third instant lying between them; a structure that allows for ever more precise measurements.

The importance of the development of clock time can hardly be overestimated and its implications are profound in many ways. It may be clarifying, however, to remember its foundations: the temporal regularity in the solar system is dictated by the gravitational movements of enormous bodies of *dead weight*; with, in the case of the earth, life on it. And insofar as these movements are not regular enough for present standards they are corrected by the rhythms of other *dead* materials: extremely frequent and stable atomic oscillations. Nevertheless, even the most advanced clock is nothing more than an instrument that produces and measures clock time or (chrono)metric time. Evolutionary processes or human lives can be *dated* and *measured* but do not follow clock time; on the contrary, time measurements only mark events or transitions that may have their own temporal dynamics.

This lack of synchrony between physical and biological time has inspired a search for clocks that would be *intrinsic* to human aging (Schroots & Birren, 1988; Hershey & Wang 1980; Richardson & Rosen 1979; Yates 2007). This would have to go beyond biomarkers such as the aspartate racemization in the teeth, which is used in forensics (Yekkala et al. 2006) to assess the age (as time since birth) of a body. Such biomarkers do not represent 'age' as the functional state of the whole organism that would enable us to understand why this person of 60 years old dies within a year while that person with an age of 82 years lives for another twenty years.

Different theories have been drawn upon to conceptualize intrinsic clocks of aging, usually, however, the Second Law of Thermodynamics has been used to develop an intrinsic age in terms of the entropy production of a given system over time. A major problem with this approach appears to be that there might be *several* systems within the human organism and that *open* systems such as human organisms, that rely on interaction and exchange with pluriform contexts, do not fit well in the models of intrinsic clocks that presuppose that the system in question is sealed off from the environment (cf. Yates 2007; Uffink 2007). Although Yates (2007) has attempted to apply the model of a biological clock to the human life span, so far biological clocks have only been clearly identified for circadian rhythms.

### ***Aging, clock time and lived time***

The general term '*aging*' refers to three different temporal processes, of which the first two correspond with approaches to aging and time from physics and biology:

(a) 'Aging' as reaching a higher chronometric *age*. Although 'age' as time since birth can be measured precisely it is only connected to aging in the forms of average scores that usually hide important internal differences. In spite of this poor performance 'age' plays a major role in the organization of the life course in contemporary Western societies where 'older workers' have difficulties to find a job when they are older than forty five years and where '50+' has become a marker of those who have entered 'old age'. The awkward role of 'age' as an indicator of aging leads to a life course organization in which three decades of 'normal adulthood' are followed by an 'old age' that may last twice as long (Baars 2009; 2010). A poor indicator is turned into a decisive factor by life course policies.

(b) 'Aging' as representing the complex processes through which degeneration outweighs the regeneration of biological or, in a broader sense, functional conditions. Sometimes the term 'senescence' is used but biologists often use the term 'aging', as in 'aging cells' or 'aging tissues' in the sense of functional decline. This

understanding of aging has emancipated itself in principle from the use of chronometric ‘age’ as an indicator of aging: when there is no functional decline there is no aging (Gavrilov & Gavrilova, 2006). Maybe it would be better if biologists would use a more specific term to distinguish it from the confusing age/aging complex; preferably a dynamic term such as *senescing*, avoiding the static term ‘senescence’ that suggests a static – but very long and changing - ‘old age’.

(c) ‘Aging’ as an agentic process of human beings in which historical contexts, societal structures, cultural contexts, shared lifestyles and individual attitudes or choices play an important role as has been broadly documented in empirical research of the last decades (Baars 2012). On the one hand, humans have characteristics such as gender, weight, skin color, health, (dis)abilities or age and their lives take place against different backgrounds: family, culture, education, socio-economic circumstances or access to health care. Such characteristics and their impact are described, classified and analyzed in empirical research on aging. On the other hand these characteristics are generalizing indicators of situations that are *lived*. They refer to ways of *being* and *relating* to characteristics and situations: what it *means* for them to be black, a woman, healthy or ill, disabled, poor, seventy years old, etcetera. This distinction implies that persons have their own meaningful experiences that count besides objectifying assessments; as such it is one of the markers of a humane world and a major focus for critical approaches to aging. Aging cannot only be measured in clock time or functionally assessed: life’s changes and their temporal interpretations are also *lived* and this inside dimension is not less important for human aging.

