Worlds beyond capitalism: images of uneven and combined development in Kim Stanley Robinson's *Mars trilogy*

Abstract. This article explores the implications of uneven and combined development for how system-change is conceptualised. The current moment has featured extensive discussions of how technological transformation is altering the nature of our economy, labour force and environment. Postcapitalists argue that zero cost production undermines the price mechanism in capitalism and opens up new emancipatory possibilities for the construction of the commons. This powerful critique and political vision is let down, however, by a failure to incorporate 'the international' dimension into the theory of change. U&CD provides a vitally needed correction to this unilinear thinking. To recover an understanding of how societal multiplicity affects the nature of system-change, this article makes the until-recently unusual step of turning to fictional literature. Specifically, it investigates the dynamics of uneven and combined development within the imagined universe brought to life by Kim Stanley Robinson's science fiction odyssey the *Red Mars* trilogy. Despite the events Robinson describes existing wholly in the realm of imagined fantasy, I argue the book contains five images of uneven and combined development relevant to real world social struggles. Drawing these out can start to develop a normative, political conception of uneven and combined development for the twenty first century.

Keywords: Uneven and combined development, Historical sociology, Postcapitalism, Marxism, Science Fiction

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'[P]erhaps things had become so bad', pondered Sax Russell, 'that humanity had shifted into some kind of universal catastrophe rescue operation, or, in other words, the first phase of the postcapitalist era' (Robinson, 2013a, Kindle Location 1201). Russell, a brilliant scientist, visionary philosopher, planetary explorer, and reluctant revolutionary, is one of a number of fictional protagonists in Kim Stanley Robinson's *Mars trilogy* (Robinson, 2013b, 2013a, 2013c). The story follows a UN mission to undertake the first settlement of another planet in our solar system. However, while its lens focuses on the lives of these characters in their attempt to create a new world, its subject matter is altogether more encompassing and, indeed, grander in scale: the state of the human condition, and its relationship to nature, amidst the vicissitudes of late capitalism. Robinson's use of an imaginative literary device, the invention of a longevity treatment that means natural human lifetimes become vastly extended, allows the characters to experience social change across the *longue durée* of an epochal crisis. They participate in an unfolding series of system-changing events. Through the struggles of his characters to contribute to the universal rescue operation (ibid), Robinson uncovers the underlying progress in history: the ingenuity and adaptability of the human condition, which eventually generates a 'new Renaissance' (Robinson, 2013a, Kindle Location 7103). The significance of this story for political scientists exists not in the characters that Robinson brings to life. But rather in the nature of the evolving object he places at the centre of the narrative arc: human social relations and their deep interconnection with the evolution of the physical universe.

With its stress on intersocietal connections across even the greatest of distances, the textured landscape of the *Mars trilogy* is overflowing with processes that theorists of uneven and combined development (Allinson and Anievas, 2009; Davidson, 2009; Evans, 2016; Matin, 2013a, 2007; Saull, 2012) would recognise. This International Relations (IR) literature has given special emphasis to how the existence of many societies, cultures and places ('the international') shapes human social development (Rosenberg, 2013, 2010, 2006). However, the core theme of the *Mars trilogy*, i.e., how the end of capitalism might transpire in the centuries ahead, resonates less clearly with the existing

scholarship. Indeed, the literature on uneven and combined development has, with some exceptions (Brown, 2018, and, perhaps less explicitly, Allinson, 2019; Saull et al., 2014), eschewed drawing political conclusions. Two reasons for why this is so may be ventured. On the one hand, the origins of the theory of uneven and combined development in the writings of Leon Trotsky on the Russian Revolution has meant scholars have sought to promote the explanatory power of the idea independently of the Leninist conception of revolution he adhered to (Rosenberg, 2020). On the other hand, the attachment of uneven and combined development to historical sociology (Allinson and Anievas, 2010; Anievas and Nisancioglu, 2015, 2013; Buzan and Lawson, 2015; Cooper, 2016, 2015; Davidson, 2012; Matin, 2013b) leant itself to non-normative, explanatory theorising.

This article seeks to move the discussion in a new direction by applying uneven and combined development to the potential for a new, postcapitalist system. The grounding of the concept in 'the international' means that it has an important role to play in how anticapitalist manifestos are envisioned and fought for. Crucially, uneven and combined development imparts non-linearity to the way we imagine systemic change. I argue the social complexity that arises from visualising past shifts in modes of production as uneven and combined can be applied to analysing present day trajectories. The *Mars trilogy* provides a compelling vantage point through which to explore this. For it not only tells a story involving a shift from the capitalist mode of production to a postcapitalist one, but it also foregrounds 'the international' as critical to systemic transition. Below I show how uneven and combined development provides the implicit causal architecture underlying the narrative arc of the *Mars trilogy*. I do this by drawing out five images of uneven and combined development found across the trilogy. The events portrayed are fictional, but they have real world echoes and sociological significance. For while their form is imaginary, I argue the content of the social relations they visualise represent *substantive* logics of development.

