AJPH
AUSTRALIAN JOURNAL OF POLITICS AND HISTORY

On the Complexities of Time and Temporality: Implications for World History and Global Futures

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Human beings are temporal and spatial beings. We cannot go back in time; whatever we do is an intervention in irreversible, on-going causal processes; physically, we cannot be in two places simultaneously; and the specific area of space we fill in cannot be occupied by anybody else simultaneously. While the nature of time has been theorised in philosophy, social theory and (world) political theory, in practice historians and social scientists tend to equate time with the modern linear conception of time, organising their narratives and explanations in a chronological order, without reflecting upon the complexities of time and temporalities of social being. I make four arguments, developing them in the context of concrete world historical events and processes. First, I ask what and when is "now"? The present cannot be punctual. Rather, the present is a moment of becoming, and makes reference to an on-going process. Second, because "now" is relative to the relevant processes, its meaning and characteristics depend on how these processes turn out. Thus, the past is, in part, undetermined, and at some level will remain so. Third, the futurized nature of the present is changing. Critical social sciences are involved in this process of transformation, especially through reflexive self-regulation of social systems. Fourthly, the move from predictions to reflexive scenarios about possible futures, and to open ethico-political discourse about unwanted and desired future possibilities, raises deep — in effect, mythological — questions about the meaning and purpose of world history as a whole. I argue that mythopoetic imagination can also be a means for critique.

Introduction

What may be a called a spatial turn in the social sciences originated in the complaints of Henri Lefebvre, David Harvey and others that the tendency to abstract away from space — or to make simplistic assumptions about it — has kept social scientists ignorant about the deep conditions of the social objects they are studying. This ignorance has also caused blindness about the possibility of (the on-going) profound changes. For Lefebvre space has an active operational and instrumental role in the organisation of social systems, including production and exchange.[1] Hegemonic forces or classes also make systematic use of space in their attempt to gain or secure preferred practices and relations — not only on the surface of the Earth but increasingly also via satellites in its orbit.[2]

Place and distance can make a decisive difference to the properties and powers of actors; and the spatial organisation of objects can also be relevant in many other ways. Nonetheless, space has *no* causal powers independent of the objects constituting it. For instance, it is one of the problems of theories of "centre" and "periphery" in the world

[1] Henri Lefebvre, *The Production of Space*, trans. D. Nicholson-Smith (Oxford, 1991), p.11.
[2] See Peter Dickens and James Ormrod, *Cosmic Society: Towards a Sociology of the Universe* (London, 2007).

economy that they offer a generalised spatial location as the crucial component of explanation of underdevelopment, failing to specify the relevant causal powers (or their absence) and related geo-historical processes adequately.[3]

Actions and their structured social contexts may retain their identity and powers across different spatial settings. In other words, embodied competencies, available resources, and the prevailing rules, actor-identities, practices and modes of action can remain essentially similar across various locations.[4] Moreover, action can become detached from location. Facilities such as long-distance mobile phone calls, the internet and trans-continental flights have further contributed to the (relative) detachment of action from location or any particular place, at least for those endowed with sufficient resources.[5] Hence, although it is often important to be explicit about the spatiality of social entities and relations, conceptions and metaphors of space do not provide a substitute for causal explanation. The "spatial turn", while important, may often have only limited relevance to social scientific explanations.

But what about time? All social phenomena, all social interaction, anything that exists in society, is temporal. While the nature of time has been theorised in philosophy, social theory and (world) political theory, in practice historians and social scientists tend to equate time with the modern linear conception of time. What usually happens is that historical and social sciences organise their narratives and explanations in a chronological order, without reflecting upon the complexities of time and temporalities of social being. Moreover, this lack of reflection may conceal an underlying world historical narrative such as (i) tragedy of endless repetition or (ii) simple Whig-story about inevitable progress towards the present (and either may be part of an even grander narrative about humanity's origins, place and ultimate fate).

The complex temporality of the human condition makes a big difference to the task of social sciences. I make four arguments, developing them in the context of concrete world historical events and processes. First, I ask what and when is "now"? The present cannot be punctual. Rather, the present is a moment of becoming, and makes reference to an on-going process. Moreover, especially via intentional agency, the present is always futurized, i.e. the future is always present in the moment of action. Second, I develop the idea that the meaning of the past is, in part, undetermined, and at some level will remain so. Because "now" is relative to the relevant processes, its meaning depends on how these processes turn out. Third, the futurized nature of the present is changing. Critical social sciences are reflexively involved in this process of transformation. We can talk about reflexive self-regulation when knowledge about the way the social system functions is applied recursively in interventions, aiming at avoiding unwanted or achieving desired outcomes. Future-oriented reflexive self-regulation may also intervene — recursively — in the social conditions that constitute and determine the sphere of human freedom, which is the meaning of emancipation.

Fourthly, the move from predictions to reflexive scenarios about possible futures and, therefore, to ethico-political discourse about unwanted and desired future possibilities, raises deep questions about the meaning and purpose of world history as a whole. Ultimately, these questions must be posed in the context of cosmic and biological evolution. I argue that our scenarios can overcome the dichotomy between

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[3] Andrew Sayer, *Realism and Social Science* (London, 2000), pp.112-3.

[4] David Harvey, *The Condition of Postmodernity: An Enquiry into the Conditions of Cultural Change* (Oxford, 1990), p.118.