Therefore, I propose the following distinctions between clock time and lived time (cf. Hoy 2012):

1. Clock time is embedded in *scientific paradigms* – lived time in *ways of living*.
2. Due to its definition as a clock, clock time has *one* rhythm – lived time has *different* rhythms.
3. According to clock time, time is an infinite series of point-like *instants*, which can be counted and dated. However, establishing whether something happened earlier, later or simultaneously is not the same as interpreting it as *past, present or future* (McTaggart 1908; Ricoeur 1988). Moreover, major changes or transitions such as retiring, becoming a grandparent or losing a partner transform not only the present but also the anticipated future and the relevance of the past.
4. In contrast to the time–indifference or even the *reversibility* of time in laws of physics, debated since Eddington’s *The Arrow of Time* (1928/2014), lived time is *irreversible*: for human beings there is an important difference between whether something has not yet or whether it has already taken place.
5. Finally, whereas clock time can freely switch from attoseconds to billions of years in the same continuum, humans have to face living in a finite time.

#### ***A smoothly ticking clock as a cultural idol of progress***

Because of its scientific precision metric time has earned so much prestige that its exact measurements have become a favorite vehicle for all kinds of interpretations of aging that often remain implicit and hidden behind impressive statistics (Baars 2009; 2010). Besides this cultural prestige of time measurement which leads to amassing unexplained data about aging the image of a clock that ticks smoothly and endlessly through time has become a cultural idol: an idealized example of the way in which societies, organizations and human beings should function. Measurements of the durations of processes and human actions are eagerly translated into blueprints to

make them more time efficient, leading to an increase in productivity or marketed experiences as more can be done in less time. The resulting pressure for acceleration is a mixed blessing because not all domains of human life benefit in the same way and some will suffer. Accelerating the transport of materials, persons, money and texts or the production of goods is not the same as accelerating home care, a physician's consult or a personal conversation. Moreover, slowing down, 'taking your time' or any interference that used to be taken for granted tend to become intolerable because the process was budgeted on the basis of an optimal time-efficient schedule. Actions, processes and structures are transformed into smoothly ticking clocklike instruments that can run endlessly without losing any precision, always ready to detect spaces where time has been wasted. The effects of long term overburdening under the idol of acceleration are readily explained in terms of a higher age and used against the victim instead of questioning the idols of temporal efficiency.

In scientific and public discourse about human aging this cultural idol returns in the identification of cognitive aging with diminishing processing speed (Salthouse 2000 or in programs to delay the aging process *as a whole*. Through maintenance and repair the organism would, in more extreme views (De Grey & Rae 2008) even stop aging: human life would be transformed into a perfect clock that would just measure its own age of one thousand or ten thousand years and tick on forever without any functional 'aging'.

To approach and unify human aging as a clock has many important implications such as a neglect of finite life. However, acknowledging finitude does not mean that we should just prepare for death and neglect life: we invest with good reasons much time and resources so that people may flourish through care, education, good work and fulfilling experiences. Moreover, countless people who work in medical professions or are active in informal care do their best to help people to survive serious crises so that they can enjoy their lives again. Maintenance and repair of the functional aspects of the human body, also at the fundamental level of cell reproduction or DNA have an important role to play because a good life should not necessarily include suffering from cancer or other terrible diseases.

This does not imply, however, that death has no meaning for life as the *American Academy for Anti Aging Medicine* (2002, p. 6) proclaims in its criticism of the 'death cult of gerontology' which 'desperately labors to sustain an arcane, outmoded stance that aging is natural and inevitable'. On the contrary, the awareness of the inevitable possibility of death at any moment motivates being cautious, taking care of others, prevent or cure disease, inspires even research programs to prolong healthy lives but confronts us, above all, with questions about the quality and meanings of our lives. Accepting a finite life does not imply that we *want* to suffer or to die but that we *have* to die. This message goes against the preferences of those who are used to be able to buy whatever they want. Therefore, the scientific claim that it will soon be possible to live for a thousand years if we only would invest in a 'war on aging' will find eager interest. However, even when the average human life span would have risen to a thousand years, life would still be finite and death would still be present on the horizon of life. Maybe, death would even become more of a concern when hundreds of years of possible life might be lost in one fatal moment.