The merit of drawing on this particular fictional text lies in the close proximity some of the ideas found in the *Mars trilogy* have to the contemporary debate on 'postcapitalism'. This literature argues the cost basis for capitalist production is withering away due to technological change (Barnes, 2006; Benkler, 2006; Mason, 2015; Rifkin, 2014; Srnicek, 2016). To adapt to a situation of zero-marginal cost production, capitalism is moving further in the direction of financialization and a shift to monetising data over selling material products. But this process also opens up the possibilities for 'networked' production and services. *Mars trilogy* provides a worked illustration (albeit a hypothetical and wholly fictional one) of the need to incorporate the international frame of analysis in order to understand the sociological effects of such a shift. Postcapitalists envision the struggles of the century ahead on the vertical axis: the new class of 'prosumers', capable of both producing and consuming through networks, and the old, increasingly oligarchic capitalist class seeking financialised rents on assets and information goods. However, both the nature of this struggle *and* the substantive outcomes will be heavily conditioned by the existence of many societies. Uneven and combined development can play a key role in drawing attention to these intersocietal elements of systemic transition to develop a more complete analysis, which offers a plausible assessment of the dynamics of future revolutions.

This argument is developed in four parts. First, I argue that Marxist IR tends to react against the teleology present in its intellectual history with a reluctance to make forward-looking claims. Science fictional worlds can help correct for this hesitation and share some methodological assumptions with counterfactual historical theorising. Given that scholarship on uneven and combined development utilises a *longue durée* methodology, it should be able to identify trajectories that run from the past into the future without slipping into a deterministic social theory. Secondly, I outline how 'the international' remains a lacuna in contemporary postcapitalist theory. Thirdly, I show how the Mars trilogy speaks to key concerns of IR and outline five images of uneven and combined development in *Mars trilogy* arguing that these constitute the underlying architecture of the narrative's events. Lastly, drawing together these threads, the conclusion offers a set of precepts towards a new politics of uneven and combined development in the twenty-first century.

Science fictional worlds and historical sociology in IR

Charles Tilly once made the following observation on the role of history in the elaboration of theory: 'if you don't know where the processes you're looking at fit in time and place, you're not going to understand them' (in Stave, 1998, p. 189). Scholars of uneven and combined development accept this basic precept of historical sociology: space and time provides the testing ground for theoretical claims. But they have disagreed on where to situate the concept temporally and spatially. This has led to a level of analysis dispute over the extent to which uneven and combined development is a feature of capitalism (Ashman, 2009); industrialisation in underdeveloped societies (Davidson, 2006); or a broader property of human evolution that arises from the ontological reality of societal multiplicity (Matin, 2013a; Rosenberg, 2013, 2010, 2006). This article explores a new pathway for the research programme that can

only be opened up if we accept the latter claim that uneven and combined development reveals a previously hidden inner logic of human evolution (Rosenberg, 2006). As Justin Rosenberg (2013, 2010, 2006) argues, this involves embracing three ontological premises in theory construction: first, that social life takes place in certain geographical locales with a vast multiplicity of actual and potential cultural imaginaries (unevenness); second, that this web of diversity is nonetheless interconnected, a reality that affects the internal nature of individual societies (combination); and, third, that this has a consequent impact on the overall arc of human evolution, for it is now visualised as comprising a series of non-linear, criss-crossing temporalities (uneven and combined development). While the literature has hitherto tended to focus on analysing historical case studies, Rosenberg's interpretation of the concept as a general abstraction (Sayer, 1987) raises until now unexamined future-orientated questions: of whether uneven and combined development will shape postcapitalist societies; and whether, if the concept is indeed not reducible to capitalism, it has insights for how a postcapitalist change would arise.

This shift in focus is not as significant a departure for uneven and combined development scholarship as might be imagined. *Longue durée* methodological analysis dominates the contemporary literature and involves what Alexander Anievas has referred to as 'spatial-temporal vectors': i.e., directional forces making up causal chains present in time and space that lead to specific historical outcomes (Anievas, 2012). Tilly similarly invoked 'trajectories' to describe how social innovation was still path dependent, making repeated reference to 'accumulated, reinterpreted experiences in past and present' (Tilly, 1998, p. 243). These approaches assemble historical material into a series of connections marked by moments of continuity and discontinuity. This entails the assumption that human action, whether individual or collective, in the present day confronts certain limitations inherited from the past. The past is thus the greatest of all social necessities shaping how we 'make history' in the present (Marx, 1973, p. 146, see also Cooper, 2013, p. 593). And *longue durée* analysis consequently involves the claim that events within the deep past, such as the Chinese Revolution or the invention of the personal computer, continue to shape the forces, structures, institutions and ideas of the present day. Accordingly, it must also be the case that they will continue to shape human developments for decades still to come, but perhaps with greater intensity in the not-too-distant future, than the far. Indeed, the near future and the present are closely intermingled: we march towards the former, use measurements of time to plan our lives in relation to it, but can never grasp it in the way that we feel the sensuousness of current experience. Within these philosophical assumptions it therefore stands to reason that the future is not wholly contingent; and, in fact, we already 'know' a great deal about the social forces that will shape world historical development in the century ahead. In other words, if uneven and combined development can be mobilised to explain events in the present, or recent past, then we can also *hypothesise* about mid-range or even longer futures.