[5] Roy Bhaskar, *Plato Etc.: The Problems of Philosophy and Their Resolution* (London, 1994), p.70.

mythos and *logos*. In a multi-layered and open-ended world history, actors — including us researchers — tell stories at all scales of time. Every myth and story locates presence as part of a wider and structured temporal whole. While causal explanations provide the basis of scenarios, mythical stories, too, organise our anticipations of futures. The crux of my argument is that myths, once recognised as such, can be discussed rationally. What is more, new myths can be created. Yet, at the deepest level lies a mystery, which is another reason for open-minded dialogue about the future of humanity on this planet and, later, perhaps also elsewhere in the cosmos.

What and When is "Now"?

Nearly a millennium before mechanical clocks were first constructed, Augustine (354-430) discussed the nature of time. His solution remains part of everyday thinking about time, also in (human) sciences. What is time? Can a hundred years be present at once? From the span of a century, Augustine moves downwards to year, month, day and hour. "Even that one hour consists of minutes which are continuously passing. The minutes which have gone by are past and any part of the hour which remains is future."[6] For Augustine, presence has no real duration; and the past and the future exist only in human consciousness (in memory and anticipation). Time can be measured when it is passing and we can be aware of time, but time has no real existence otherwise. Augustine equated time with its measurement.

Since its emergence in the late Middle Ages, time has been measured with the mechanical clock. After the Copernican revolution, clocks became increasingly widespread and accurate and were used to organise social practices in novel ways. In modern society where activities are co-ordinated by means of clocks, it has been easy to conceive time in terms of clock-time. However, thinking about time and present in terms of clock-time is reductionist. Only one kind of movement — that of clock's parts — is assumed to be relevant for understanding the nature of time. But why would the repetitious movements of clock's parts constitute time *per se*? Was there no time before the rise of human consciousness and emergence of clocks?

If time consisted merely of separate points that either have no duration at all or a very short duration (such as the Planck time, i.e. the time required for light to travel, in a vacuum, a distance of one Planck length, which is the basic unit of quantum mechanics), causation and processes would disappear.[7] There is, however, a plausible alternative. From a realist perspective, linking the reality of tense, causation and processes, "now" is not a point on an abstract segment of a line, but an indefinite boundary state of a process that is happening. A number of processes may not only occur simultaneously but coalesce and interact in various ways. The duration of the present depends on the event or context which is happening.[8] While different presents interact, some of them may last only a few minutes, others up to millions of years.

Let us consider, for instance, a social scientist who is enjoying a cup of tea in the morning and intending to stay at home reading and writing. He has two daughters, but there is uncertainty — due to extreme weather conditions — about whether their school is open today. The extreme weather conditions are, at least in some part, due to the

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[6] Quoted in Paul Ricoeur, *Time and Narrative Vol.1*, trans. K. McLaughlin and D. Pellauer (Chicago, 1984), p.8.

[7] There is no space to discuss causation or other ontological issues in the context of quantum mechanics, but for a realist re-interpretation see David Bohm and B.J. Hiley, *The Undivided Universe. An Ontological Interpretation of Quantum Theory* (London, 1995).

[8] Bhaskar, *Plato Etc.*, pp.67-72.

process of global warming, which is indicative of a new period in the Earth's history, the anthropocene.[9] Our researcher is working on a text that intended to make a modest contribution to learning to respond to global problems in a more adequate and responsible way. The text also argues against the nineteenth century-style reductionist (positivist) research programmes in sciences and social sciences, thus possibly making a small contribution to the process of their decline in the course of the twenty-first century. In this case, relevant processes include having a cup of tea before taking children to the school, working on a scholarly text, the rise and decline of a research program, global warming, and a long-term geological epoch.

The example provided by Roy Bhaskar develops this point further:

> Spaces and times intersect and overlap. Consider a welfare queue deafened by the noise of an overhead low-flying supersonic aeroplane in a shut-down hospital site strewn with fashion magazines and with a video portraying a sporting contest in Dubai in a Labour borough in contemporary England governed by an antiquated constitutional system. This example illustrates the way in which overlapping, elongated, truncated, spatio-temporalities may coalesce. But it also illustrates the constitutive dependency of entities (natural as well as social) on their geo-historical process of formation.[10]

This line of reasoning leads to a typology of different cases in which the past or outside may be said to be present, namely (i) existential pre-existence, (ii) existential constitution, (iii) lagged, delayed efficacy and (iv) co-inclusion (especially through reflexive consciousness). Hereby, the meaning of the "present" becomes even more complicated. Take the case of the Cold War. The "now" of the Cold War can be decomposed into various parts, including:

1. the manifold conditions and processes which led to the Russian Revolution, including, especially, the First World War and its causes, and also to the long war in Russia and nearby areas from 1917 to 1923
2. the conditions and processes which led to the continued existence and expansion of the Soviet Union within the international society and capitalist world economy, including the Second World War and its causes
3. the emergence of nuclear weapons, jet planes, satellites etc. in the mid- and late-twentieth century

The first part of the Cold War-complex comprises those geo-historical processes that contributed to the formation of the Soviet Union, which was subsequently built around a militaristic interpretation of Marxist doctrines. Without the Great War 1914-1918, the Bolshevik revolution would not have occurred in October 1917; and it would have been unlikely to happen at any later point in time (and even in that unlikely event, it would have assumed a rather different nature).