### ***Clocklike normality and the neglect of aging<sup>1</sup>***

For many people in the well off regions of the world life has already become much longer: biodemographic research informs us that life expectancies in affluent societies have almost doubled over the last 150 years (Oeppen & Vaupel, 2002). After the initial decline in infant mortality there has even been a further boost: most of the additional years added to life since the last decades of the 20th century were realized at older ages (Vaupel, 2010).

Although aging and ‘old age’ have in a relatively short time become – even in quantitative terms - such an important part of the late modern life course, these remarkable developments have not led to much appreciation or genuine interest in what these new horizons of aging might add to our lives. In late modern societies aging is challenged by major paradoxes that drain its meaning as a dignified phase or process of life.

In spite of rising life expectancies people are called ‘old(er)’ at an *earlier* age. While the pension systems that mainly originated in the first half of the 20<sup>th</sup> century defined the beginning of ‘old age’ around the age of sixty-five years, over the last decades organizations such as the AARP (formerly, the American Association of Retired Persons) and its European counterparts have declared its onset at the age of fifty years ([www.aarp.org/\\_promotions/sem/member01.html](http://www.aarp.org/_promotions/sem/member01.html)). The labor markets of the US and the EU have even created the category of ‘older workers’ for those who are older than forty years (Henretta, 2001; Guillemard & Argoud, 2004). ‘Normal’, seemingly ageless adulthood is increasingly invaded by a culture of acceleration and perfection with little tolerance for the imperfections and vulnerabilities of finite life (Baars, 2012; Virilio 2012).

These developments are accompanied on the one hand, by a ‘decline ideology’ (Gullette, 1997) reducing aging to an irreversible decline that appears to be more adequate for the terminal stages of life than for the extended process of late modern aging. The programs that have on the other hand, challenged the decline ideology emphasize values and attitudes that are assumed to be typical of ‘normal’ adulthood such as ‘productivity’, ‘activity’ and ‘success’ (*The Gerontologist*, 2015). These programs, however, tend to *defy* aging and to marginalize those older people who cannot live up to these standards; for them the ‘decline ideology’ would still appear to hold. There is a worrying lack of perspectives that embrace and explore aging’s potential for meaning beyond decline narratives and age-defying narratives (Laceulle & Baars, 2014).

As the postponement of mortality has been an important factor in the rise of life expectancies this has, given a finite life span, led to a concentration of death among the oldest of the population. Whereas historical research, for instance on parish registers, funeral orations, and official statistics in Europe from the sixteenth into the twentieth century has shown that death used to be much closer to people of all ages, finitude in the sense of mortality has increasingly been driven out of ‘normal’ life (Imhof, 1986). However, we do not die because we have become old but because we have been born as finite human beings: death is given with life.

One of the basic problems appears to be the late modern inability to face and appreciate what it means to live a finite life and to identify with those who remind us of this condition. It has become hard to identify with growing old and being old (Weiss & Lang, 2012). Growing older appears to have no meaning of itself: it has

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<sup>1</sup> The next pages of this article have partly been taken from Baars 2016 b.

become either a continuation or a depletion of youthful normal adulthood, ending with a medicalized death that is largely left to professionals.

Regrettably, professional culture has become a part of the problem. The clocklike ways in which professional work has been organized in late modern societies allow for little time to digress from the targets and tasks that dominate the agendas. However, this hectic instrumentalism continues to conflict with ideals and needs of both professionals and clients, especially when the goal of the system is to care for vulnerable and finite human beings. A recent account of this painful conflict has been given by Atul Gawande (2014). This interesting and moving narrative confirms the diagnosis that the overwhelming majority of what we call the 'health care system' aims at the delivery of technologically sophisticated *cure*: a problem solving *pit-stop service* that will enable the patient to return to his or her activities as quickly as possible (Baars 2006). Even if returning to an active life has become elusive the cure system appears unable to offer anything beyond the instrumentalist agenda of other possible treatments. Although effective medical treatment necessarily involves instrumental approaches there is, at least, a serious unbalance between instrumental tasks and the need for sensitive, attentive care as a supportive context for any instrumental cure but especially for those who cannot be expected to be cured anymore.