The reluctance of contemporary Marxism in IR to countenance speculations on unknown future worlds may constitute an overreaction to the teleology (e.g. Lukács, 1920) in its intellectual history. In order to avoid reproducing stadial accounts of development predictive concepts, such as trajectory, tendency and hypothesis, allows us to maintain recognition of the non-deterministic, chaotic nature of the future timeline. Fictional worlds might appear at first sight a poorly suited field to revive a future orientated Marxism in a non-teleological form. Yet, perhaps counter-intuitively, science fiction often draws its story-telling power from some degree of proximity to the real world and its histories. As Paul Kirby observes it 'includes stories about events that might happen, that will not happen, [and] that haven't happened yet' (Kirby, 2017, p. 576). In a similar vein, speculative historical fiction regarding past events is built around the premise that events which did not happen may have done (ibid, p. 575). Indeed, the *Mars trilogy* can be situated within a speculative fictional sub-genre of science fiction*;* like the multi-platform franchise, *Star Trek,* it assumes the vantage point of an imagined embeddedness in the real history of planet Earth. These speculative timelines draw part of their imaginary power from the way that they intermingle with real history. They create new potential chronologies that may open up utopian horizons or expose highly regressive threats.

Situating these events in close proximity to lived historical experience gives the unreal future timeline its evocative allure. *Mars trilogy* author, Kim Stanley Robinson, has described science fiction in similar terms as exercises in experimental sociology. They are 'historical simulations, which start at the present then state *if we do this we will reach here, or if we do that we will reach there'* (Robinson, 1997, p. 9, emphasis in original). This way of thinking is 'utopian in its very operating principle', he adds, because 'it assumes differences in our actions now will lead to real and somewhat predictable consequences later on' (ibid). This mindset and conceptual premise has similarities with counterfactual history that, while controversial (Collins, 2007; Evans, 2014), is recognised as part of the intellectual mix of historical sociology and IR (Gould, 2019; Musgrave and Nexon, 2016; Teschke and Lacher, 2007). Thus the distinction between the fictional and the real is arguably a substantive, not a deductive, one; i.e., the same plausibility test could be applied to the conceptualisations of IR theory *and* science

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fictional worlds. Namely, do they make plausible hypotheses (Linden, 2009, p. 241) about international systems and their possible future trajectories? And do these possibilities bring attention to aspects overlooked in IR's existing theorisations?

Approaching fictional worlds with these premises offers a more 'direct' reading of their implication than other explorations in IR. Fictional worlds have been utilised within IR as metaphoric interpretations that critically challenge disciplinary norms (Kirby, 2017; Weber, 1999); they have been treated as co-constitutive of national sensibilities, imaginaries and ideologies (Dittmer, 2012); and used as an extension of the constructivist interest *representation* and IR (Neumann and Nexon, 2006). The interpretive elaboration offered below is distinct but especially suited to the combination of 'realistic' utopia and dystopia present in the *Mars trilogy*. This method mobilises science fiction to illustrate the potential for systemic disruption and paradigm shifts. The trilogy is an example of a fictional universe in which 'protagonists engage in redefinition and transformation of their regime' (Kiersey and Neumann, 2013, p. 5). This contains anti-systemic potentials once readers reflect back on reality, revealing the 'grotesque fantasies' (ibid) of our world afresh. Applying the logics of uneven and combined development to postcapitalist transition takes the scholarship in a new direction. The *Mars trilogy* treats the interrelationships between societies as a central element of a transformation away from capitalism. Robinson postulates a trajectory that is based on the presupposition that *the international exists* (Rosenberg, 2010, p. 168) i.e., the social, political and cultural multiplicity found in human life, which is itself shaped by the diversity of geographical space, will powerfully condition a transition beyond capitalism. And it is the centrality of 'the international' to the utopian horizon of the trilogy that helps us to correct for the unilinear fallacy that is found in non-fictional postcapitalist theory.

From capitalism to postcapitalism: the missing role of 'the international'?

An ongoing information revolution is fundamentally altering the capitalist system and will prove, it is argued, antithetical to its very existence. Over the last two decades a wide range of scholars and commentators have developed this argument (Barnes, 2006; Mason, 2015; Rifkin, 2014; Srnicek, 2016). This approach builds on an earlier analysis concerned with how information technology was transforming the social world (Castells, 2010a, 2010b, 2004; Sassen, 2002, 1999). Central to the postcapitalist hypothesis is the claim that modern economic production 'can be reduced to knowledge generation and information flows', (Castells, 2010b, p. 409). Information sharing occurs through networks and this has shaped the modern form capitalism assumes (Castells, 2010b, pp. 160–161). '[N]etwork power is not inherently distributive' (Sassen, 2002, p. 367) and has created new social hierarchies; in particular, the digital 'platform' corporation (Srnicek, 2016). These platforms generate income through the monetisation of data, upholding monopoly rights over the production and sale of information, and selling subscription services. Apple is an example of this trend, as having begun life as a manufacturer, it is now diversifying towards such data-based and financial services (Meadway, 2019a). Postcapitalist scholarship argues that the pressure for corporations to transition to data companies lies in the changing cost rationale to engage in manufacturing production. While this drives change in capitalism, it also opens up possibilities for new social relations.