The second major component of the Cold War-complex concerns the conditions of survival of the Bolshevik regime. From 1918 onwards, numerous social and economic theorists argued that an all-encompassing state-bureaucracy led by a single,

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[9] The term *anthropocene* is used increasingly by scientists to describe the most recent period in the Earth's history, starting in the nineteenth century when the activities of the humans first began to have a significant global impact on the Earth's climate and ecosystems. The term was coined by Paul Crutzen and Eugene Stoermer, who regard the influence of recent human behavior on the Earth as so significant as to constitute a new geological era. Paul J. Crutzen and Eugene F. Stoermer, "Anthropocene", *IGBP Newsletter* 41, May 2000.
Available <*http://www.mpch-mainz.mpg.de/~air/anthropocene/*> (accessed 24 April 2011).

[10] Bhaskar, *Plato Etc.*, p.68.

hierarchically organised party is likely to lead to inefficiencies, maldevelopments, repression and alienation.[11] From this perspective, it is surprising that the Soviet Union lasted as long as it did. It can be argued that the "Great Patriotic War" (1941-45) not only boosted Soviet industrial development but also gave legitimacy to the Soviet system and leadership, thus postponing the foreseeable implosion by decades.[12] This suggests a counterfactual scenario: in the absence of Nazi Germany and the Second World War, the antagonism between the Soviet Union and the West would have ended already in the 1950s or 1960s, possibly before the deployment of nuclear weapons in any country — i.e. there would have been no Cold War.

The actual Cold War was, however, characterised by the emergence of nuclear weapons. The planetary-nuclear era of jet airplanes, rockets and missiles, satellites and nuclear explosives started at the end of the Second World War.[13] The World Wars sped up military-technological developments. However, even in the absence of the World Wars, this era is likely to have begun at some point in the twentieth century. The Cold War as we know it was only a contingent episode in this wider process. As anticipated by H.G. Wells already before the First World War,[14] the planetary-nuclear era of jet airplanes, rockets and missiles, satellites and nuclear explosives would have come about sooner or later anyway, independently of the evolution of leading ideologies within states, or of the precise location of the shifting centres.

The Meaning of the Past is not Fixed

While we cannot go back in time; and whatever we do is an intervention in irreversible, on-going causal processes; the meaning of the past is, in part, undetermined, and at some level of abstraction it will always remain so.[15] This follows from the argument that "now" is relative to the relevant processes. Some of these processes may endure for a long time. The meaning of the past event or limited process depends on how these wider processes will turn out. Because many processes are overlapping and inter-related, this may leave the meaning of an event or process undetermined even when it appears, from a less reflexive and holistic perspective, to have come to a conclusion. If the meaning of the past X depends on how these processes turn out, its full meaning can only be known in the future, sometimes only in the distant future.

For example, "The Thirty Years War began in 1618" is a sentence typical of historical inquiry but unavailable to the chronicler because it goes beyond what could have been known at the time it occurred, that is, that the war was to last thirty years.[16] To the extent that events can only be identified in terms of a process (or processes), of which they are part, the earlier events or limited processes can take on properties they did not have before as the wider process unfolds. The earlier events are causally fixed

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[11] For instance, Erich Fromm, Friedrich Hayek, Rosa Luxemburg, Robert Michels, C.Wright Mills, David Riesman, Joseph Schumpeter and Max Weber had. These discussions are nicely summarised by Seymour Martin Lipset and Gyorgy Bence, "Anticipations of the Failure of Communism", *Theory and Society*, Vol. 23, 2 (1994), pp.193-200.

[12] Cf. Karl W. Deutsch, "Cracks in the Monolith: Possibilities and Patterns of Disintegration in Totalitarian Systems" in C.J. Friedrich, ed., *Totalitarianism: Proceedings of a Conference Held at the American Academy of Arts and Sciences March 1953* (Cambridge, MA, 1954), pp.308-333.

[13] See Daniel Deudney, *Bounding Power: Republican Security Theory from the Polis to the Global Village* (Princeton, 2008).

[14] H.G. Wells, *The World Set Free* (North Hollywood, CA [1914] 1971).

[15] David Weberman, "The Nonfixity of the Historical Past", *The Review of Metaphysics*, Vol. 50 (June 1997), pp.749-68.

[16] *Ibid.*, p.749.

and they cannot be uncaused or changed by later actors or processes. However, the "now" of any act or event is an indefinite boundary state of a process that is happening. What is more, history is also meaningful. Past events can only be identified in terms of social meanings that make reference to processes.

> On November 4, 1995, Yitzchak Rabin was assassinated by Yigal Amir. While it is clear that Israel's prime minister was shot and killed, it is unclear what happened on that day to the prospects for peace in the Mideast. The assassination may turn out to have derailed the peace process or it may turn out to have provoked a backlash of renewed support for Rabin's peacemaking goals. Should we say that we do not know how to describe the assassination in terms of the peace process or can we also say that it is not yet determined what happened "peace-wise" on that fateful day?[17]

The identity and meaning of earlier events can thus change with the relevant process. When such a change occurs, the earlier events have taken on (relational) properties they did not have before. All contemporary presents are open-ended in this sense. The properties of the actions and events happening "now" depend, in part, on the processes that are gradually unfolding over time. When we are describing those events, we are making (implicit) assumptions about possible and likely futures.