One could criticize Gawande for his neglect of a social context which leads to other major problems such as unequal access to medical treatment but this neglect gives even sharper contours to the crucial limitations of a highly sophisticated technological apparatus that is in full force. A sophistication that begins, however, to show some serious flaws when somebody from the inside looks at it from the outside and sees 'a hospital built to ensure survival at all costs and unclear how to do otherwise' (Gawande 2014, p. 253).

Unfortunately, these problems are not the fault of an isolated professional domain; the self-perpetuating instrumentalism of the health cure system is just one example of the ways in which late modern expert systems target problems that have been defined in their terms, with little time for anything else (Baars, 2015). If, however, efforts to alleviate suffering remain *merely* instrumental they may cause much unnecessary suffering, because human beings are not clocks that merely need maintenance or repair: they need to be recognized as human beings. We need approaches that make it possible to appreciate technology, professional cultures and organizational systems as means to ends; they are not meaningful in themselves but only insofar as they serve the needs of finite - vulnerable, creative and unique – human beings.

### **Aging: Learning to Face Finitude in Life**

There is a widely spread idea that 'finitude' or a 'finite life' only means that we have to die: finitude would be the same as *mortality*. However, one of the classical interpretations of living a finite life is to '*practice dying*'. The source of this phrase is Plato's work *Phaedo* (67d) where he says that the true philosopher practices distancing the soul from the body. I will refrain from commenting on the idea of disembodiment of the true philosopher and only notice that *practicing dying* is different from death as the opposite of life: it is a way of *living*. Its essence is to integrate experiences of human finitude in life. This does not mean that we would *like* to lose friends, partners or abilities but that such experiences are inevitable in life and that the awareness of such possible loss may deepen the significance of what we tend

to take for granted. The awareness of finitude is not meant to make death more threatening but to deepen the experience of life as we live it.

A finite life is foremost a life of ongoing change but not necessarily the repetitive kind that clock time builds on. On the one hand aging consists of changes that happen to us: we can neither hold on to the present nor control the future. Situations and phases of life that were expected to continue, at least long enough not to expect its soon ending, can suddenly be over. Some of these changes have such a strong positive or negative impact that life will, as we tend to say, never be the same again. On the other hand, such changes require active responding that needs to be learned in real life: to learn to let go, take distance, re-appreciate situations and integrate experiences into the awareness of a finite life appears to be central to aging as an evolving art of living (Baars 2012; 2016 b). The ending, completion and closure of finite situations imply a re-beginning. Hannah Arendt has elaborated on the interconnection between limitations and openings as she interprets being born as a limited but unique being as a promise of unforeseen possibilities. In her work, the finitude of the human condition is characterized not by death, but by 'natality': we are not in the world to die but to be *reborn*. A crucial role is played by our innate creativity but also by the 'power to forgive' (Arendt, 1958, 236); for the exiled Jewish philosopher Arendt who had witnessed the Holocaust not an easy task, but still an essential one. According to Arendt, human beings are endowed with the capacity to wonder, to begin, to start something new or to do the unexpected. In that sense each day is also a *new* day that breaks out of reproductive cycles. Natality is not only something that happens at birth, but it qualifies human lives from birth to death, inspiring finite life with hope, creativity, critique, rebirth, and the emergence of new horizons.

### **Aging: Increasing Vulnerability and Biographical Complexity.**

Approaching aging from the perspective of a finite life may not only help to accept later life with all its unknown possibilities, problems, and promises as an important part of human life but also to acknowledge aging as a process of learning how to live a finite life (Baars, 2016 b). Because finitude and vulnerability belong to human life as such, we need to be cautious to determine what their specific meaning might be for human aging. Often, generalizing images of 'old people' or 'old age' are used for rhetorical reasons: to emphasize their being-a-burden or to highlight their abilities to triumph in activities that would even be major challenges for young adults such as running marathons or climbing the highest mountains. Contemporary gerontological research tells us that the ways in which aging processes develop defy easy generalizations and images of an integrated clock, because they are constituted in extremely complex ways, involving environmental and genetic characteristics as well as individual agency and chance. However, we can distinguish two general processes - that may well be interconnected - characterizing aging as a developing finite life: (a) increasing vulnerability and (b) increasing biographical complexity.