Technological change allows information goods to be reproduced infinitely and this erodes the traditional market calculation that holds goods with social value to society cannot be multiplied without limit (Mason, 2015 chap 5). When this occurs their marginal cost, i.e. the resources required to undertake modular reproduction, will approach zero (ibid). The music industry is often cited as an illustration of this process (Rifkin, 2014, chap 13). It has still not recovered its peak value from 1999 (Rosenblatt, 2019), the year that the internet-based peer-to-peer network, Napster, was launched, allowing users to share music files for free. Information sharing services play a key role in the postcapitalist hypothesis. They are examples of the 'digital commons' where users could share information goods without having to rely on market mechanisms. Capitalism has responded to this through the creation of subscription services and intellectual property protection. But postcapitalists argue these methods will eventually reach their limits. Once technological change, notably the 'internet of things', allows such commons to emerge in relation to the creation of physical goods they argue that 'prosumers' will emerge, i.e. citizens will simultaneously produce and consume material goods (Rifkin, 2014, ibook chap 9). The information content of commodities is already a higher component of value than their physical material and this has implications for the conventional capitalist price mechanism (Mason, 2015, ibook chap 5). Source code, i.e. a product's data-based DNA, as opposed to its physical material, will often determine its value and access to it may allow replication at low cost. As in the historic Napster case (Kıranoğlu, 2016), this makes intellectual property law key to protecting private value. If the source-code enters the commons it can replicate at will. The corporate agenda for trade talks thus seeks strong protections to uphold 'source code secrecy' (Global Justice Now, 2018).

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Postcapitalists do not hold the transition between economic systems to be entirely free of conflict. They argue that the 'struggle between prosumer collaboratists and investor capitalists is shaping up to be the critical economic battle of the first half of the twenty-first century' (Rifkin, 2014, ibook np, chap 11). The level of abstraction thereby focuses on the vertical axis, i.e., the mode of economic production and the distribution of value. As such, it has, no doubt intentional, parallels with *The Communist Manifesto* which pit two classes, proletarians and capitalists, against one another in a similarly global - indeed, *universal* - battle (Marx and Engels, 1988). Once the horizontal, i.e. intersocietal, dimension is included in the theory of change, however, it increases the scope and range of conflict. Class is overlain by a host of other cleavages, such as ethnicity, religion and caste. The exchange of information through online networks has, for example, hitherto proven favourable to expanding support for ethno-nationalist, racist and misogynist worldviews (Davey et al., 2018). Unevenness between different regions in their means of adaption to the new information economy, which tends to benefit large urban centres over smaller towns, has already proven a factor in the rise of right wing populism (Rodríguez-Pose, 2018; Rosenberg and Boyle, 2019). Postcapitalists do not tend to ask questions about the potential for alliances between data monopolists and reactionary social forces at the state or geopolitical level.[1] Underpinning this is the absence of 'the international' as an explanatory analytic. Jeremy Rifkin's account of capitalism's origins as a shift in the 'communication/energy matrix and accompanying infrastructure' (Rifkin, 2014, ibook np, chap 5) is a revealing illustration of the problems that arise as a result. He links together a number of inventions across several centuries, from the printing press to coal and steam power, which reduce transaction costs and enable larger markets to form (Rifkin, 2014 ibook, chaps 3 - 5). Rifkin fails to acknowledge the role of conflict between empires to both incentivising new technologies and ensuring their benefits were *not* universally shared (Anievas and Nisancioglu, 2015; Tilly, 1990). Indeed, Rifkin's treatment of this violent transition between modes of production is naively benign, even arguing that the new matrix led to a 'more cosmopolitan frame of mind', which discarded 'provincialism and xenophobia' (Rifkin, 2014 ibook no, chap 2).

Rifkin's account of the envisioned trajectory to a postcapitalist system suffers from related maladies; although not conflict free, it lacks any prognosis of the social explosions ahead. Its stadial character leads to a simplistic historical expectation arising from the single, i.e., *unilinear,* cause of zero marginal cost reproduction of products. By contrast, there is already evidence of how the new nexus of power combining data, capital and financialization is interconnecting with ideology, geopolitics and state conflict. This takes as its point of departure the increased dependence of capital on state intervention (Standing 2016). After the financial crisis of 2008 a form of state-dependent financialization was established as central banks injected liquidity into the economy on an unprecedented scale (Tooze, 2018). The 'moral hazard' (Rowell and Connelly, 2012) neoliberal economists had once warned against was embraced. Strong incentives now exist to maximise state support while reducing on-going exposure to taxation, e.g. through offshore finance. Separate jurisdictions - a feature of the fractured, uneven division of political sovereignty in an intersocietal system - compete to offer territorially located economic incentives for capital. Even away from finance *per se* the outsourcing economy creates substantial opportunities for corruption (Tóth and Hajdu, 2018). This context has made authoritarianism a natural bedfellow (McFarlane, 2020) for a system struggling with a range of pressures, including near zero marginal cost (Mason, 2018). On the one hand, authoritarians use rentier practices to create income streams for capital; on the other, they tend to oppose the global cooperation needed to reform the financial system.