For example, the actual Cold War was only an episode in this wider process of the planetary-nuclear era of jet airplanes, rockets and missiles, satellites and nuclear explosives. Even in the absence of the World Wars, or the Soviet Union, this era is likely to have begun by the end of the twentieth century. The actual Cold War was only an episode in this wider process. In terms of the planetary-nuclear era, the full meaning of the Cold War remains open. The Soviet Union's nuclear arsenal was passed on to the Russian Federation. In 2011, more states possess nuclear weapons than during the Cold War. Whether the destructive powers of the existing (and future) nuclear weapons will ever be released is contingent in the same way as many past events and episodes have been contingent.

Was it inevitable that the Cold War ended in a peaceful way? Going further back in time towards the origins of the Cold War, were the First World War and the Russian Revolution inevitable? Arguably, given the structures, tendencies and conditions that prevailed in the 1910s, the First World War was likely to happen, but not inevitable. A reasonable estimate of the likelihood of a large-scale war involving most European great powers breaking out by the mid-1920s or so was perhaps something like 40-60 per cent.[18] By that time, social and political transformations could have made a difference and the acute danger of a great war faded into the background. During the Cold War, in turn, the probability of an actual major war was almost as high in spite of the role of nuclear weapons as the ultimate deterrence, that is, possibly as high as 30-40 per cent.[19] The Third World War did not break out although it could have (1962 and 1983 were the high points of danger).

As a rule, in any given situation, a number of components are necessary for a causal complex to produce a particular outcome, such as a catastrophic war. Any geo-historical outcome is contingent on a number of activity- and concept-dependent conditions as well as manifold actions. At another level of generality, however, the relevant processes may have inherent potential for, or disposition towards, a particular orderly or patterned

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[17] *Ibid.*, p.751.

[18] See Heikki Patomäki, *The Political Economy of Global Security: War, Future Crises and Changes in Global Governance* (London, 2008), chs 3-4.

[19] *Ibid.*, pp.180-181.

outcome. Thus, a process may be path-dependent in the sense that its precise trajectory is not replicable, yet the likely outcome is foreseeable at some level of abstraction. For example, there were good reasons to expect the implosion of the Soviet Union, but its timing was contingent and the end could have come about in different ways. The end could also have involved a nuclear war. Something similar probably holds true also for the planetary-nuclear era as a whole. It can be seen as a process that will end — but how? Consider three scenarios on how this era will come to an end:

1. The conditions will gradually build up for a legitimate global monopoly of mass-means of violence and destruction. By the 2050s or, say, 2070s, the collective nuclear arsenal will be reduced to a bare minimum. In this scenario, the Cold War was just a tragic and dangerous accident in the generally progressive human history. The era will end in the absenting of the institution of war and the social conditions for large-scale collective violence.
2. For an extended period, it will be business-as-usual. Several states will continue to possess and develop nuclear weapons, although their nuclear arsenals are being reduced through various disarmament and non-proliferation treaties. Business-as-usual continues until changes in the background conditions — crises in the capitalist world economy, rapid ecological and climate changes, conventional wars, and/or new class-religious-political antagonisms — will worsen the conditions of global security. At one point a major nuclear power considers the unthinkable: a pre-emptive strike "before it is too late" (dependency on satellite systems makes everyone highly vulnerable). A large-scale nuclear war breaks out — but humanity survives. In the aftermath, following various twists and turns, a democratic-socialist world state will be established. In this scenario, timing matters. Whereas the nuclear arsenals of the 1980s could have destroyed humanity or at least its industrial civilization, the armament situation in the 2040s or 2060s is more under control and thus at least two billion people and the industrial civilization survive the nuclear war.[20]
3. After the Cold War, the planetary-nuclear era of jet airplanes, rockets and missiles, satellites and nuclear explosives will continue until new and even more destructive means of violence are innovated, based on nanotechnologies, biotechnologies and perhaps even on the manipulation of the structure of space-time. The ever-more efficient means of destruction will be increasingly accessible to many, and not only to states. Therefore, something akin to the Mutually Assured Destruction (MAD) nuclear strategy of the Cold War will start to characterise the universal condition of humanity across all divisions and partitions. In this scenario, the Cold War turns out to have been a mere prelude in the tragic process that is likely to lead to human self-annihilation.

These three possible futures also illustrate how we must rely on future-oriented narratives to describe contemporary events and on-going processes, the end of which can only be seen from a vantage point later than the moment of reflection or action within that process. These three possibilities also demonstrate the way the meaning of the Cold War (c. 1947-1989) is dependent on how the open-ended process of planetary-nuclear era will turn out in the course of the twenty-first century, and beyond.

[20] This is roughly the scenario of W. Warren Wagar, *A Short History of the Future*, 3rd ed. (Chicago, 1999).

The Temporality of Human Existence is Changing

It is a necessary feature of action that, at any point in time, the agent could do otherwise, with substantial causal consequences. Reflective action involves a stream of actual or contemplated corporeal causal interventions in the ongoing process of events-in-the-world, thus producing various outcomes.[21] Social actions and their effects occur in time, and actors are aware of this. In social action there is a dialectical unity of having-been, coming-towards and making present, since these are thought and acted upon together by the actors.[22] This is the temporality of practical experience and action. The making-present of practical action stems from the anticipation of possibilities for transformative action producing outcomes on the basis of an understanding of that which has already been (i.e. history). The horizon of causally efficacious action is thus inherently temporal.