(a) As we live longer the vulnerability of our lives will increase although this cannot be pinned down to chronometric age. This general process should not be reduced to functional decline: even anticipating, experiencing and integrating functional decline involve a broad spectrum of human life. Moreover, aging is not just the experience of an individual but needs also to be seen in relation to others. Even if one would live healthily into an extremely high age this may not simply be a success story, as this will probably imply losing partners, friends with whom one has shared important experiences; even losing children or grandchildren.

(b) A longer life implies an increasing biographical complexity. We inevitably begin our lives in specific circumstances: with this body, with those parents, at that time and in that part of the world. Major formative circumstances such as persistent social inequalities or misfortune will have an important formative impact, while they are met by the formative activity of the person. This interplay results in an increasingly unique biographical complexity that does not, however, imply that these individual trajectories were freely chosen.

What are the implications of such increasing biographical complexity? Foremost, it requires a modesty regarding the many broad generalizations about ‘the elderly’ or ‘seniors’ that conflict with the unique complexities of their lives and their biographical identities. This basic characteristic of human aging challenges generalizations that pin people down to something abstract as a number of years, a chronic disease or a disability. Counterevidence can often be found nearby: the more we become interested in a person, the greater the complexity of his or her identity appears to be, and the more hesitant we become to put a label on them. However, in the many large-scale inventories of ‘the elderly’ and their characteristics their voices have become very thin while much is said *about* them and too little *by* them.

However, older people are not only in an eminent position to understand more of the nuances and major contradictions that have been typical of the times they are and have been living through but also to develop more insight in challenges that are typical of finite life. To digest such increasing biographical complexity may lead to a deepening of experiences and understanding that has in many traditions been referred to as *wisdom* (Edmondson, 2015). People who have lived relatively long are in a better position than younger adults to understand that finite life implies going through and responding to foreseeable, but also uncontrollable and unforeseeable change. Although we are able to initiate change and to influence some of the ways in which we change, living also implies going through changes that are beyond our grasp. We cannot stop change from happening: it is given with our existence and the real force behind our concepts of time and aging in a broad sense (Baars, 2016 a). Situations change and we change with them: growing up and growing older are unthinkable without continuous change and older people can more easily assess how profound these changes may be. The ways in which we confront change over the years will play an important formative role in aging: to be able to integrate change appears to be central to aging as an evolving art of living that might also be vitally important for younger people.

### **Conclusions**

Aging people have benefitted in many respects from the development of science and technology and there is still much to be expected; we can hardly say that aging has received much attention before the last few decades. However, as part of a broader development clock time has overruled lived time: the clock has become a cultural idol with detrimental consequences for many domains of life, including human aging. Under the dominance of the clock life accelerates to the extent that each moment is overshadowed by the next thing on the agenda. ‘Normal adulthood’ is being redefined as an ageless, clocklike functioning of the human organism that could and should be extended indefinitely through maintenance and repair. In care and cure situations this instrumentalism leads to a tendency to answer failing control with more of the same, as we have seen in Gawande’s outcry.

There is a need to learn to balance control with the acceptance of its limits and the proposal of this article has been that this must come from learning to accept



finitude *in* life and, eventually, the finitude *of* life. Finitude is a permanent condition of life and is deeply connected with the uniqueness of situations and human lives: life's situations and phases change and go by. In an accelerated life this is difficult to experience and as death in late modern societies tends to occur at relatively high ages, finitude is expelled from the full agendas of daily life. Negative generalizations about aging can easily become a way to exorcise human vulnerability from the supposed normality of young and adult life, to reserve it for those who have reached a higher age. A superficial association between aging and finitude in the limited sense of mortality tends to occlude the finitude that pervades human life as we live it.

Eventually, however, it will be difficult to overlook the finitude of life as it will force itself into the full agendas. Therefore, older people will have more opportunities to gain a deeper understanding of human life than younger adults. Unfortunately, the dominant cultures of late modern aging fail to appreciate aging as an inspiring source of lived experience and wisdom. The idea that life becomes less meaningful and residual beyond hectic adulthood drains not only aging of its meanings but is also a threat to the dignity of finite life. This superficial and harmful view of life also affects those who are disabled, mentally handicapped or chronically ill: they are denied a dignified place in the world of those around whom everything seems to revolve.

The most important experiential source of knowledge about what it is to live a finite life, is neglected by the same culture that needs its wisdom: a culture that reduces human vulnerability to bio-medical and budgetary problems and its creativity to career oriented ideals such as productivity and success.

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