These provide initial grounds for questioning the absence of 'the international' from the postcapitalist horizon. Reading the *Mars trilogy* as a series of images of uneven and combined development can correct for this. Paradoxically given not only its fictional nature but also its publication over two decades ago, the texts provide a more concrete set of expectations on the nature of an *intersocietal* system transition.

Mars trilogy and IR: distilling images of international logics

Published in the 1990s the far-sighted, utopian orientation of the *Mars trilogy* stood out against the political norms of the decade. Yet in the decade that belief in an alternative to capitalism collapsed (Fisher 2009), Robinson's novels envisaged a centuries-long crisis that would eventually give way to 'something else': an alternative social order not based on the logic of private profit. Despite this iconoclastic flavour Robinson's trilogy was recognised at the time as a masterpiece of science fiction writing. The *New York Times* lauded it as a 'landmark in the history of the genre' (Jonas, 1996). Robinson, they argued, had captured a key feature of how the public comprehend global affairs. The extreme distance from which

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[1] An exception is Paul Mason who has linked his analysis to 'the emergence of a default form of failed capitalism… namely the authoritarian kleptocracy' (Mason, 2018).

the Martian settlers observed the violent crises that beset civilisation back on Earth resembled 'how most of us experience history in our own lives' (ibid). Robinson had distilled this sensibility, however, in a manner that combined the feeling of being dwarfed by great historical events with the recognition of our collective capacity to shape - through ideas, passions, and actions - international history in the past and future. And by placing 'the international' at the centre of the narrative arc, which depicts the great trials and tribulations that such a long period of violent crisis involves, the trilogy offers a set of sociological *images* that can help us outline the implications of uneven and combined development for the nature of political transformation *per se*.

To use the vocabulary of images echoes IR scholar Kenneth Waltz (2001) whose influential account of the causes of war distinguished between three: international conflict (the third image), individual human behaviour (the first) and the domestic life of states (the second). '[I]mages', he wrote, 'suggests one forms a picture in the mind; it suggests one views the world in a certain way' (Waltz 2001: ix). For Waltz invoking such images offered a way of thinking about the political prescriptions that might be pursued in international relations. If the analysis of the image was faulty, a prescription may not produce the desired consequences. Similarly, a prescription would be unacceptable if it did not have a logical link to the analytical image (Waltz 2001: 14). My contention is that by drawing out the images of uneven and combined development present in the fictional universe of the *Mars trilogy* we can capture logics of international development and systemic change found in the real world. This, in turn, can aid the formulation of precepts for political change. These are not as codified and narrow as Waltz's term, 'prescriptions', implies, but constitute guiding orientations that can help map normative politics to sociological conditions.

Mars trilogy provides a suitable orientation for these efforts as the story follows a process of societal creation and transformation that recognises the *fact* of international connectedness. Even in the far reaches of outer space, Martian society is not a 'black box', sealed off from Earthly affairs, but subject to combined development with the home world. The story follows the ingenuity of the intrepid explorers through their ideological debates and societal evolution. Revolutions occur in each of the three books: a failed insurrection with some parallels to a twentieth century vanguardist seizure of power; a violent but successful mass struggle for Martian independence; and a peaceful revolutionary transformation on Earth (for a discussion of these different forms, see Cho 2010). In each moment of revolution images of uneven and combined development are present as constitutive elements of a human order experiencing dramatic change. They are causal logics conditioning the terms of revolutionary action in each of these fictional conjunctures. Importantly, the internal development of Mars is also subject to the dynamics of uneven and combined development amongst many societies. Those who aspire to forging a *single* Martian culture and identity (Robinson 2013b, Kindle Location 3438) find that even as relatively small settlements proliferate they become subject to cultural multiplicity and hybridity within their individual locales (Robinson 2013b, Location 6297). When Mars agrees a common constitutional settlement the global versus local (centralisation in a world government vis-a-vis autonomy for individual polities) is described as a 'genuine contradiction' (Robinson 2013a, Kindle Location 2019), i.e. a feature of the fact of societal multiplicity. As we shall see, this has important resonances to key questions discussed in IR, such as the possibility of a 'world state' (Wendt 2003) and the issue of many democracies (Nicolaïdis 2013). The trilogy offers a vantage point for engaging these and other debates, one that illustrates the contribution uneven and combined development can make as a normatively-engaged explanatory IR theory.