The reasons for action involve considerations about the future, not least in terms of consequences of action. Actors can become aware that others too are temporal and conscious about the future. Therefore, predictions about social actions and their consequences become reflexive. Expectations and anticipations can turn out to be self-fulfilling or self-denying; and this may be part of their purpose.[23] While perhaps less strategic in their orientation, the futurist Pollyanna and Cassandra know this as well. Their aim is to shape rather than just predict the future, through affecting the opinions and moods of the audience. *Pollyanna* is a classic children's novel from 1913, written by Eleanor H. Porter. Pollyanna's philosophy of life centres on what she calls "The Glad Game", which is about finding something to be glad about in every situation. A futurist Pollyanna entertains an optimistic attitude about whatever is happening now or in the near future — with the effect of legitimizing existing social relations and on-going processes. In the ancient Greek mythology, Cassandra was a young woman who was given the gift of prophecy by Apollo. When Cassandra did not return his love, Apollo placed a curse on her so that no one would ever believe her predictions. Cassandra foresaw the destruction of Troy but could do nothing because she was not believed by the Trojans. A modern Cassandra anticipates dire futures in the hope of generating terror. The point is to trigger a change in the course of actions, public policies and world history.[24] Modern Cassandras too must struggle to be heard. However, whereas we know that Troy was destroyed, modern Cassandras are anticipating an uncertain and open future.

Reflexive anticipations shape the way social systems function. Effects of social systems are brought about by homeostatic causal loops, self-regulation through feedback and reflexive self-regulation.[25] Homeostatic loops tend to reproduce existing social structures and may not be conducive to adaptation requiring changes. A particular type of self-regulation through feedback is decentralised market-response where feedback is provided via price signals. Usually, however, there is a component — a "control centre" — that sets the range at which variation is allowed, and not only in markets but also within organisations and non-commodified areas of social life.

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[21] Anthony Giddens, *Central Problems of Social Theory: Action, Structure and Contradiction in Social Analysis* (London, 1979), pp.55-6.

[22] Ricoeur, *Time and Narrative Vol. 1*, pp.68-84.

[23] Eerik Lagerspetz, "Reflexive Predictions and Strategic Actions", *Social Science Information*, Vol. 27, 2 (1988), pp.307-20.

[24] W.Warren Wagar, *The Next Three Futures. Paradigms of Things to Come* (Westport, Conn., 1991), p.5 *et passim*.

[25] Giddens, *Central Problems of Social Theory*, pp.78-81.

We can talk about reflexive self-regulation when knowledge about the way the social system functions is applied recursively in interventions that aim at avoiding unwanted or achieving desired outcomes. Reflexive self-regulation enables collective self-development through increased knowledge about the way natural and social systems work. However, this kind of self-development makes the reflexivity of predictions public and transparent, necessitating a move from (either simple or more complex reflexive) predictions to scenarios about possible futures and open and public ethico-political discourse about their problems and merits. The future does not just happen but becomes increasingly something that — the relationally positioned — actors make of it.

Scenarios start with an analysis of the existing structures and processes and their inherent possibilities, coupled with the assumption that the future remains open until a particular possibility is actualised. There is always also continuity. History is not something that can be controlled by any particular actor. Social structures and mechanisms — and related demi-regularities — are relatively enduring. Scenarios are also conditional on actors' understandings and their actions. It is thus possible to assess, in a Bayesian-reflexive fashion, the likelihood of different scenarios.[26] Scenarios nonetheless entail the full recognition of others' consciousness, agency and freedom. Mutual recognition is itself a social process that can be shaped. It is possible to improve the social conditions of ethico-political learning and reflexive self-determination, thus incrementally widening the sphere of human freedom. Thus, future-oriented reflexive self-regulation may intervene — recursively — in the social conditions that constitute and determine the sphere of human freedom.

Anticipating possible futures is thus a dialectical learning process that can transform the temporality of the human condition. Gradually we come to realise that our existence is constituted by historical possibilities within which we find ourselves. These possibilities are open towards the future and meaningful only in relation to it. We rely on future-oriented narratives to describe on-going processes, the (more comprehensive) end of which can only be seen from a vantage point later than the moment of action within that process. Moreover, the future is no more something that just happens but something that can be shaped, even if only in a structurally conditioned way. With increasingly reflexive, holistic and future-oriented self-regulation of systems, the temporality of human existence is being transformed.

On the Myths about the Meaning and Purpose of World History

Each possible line of world development is an alternative story of how the future may unfold. Social scientific scenarios involve meaningful stories that may contribute to the re-signification and transformation of practices. Structures of meaning determine actors' — including social scientists' — capacity to generate stories. Structures of meaning may be relatively enduring and widely shared across cultures, even though they are subject to cultural variations, historical change and learning.[27] When put together, lesser-scale stories may presuppose or constitute, at least in effect, a grand narrative of the origins, possibilities and outlook for humankind. Every grand story locates the present context as part of a wider and structured temporal whole, thus pre-organising our anticipations of possible short-term futures as well. Grand stories are in

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[26] See Heikki Patomäki, "Exploring Possible, Likely and Desirable Global Futures: Beyond the Closed vs. Open Systems Dichotomy" in J. Joseph and C. Wight, eds, *Scientific Realism and International Relations* (London, 2010), pp.147-166.

[27] See Hayward Alker, *Rediscoveries and Reformulations: Humanistic Methodologies for International Studies* (Cambridge, 1996), esp. chs 3, 5 and 8.

effect myths, that is, "sacred" narratives explaining how the world and humankind came to be in their present form and what their future possibilities are.

The standard modern meaning of myth is that of a narrative that has no basis in reason and cannot be true (this confuses myths and mere fables). *Mythos* in this modern sense is opposed to *logos*. However, the modern meaning has been contested all along, at least since Giambattista Vico's (1668-1744) *The New Science* (1725). Vico argued that human civilization is based on the emergent capacity to imagine, through complex language, and thus to create something new. Consciousness, society and history are mythopoetically constituted. Vico emphasised the "poetic" rather than the "rational" characteristics of man — the ability to speculate rather than calculate, to invent rather than imitate norms and means in practical life.[28] Vico argued further that myths are narratives that may well be true. Underlying this claim is his *verum ipsum factum* principle, which comes close to present-day social constructivism. The principle states that truth is verified more through creation or invention than through mere observation. Since the time humans transcended basic physical impulses with the help of language, they have been making their own cultural and social world. If a myth is lived by people in their everyday practices and institutions, the resulting social order testifies about the truth of that myth. Hence, in order to know the human world, we must know its constitutive myths.

Vico's view is, of course, functionalist (and thus conservative). If myth consists of continuous work on myth by many, not only are there no single myths, which are given once and for all, but the same *mythologem* changes over time because, on each occasion, it is reappropriated by different need and exigencies. Mythopoetic imagination can also be "radical", that is, it can also be a means for the critique. Moreover, *logos* itself may come to be seen as mythical in so far as it concerns the telling and the finding out of the origins of things and of their future possibilities.[29] This raises the question whether there is any difference between scientific and mythopoetic truth judgements? The basic realist manifesto is that "as scientists, that is members of a certain community, we should apportion our willingness or reluctance to accept a claim as worthy to be included in the corpus of scientific knowledge to the extent that we sincerely think it somehow reflects the way the world is".[30] Science follows critical public procedures of verification and falsification, which are different from those of mere speculative imagination.

Although scientists are fully aware of the need to critique assumptions and falsify hypotheses, science too is also about making sense of the world. Scientific theories are not just about technical calculation but are based on layers of metaphors, analogies and symbols,[31] which can be, and frequently are, involved in constructing stories and scenarios about the future. The claim that scientific expert opinion is driven by sense-making and story-telling is evident in social sciences,[32] but it is true also for natural sciences. The plausibility of theories, successful tests, or predictive success do not unequivocally determine rational adoption of theories in sciences, not even in physics

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[28] Joseph Mali, *The Rehabilitation of Myth: Vico's "New Science"* (Cambridge, 2002), p.82.

[29] Chiara Bottici, *A Philosophy of Political Myth* (Cambridge, 2007).

[30] Rom Harré, *Varieties of Realism: A Rationale for the Natural Sciences* (Oxford, 1986), p.89.

[31] See Mary Hesse, *Models and Analogies in Science* (Notre Dame, 1966); Rom Harré, *Principles of Scientific Thinking* (London, 1970).

[32] For example, David McCloskey, *The Rhetoric of Economics* (Brighton, 1986); Tony Lawson, *Economics and Reality* (London, 1997); Philip E. Tetlock, *Expert Political Judgement: How Good Is It? How Can We Know?* (Princeton, 2005).

or chemistry. Rather the scientific process involves debates about cognitive values and philosophical theories as well. Cognitive values and philosophical theories are connected to one's worldview more generally. This indicates that sense-making and story-telling is part of science, too.[33] There are, however, differences that must be acknowledged. Key modifications of the basic claim include:

1. Scientists do not often pay attention to the philosophical, religious or ideological implications of their theories (in *Anti-Christ*, Nietzsche wrote, "the free thinking of our naturalists and physiologists is to my mind *funny* — they lack passion in these things, they do not *suffer* from them"[34]);
2. Natural sciences can create artificial closures in laboratory experiments and, even in the absence of closures, can often repeat (nearly) the same test quite reliably time and again, whereas social sciences deal exclusively with open systems that are, moreover, changing in very short scales of time (also due to social scientific interventions);
3. Although natural sciences are hermeneutical and involve interpretation in terms of different theories, social sciences are double hermeneutical and concern the meaningful world of lay-actors and are thereby drawn into their (ethico-political) subject matter.

These differences notwithstanding, in both natural and human sciences, the more canonical or dramatic the outcome of the story, the more appealing the story becomes. A non-conventional but dull story fails to attract. Missing links are quickly filled in with elements adopted from the pre-existing mythical and ideological scripts. More often than not, however, anticipations based on simple canonical or dramatic stories vastly inflate the likelihood of the expected course of events and processes.[35] These stories then serve as constitutive *mythologem* of a given social order, within which also scholars operate.