Uneven and combined development as the casual architecture of *Mars trilogy*

If postcapitalist theories tend towards unilinear theorisations, then their core *problématique* can perhaps be reformulated as follows: what happens when zero marginal cost production occurs within an uneven and combined world order characterised by societal multiplicity? *Mars trilogy* provides a relevant 'historical simulation' (Robinson, 1997, p. 9) and point of *fantastical comparison* to address this question because it involves an imagined transition to postcapitalism that is fraught with intersocietal processes. Strong parallels exist between the twenty-first century Robinson imagined at the close of the twentieth and the real one that would subsequently emerge. His trilogy in fact anticipates with a different vocabulary the core claim of today's postcapitalists: that conflict between prosumers and capitalists would dominate transition to a new mode of production. Across the three books the protagonists of the narrative are essentially prosumers engaged in conflict with a dying capitalist system and its global executive class. Yet, Robinson persistently demonstrates how this class conflict is not only conditioned but also driven forward by the fact of humanity's societal multiplicity. This involves a political struggle for Mars' independence, a subsequent juridical organisation of a postcapitalist state and a recurring tension over cooperation with the peoples of Earth, exhibiting the dangers of xenophobia and isolationism. Robinson's trilogy anticipates the role that automation would play in accelerating human

technical capacity. The ability of social classes and societies to capture and utilise it is central to its account of economic transition.

Mars trilogy grapples with the relationship between political sovereignty and the hyper-oligarchic form that late capitalism has assumed. Transnational capital undergoes a series of consolidations across the three books. As they centralise into ever more oligarchic units patronage politics develops. South African defence company Armscor, for example, is depicted as one of several mega corporations (described as 'transnats' and 'metanats') (Robinson, 2013b, Kindle Location 4039). It bears little relationship to its real world origins in apartheid South Africa, becoming instead a global entity, moving its headquarters first to Australia and then to Singapore (ibid). Robinson takes this relationship a step further than its real world form. He describes how 'metanats' enter into partnership with states, taking over responsibility for their national debt and providing services. This leads to a semi-formal presence of corporate capital in global governance institutions; and the protagonists lament the 'UN's usual toothlessness before national armies and transnational money' (Robinson, 2013b, Kindle Location 4068). This fictional relationship between bankrupt states, financial monopoly and patronage politics has real world resonances. At a 2012 Apple investors conference, for example, an audience member allegedly suggested the company should 'buy Greece' given its ongoing difficulties and a serious case has since been built for such a move (Bloomberg View, 2015; Sheffield, 2015). Similarly, with corporations highly indebted a handful of cash-rich ones provide liquidity to the rest (Meadway, 2019b). Robinson's trilogy situates 'democracy plus technology' as the antagonist of this corporate oligarchy. But he also goes beyond analysing these trends at the vertical axis. For the text's main interplanetary events, which drive the story's narrative arc, occur at the horizontal dimension: the explosions derived from intersocietal conflict.

While some protagonists advocate the settlers should break free from Earth, focus on becoming self-sufficient and then be 'done with them' (Robinson, 2013b, Kindle Location 5145), they are met with the impossibility of forging an endogenous Mars sealed off from Earth's travails. This interconnectedness comes to dominate the story. And different *images* of uneven and combined development are expressed across the three books. They provide the underlying historical sociology of the trilogy that contextualises, frames and conditions, the decisions taken by the characters.

UCD Image 1: Geopolitical competition and the spoils of human development
Geopolitical competition (the 'whip of external necessity') as a driver of economic and technological innovation has formed a classical assumption of scholarship on uneven and combined development (Anievas, 2012; Matin, 2013b). To pursue catch-up development sovereign states in a competitive world were able to draw on technological advancements of others to take a leap in their respective development levels. *Mars trilogy* references such expressions (for example, the rise of the 'Asian tigers' is discussed) of uneven and combined development, but it also subtly inverts this focus by reflecting on the competitive logics experienced by advanced but declining powers. It invites us to consider the conditions that might allow them to avert this contraction, but draws attention to the ephemeral nature of these efforts, as a cycle of combined development begins afresh. In *Red Mars* we are told Russia and the United States cooperated on the Mars mission under pressure from their more agile rivals. The Mars expedition is described as an act of desperation by '[d]ecrepit outmoded industrial dinosaurs… about to get eaten up by Japan and Europe and all the little tigers popping up in Asia' (Robinson, 2013b, Kindle Location 5299).[2] Cold War-era investment in military hardware gives these decaying powers an enduring competitive advantage in space technology. Competitive developmental logics, however, soon resume once more: on the one hand, we hear how 'there are a lot of new tigers down there who are better at things than we are, and they all want a piece of the action'; and, on the other hand, underdeveloped states on Earth 'with no room and no resources' risk falling further behind due to the capital costs of space travel (ibid). The competitive logics of the nation-state, and the uneven distribution of power amongst these sovereign entities, thus intertwine with the social inequalities of late capitalism to distribute wealth unequally on planet Earth. But the process is dynamic, not static, as these competitive logics continually generate social change.