A basic *mythologem* of liberal-capitalist societies of the late-twentieth century and early-twenty-first century comprises of three temporal tiers: (i) the first tier is constituted by cosmic myths of desperation, involving the Copernican principle — "we don't occupy a privileged position in the universe" — and various narratives about how the story of humanity will inevitably end up in death, at some scale of time; (ii) sensibilities verging on cosmic desperation are then liable to fostering competitive ego- or ethnocentric short-termism, both compatible with Darwinist ideologies, which become evident for instance in the stories about future encounters with ETs depicted as evil beasts (concomitant with the Mandevillean conservative, pro-capitalist tradition viewing extra-terrestrial others either as slaves of their passions or just mindless followers of their genetically pre-programmed codes of behaviour, independently of how technologically advanced they may be); (iii) the third tier consists of relatively short-termish belief in technological progress and economic growth, providing sources of welfare and pleasure to the growing human population at least in the coming decades (i.e., at least as long as I, or we, can expect to live).

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[33] Cf. Larry Laudan, *Science and Values: The Aims of Science and Their Role in Scientific Debate* (Berkeley, CA, 1984).

[34] Friedrich Nietzsche, *Twilight of the Idols and the Anti-Christ*, trans. R.J. Hollingdale (London [1895] 2003), §8, p.131.

[35] Cf. Thomas Gilovich, *How We Know What Isn't So: The Fallibility of Human Reason in Everyday Life* (New York, 1991); Tetlock, *Expert Political Judgement*, chs 2 and 3.

Mythopoetic imagination can also be a means for the critique of the prevailing *mythologem*. For instance, the prevailing scientific stories about the ultimate fate of humanity involve fallacies and misleading assumptions. Most common is overconfidence in the currently prevailing scientific theories and the assumption of closed systems. Scenarios of what will happen in the next tens, hundreds or even thousands of millions of years are speculative and the more so, the further we reach. Many scientists are unable or unwilling to learn the lessons of the history of science as a changing and evolving social practice, to see themselves as part of a long process of scientific developments. Indeed, there is a discrepancy between projecting very long-term futures on the basis of currently accepted scientific theories and the implicit assumptions that (i) time will leave those theories intact and (ii) that meanwhile nothing new and relevant can emerge in the cosmos itself.

Moreover, it is possible to outline an alternative story-line that revolves around life rather than death. Those real cosmic risks that are relevant in the human-historical scales of time — from decades up to tens of thousands of years — can best be addressed by means of future-oriented planetary co-operation. From a long-term perspective, it is critically important to recognise that our universe is not only physical; it is also biological and cultural, and constantly changing. The emergent layers of life and culture may gradually assume an increasingly important role in the further developments of the universe. Biological reality is multi-layered, hierarchically organized and involves interdependent functional synergies and higher-level controls, making purposive behaviour possible. Complex systems of life have shaped the chemical composition and development of planet Earth for more than three billion years, setting it on a path of development systematically off its thermodynamic and chemical "equilibrium". The Earth is blue because it is teeming with life.

Since the industrial revolution, human culture has started to shape developments on a planetary scale. The impact may have been problematic so far, as shown by the mass-extinction of species and anthropogenic global warming, but the role of humanity may well turn out to be more life-promoting and ethical in the future. In any case, we humans are now deeply involved in the future developments of the planet. By cautiously generalising from the experiences of the Earth, it is conceivable that, in the future, life and consciousness will play a co-formative role in our galaxy and possibly also in the universe as a whole. From this perspective, British-born theoretical physicist and mathematician Freeman Dyson has proposed a vision that is best read as a plausible counter-hypothesis to the heat-death scenario:

> The greening of the galaxy will become an irreversible process. […] The expansion of life over the universe is a beginning, not an end. At the same time as life is extending its habitat quantitatively, it will also be changing and evolving qualitatively into new dimensions of mind and spirit that we cannot now imagine.[36]

This scenario of the greening of the galaxy involves a future project for humanity. The expansion of life and culture into space may be one of the chief tasks awaiting humankind. There may be others than humans, but in any case, the greening of the galaxy would occur through cultural and technological means in a post-biological universe.[37] This implies, however, that the future of the cosmos is not only about expansion of life but also about society and culture, about ethics and politics. More

[36] Freeman Dyson, *Disturbing the Universe* (New York, 1979), pp.236-7.

[37] See Steven J. Dick, "The Postbiological Universe and Our Future in Space", *Futures*, Vol. 41, 8 (2009), pp.578-80.

than that, structures and processes at that level of reality can create new dimensions of mind and spirit, through collective learning of humankind.

Concluding Reflections

Everything hinges upon the future. The present can only be understood as a moment in the process of becoming. The characteristics of the historical past depend, in part, on various on-going processes and their future ends. For these reasons alone, the study of the past and present implicate futures studies. However, social sciences are also involved in the reflexive self-regulation of social systems. When this self-regulation is becoming increasingly reflexive, holistic and future-oriented, the very temporality of human existence is being transformed. By shaping the future, actors are also changing the present and the processes constitutive of their beingness.