Over the course of the trilogy Mars illustrates this dynamism. It develops in a form that does not lead to the aggrandisement of Russian and American power, or any of their rivals on Earth. As a planetary outpost comprised of highly skilled scientists, engineers and professionals, and rich in mineral resources, Mars becomes the wealthiest corner of the solar system. Life on the red planet thus 'leapfrogs' Earth, assuming a postcapitalist form that eventually comes to influence political changes on the home world. The process is closely related to Mars' struggle for independence, but the polity also

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[2] These geopolitical dynamics and alignments between American and Russia are, of course, reflective of the early to mid 1990s when Robinson wrote the trilogy.

draws together the most advanced ideas and human expertise of Earth turning them towards a civilisation building effort. The chaos of planet Earth gives the Martian outpost a relative calm; thus its self-identity as a sphere of prosperity is also shaped *relationally* in reference to the plight of Earth. In Robinson's dialectic of uneven and combined development, the logic of history thereby overwhelms the original Russo-American motivations for settlement. Mars forms a postcapitalist nodal point in an interplanetary web of human societies, which outperforms the capitalist system on Earth. A new social model is, thus, pioneered.

UCD Image 2: Cultural plurality and societal multiplicity: the challenge of 'many democracies' to the normative conceptualisation of democratic life

In the classical articulation of uneven and combined development, Trotsky linked this theorisation to a Leninist view of revolution. The Soviet Union would, he argued, be 'saved' by revolutions elsewhere, notably in Germany (Trotsky, 1978). In his sympathetic critique of 'Trotsky's error', Rosenberg argues that his mistake lay in assuming that the scale of revolutionary instability seen in Russia *would ever* be repeated in societies that were not experiencing the convulsive effects of 'catch-up' industrialisation (Rosenberg, 2020). The Soviet model was an attractive vehicle for catch-up development because it used violent coercion to solve the problem of how to redistribute surpluses in order to fund capital-intensive industrialisation. Thus this connection between underdevelopment and social revolution meant Marxism 'was repeatedly tilted towards the authoritarian, statist forms generated by the unforgiving imperatives of catch-up development' (Rosenberg, 2020, p. 493). Rosenberg casts his challenge to Trotsky as a structural logic of revolution and this raises two issues. On the one hand, the critique concerns the uneven development of the second industrial revolution and not the information-based one of today. On the other, it leaves suspended the normative issue: of how exactly those seeking systemic change *should* approach postcapitalist transition in these conditions of societal multiplicity.

Once posed in these terms a simple fact must be acknowledged. Even in the pristine form of his unrealised hopes and expectations, Trotsky's conception of radical change from 1917 onwards was not democratic. After the Russian Revolution, Trotsky strongly defended the principle that a revolutionary minority should take and hold power, even without the backing of the majority (Trotsky 1920). This was a position he maintained until the end of his life, despite his opposition to Stalinism.[3] If we start from the assumption that democratic systems have normative value,[4] then the question becomes how these systems should function in conditions of societal multiplicity. The unevenness of human life continually problematises and 'tests', so to speak, this normativity. Democratic expansion leads, at best, to *many* democracies with numerous, and potentially conflicting, claims and interests. The democratic conundrum is thereby both an internal and external one. At the internal level jurisdictions will contain various locales with distinctive sensibilities and a latent potential for conflict. Externally jurisdictions confront a global order made up of societal 'others'. Even the most widespread expansion of democracy across the Earth will require the mediation of these multiple sovereign jurisdictions at the international level. *Mars trilogy* provides a series of ongoing considerations of this democratic *problématique* by foregrounding the cultural and social multiplicity of human life. This becomes central to the functioning of the imagined universe, as its characters are continually confronted with the fuzziness and grey boundaries that occur from the interrelation of societies and their internal hybridity and social multiplicity.

Mars and Earth are both domains of great cultural plurality. On Mars the settlers come to recognise that they do not constitute a *tabular rasa* (Robinson, 2013b, Kindle Location 5689). Cultural lineages from the past profoundly shape this imagined future. Bedu colonies, for example, are described as transposing a nomadic lifestyle to the red planet (Robinson, 2013b, Kindle Location 6297). An enduring cultural temporality thus finds a familiar mode of living in an entirely new territorial space; habits and customs recur and sustain in new forms, generating hybridity and internal socio-cultural unevenness within the Martian colony. These lineages are juxtaposed to new identities and lifestyles; notably Mars is presented throughout as home to a vibrant, sexually liberated and hedonistic party culture. For democratic life this plurality becomes a point of both tension and creative emancipation (Robinson, 2013a, Kindle Locations 1976 - 2009). Yet they do achieve a coherent political organisation of global democracy that recognises Mars' internal political plurality.

The challenge uneven and combined development presents to mapping the normative ideal of democracy onto human complexity is a recurring theme. The constitutional settlement on Mars following its successful struggle for independence establishes self-governing city-states, with substantial

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[3] In the late 1930s, for example, he told his American supporters, '[d]emocracy is only the rule of big bosses' and that '[t]he democratic regime is the most aristocratic way of ruling' (Trotsky, 1938).