Reflexivity means the capacity of actors to reflect — in consciousness and discourse — on their own conditions and place such that both can change. Joe Camilleri and Jim Falk have coined the term "holoreflexivity".[38] Holoreflexivity refers to reflections on the mechanisms, structures, flows and processes of the movement of a dynamic whole. Camilleri and Falk nonetheless stress the spatial aspect of holistic reflexivity. "[This analysis] is global in that it encompasses all social groupings, communities cultures and civilisations, and planetary in that it comprises the totality of relationships between the human species and the rest of the biosphere".[39] Spatial holism is not enough, however. Camilleri and Falk claim that we are living through an era of transition towards a holoreflexive epoch. This becomes easily just a variation of a Whig-story about inevitable progress towards the present, pushing us towards the future; and this story is part of even grander linear narratives about humanity's origins and place, with indirect references to humanity's ultimate fate as well.[40]

What is needed is greater temporal reflexivity and a new kind of orientation towards the future. For one thing, this means the possibility of more complex and thus more illuminating causal-explanatory stories about world history. No process is isolated. As processes are entangled with, and within, other processes in a variety of ways, causal-explanatory stories must make references to several processes, many of which will go on for a long while. There is no reason why all these processes should point to the same direction, however the *telos* of any of these processes may be defined. On the other hand, contingency plays out in world history in different ways at different scales of time. Many past things could have happened in other ways, and yet, at a higher level of abstraction and at a larger scale of time, the outcome may have been, or may be, inevitable. What makes our reflection upon all these possibilities even more interesting is the fact that we must rely on future-oriented narratives to describe contemporary events and on-going processes, the end of which can only be seen from a vantage point of a later moment of action and reflection within that process.

Greater temporal reflexivity requires also a move from prediction or trend-extrapolation towards scenarios of possible futures. Greater temporal reflexivity and explicit normativity requires that the underlying ethico-political discourse about the

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[38] See Joseph A. Camilleri and Jim Falk, *Worlds in Transition: Evolving Governance Across a Stressed Planet* (Cheltenham, 2009), pp.535-8.

[39] *Ibid.*, p.537.

[40] For a critical discussion, see Heikki Patomäki, "The World in Transition: Towards Holoreflexivity?", a review essay of *Worlds in Transition. Evolving Governance Across a Stressed Planet*. By Joseph A. Camilleri and Jim Falk (Cheltenham, 2009, 682 p.), 2010, available at <*http://mams.rmit.edu.au/drkxg5vxxjtn1.pdf*>.

pros and cons of different possible and likely futures must be laid out. Social scientific scenarios are necessarily involved in making alternative futures through:

- (purposefully) self-fulfilling or self-denying prophecies
- criticism — presupposing the possibility of better practices
- building concrete utopias or, rather, eutopias (eutopia is the opposite of dystopia, whereas utopia is a place nowhere) — i.e. models of organising social relations that do not currently exist, but should be politically possible to achieve, and should be feasible as an alternative way of organising social practices and relations

At a deeper level, greater temporal reflexivity means that we recognize consciousness, society and history as mythopoetically constituted. Although our explanations and scenarios must be revisable and falsifiable by scientific means, it seems equally important to tackle the mythopoetic aspect of our world-historical stories and anticipations of global futures. *Mythos* and *logos* are mutually implicated. Mythopoetic imagination can also be a means for the critique of prevailing myths.

In complex, democratic (or at least pluralist) societies there are hegemonic struggles over constitutive myths, shaping both our explanatory stories about the past and scenarios about possible futures. In particular, a basic *mythologem* of contemporary liberal-capitalist societies comprises of three temporal tiers. The first tier revolves around cosmic scepticism; the second around the ego-centric ethical and political "lessons" of this scepticism; and the third around a belief in the automatic capacity of science, technology and economic growth to bring us comfort and enjoyment. There are also Marxist variations of this *mythologem*, sharing many but not all elements of the overall story (particularly the second tier is different).

An alternative cosmic story-line could centre on the prospects of life rather than death, implying long-term ethico-political responsibilities and potential for collective learning. This story-line also illustrates how new myths can be created. However, there is a point beyond which our (contemporary) mythopoetic imagination cannot reach. Why is there anything at all, rather than nothing? According to the modern scientific myth — which seems well supported by the available cosmological evidence — our universe, space-time and causation emerged from the Big Bang some 13.7 billion years ago. The closer we get, in our scientific imagination, to the Big Bang, the more quantum and relativity effects dominate. A small part of our second would look like an eternity; and the arrow of time would be increasingly indeterminate.

Effective causation would be impossible. Nothing could have caused the genesis of our universe in terms of cause and effect. Only some sort of information[41] or, in Aristotelian terms, formal and, possibly, material causes[42] could have "preceded" the Big Bang. This corresponds to the mystical moment of Being as articulated by many religious systems of thinking. Thus, at the deepest level lies a mystery. The mystery of Being constitutes an important reason for open-minded dialogue about the future of humanity on this planet and, later, perhaps also elsewhere in the cosmos. As far as we can see, no human culture or system of thinking can answer the ultimate question better than another. Yet they have found many interesting ways of relating to it, both existentially and ethically. It is within this space that the struggles over future *mythologems* take place — perhaps anticipating that the (very) long-term future might bring us also closer to an answer to the mystery of Being.

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[41] Timothy Ferris, "Science and Genesis" in C.N. Matthews and R.A. Varghese, eds., *Cosmic Beginnings and Human Ends: Where Science and Religion Meet* (Chicago and La Salle, IL, 1995), pp.31-53.

[42] See Heikki Patomäki, "After Critical Realism? The Relevance of Contemporary Science", *Journal of Critical Realism*, Vol.9, 1 (2010), pp.59-88, esp.82-83.