[4] See Kautsky's analysis of the anti-democratic political theory underlying Leninism (Kautsky, 1918).

autonomy, but also a world government and universal human rights (Robinson 2013a, Kindle Location 1976). The outcome could thus be called a *demoicracy,* a neologism formed through combining the plural form of demos with democracy (Cheneval and Nicolaidis, 2017; Nicolaïdis, 2013). This seems consistent with how uneven and combined development might speak to the idea of a global quasi-state. It may hold it to be neither 'inevitable' (Wendt 2003) nor a 'life worse than death' (Waltz 2001: 228). But instead maintain that were such an international federation created it would involve a political architecture that would, by necessity, be radically different to a nation-state. Indeed, the Martian historical simulation subverts and challenges Waltz's claim that the 'amount of force needed to hold a society together varies with the heterogeneity of the elements composing it' (ibid). For the plural system depends on competing actors agreeing to observe, and work within, its authority structure without serious coercion.

By taking account of the plurality of democracy this image also points to a departure from Trotsky's analytical and normative errors, i.e., his beliefs that a fully-centralised world communist state was possible, and that democracy was not a vital first principle of an emancipatory project. By contrast, the multicultural democracy of Mars is simultaneously embedded in an uneven and combined international constellation of many societies. Crucially, the new Martian state does not aspire to hold any form of expansive territorial sovereignty over societies on Earth. From early on in the books the struggle is visualised as one of 'democracy versus capitalism' (Robinson, 2013b, Kindle Location 5717). But this formulation is defined in intersocietal terms. For it is the vantage point of the Martian settlers 'on this frontier outpost of the human world' that makes them 'better positioned' to 'fight this global battle' (ibid). The socio-geographic perspective of the Martian settlers gives them a unique position as outsider antagonists within the uneven and combined development of humanity. It makes them uniquely placed to transform not only their own conditions but also, through chaotic ripple effects, the wider social totality.

UCD Image 3: Non-linear transition in political and economic life
The narrative voice in *Red Mars* at one point muses that 'history was like some vast thing that was always over the tight horizon, invisible except in its effects… an unknowable infinity of events, which although out of control, controlled everything' (Robinson, 2013b, Kindle Location 4218). Such reflections are common across the trilogy, expressing the characters' curiosity about the nature of the transformations they were both experiencing and shaping. In *Blue Mars* we find a similar contemplation on how the certainties of the past, 'a long, braided tapestry of events', contrasted to an inherent blindness in relation to the future that 'presumably… branched out in an explosion of threads of potentiality' (Robinson, 2013a, Kindle Location 2341). History is non-linear in these observations, consisting of a series of distinct but interlocking processes. In book three, the epochal changes are reviewed in retrospect. A fictional historian argues that the systemic change arose through a 'residual/emergent complex of overlapping paradigms… in which each great socio-economic era was composed of roughly equal parts of the systems immediately adjacent to it in past and future' (Robinson, 2013a, Kindle Location 7103). These fused in a complex yet holistic system, which included elements of the old system alongside the new, as well as some 'aspects of more archaic systems, and also faint hesitant intuitions of developments that would not flower until much later' (ibid).

Robinson's formulation closely resemblances Trotsky's classical statement of combined development as a 'drawing together of the different stages of the journey, a combining of separate steps, an amalgam of archaic with more contemporary forms' (Trotsky, 1967, p. 23, see also Allinson and Anievas, 2009, pp. 52, 54–54; Rosenberg, 2006, pp. 319–329). In a process of transition different modes of production become intertwined in complex amalgams. Through this dynamic, unstable equilibrium and rupture, the arc of history spirals through different evolutions and patterns. *Mars trilogy* observes this logic closely. A new economic paradigm is formed in deep interconnection (and conflict) with the existing mode of social reproduction extending its reach into space from planet Earth: the metanational world order. Through their political radicalisation the Martian settlers treat their uneven and combined development as an opportunity. Unlike the Trotskyist conception of revolution that held the Russian soviet state to face a choice between authoritarian national isolation and unilinear world revolution (Rosenberg, 2020) the Martian radicals consciously embrace their non-linearity. At one point they describe their efforts as working towards 'a kind of democratic communist island, outperforming the capitalism around it, and constructing a better way to live' (Robinson, 2013c, Kindle Location 1289). The final economic settlement, however, is closer to a form of non-statist socialism, rather than communism. This socio-historic amalgam is arrived at through debate and compromise among the demos. A mixed economy with private and public spheres existing side by side, it nonetheless prohibits private capital accumulation. Economic activity occurs through the establishment of cooperatives of various sizes with credit provided by a public banking sector. And although market-based activity persists limits on the size of cooperatives guard against a new centralisation of economic power.

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The non-linear way in which Robinson comprehends and visualises history can be read as a conception of development without *telos*. There is not a single goal or end point arrived at within the text. Politics continues unabated despite the prosperous, postcapitalist conditions established. Political ambition, lively democratic argument over the ecological and social implications of new infrastructure, the regulation of the cooperatives and public banks, and international relations in a now inhabited solar system, all provide raw material for the democratic life of representative government. These entanglements of the human condition resemble more closely what Immanuel Wallerstein referred to as *utopistics* (Wallerstein, 1998): a modified conception of utopia, one freed from the logic that the 'end justifies the means'. *Mars trilogy* envisages a radical democratic condition, free of capitalist exploitation, but not the end of politics (see also Laclau and Mouffe, 2001, and for an application to Mars trilogy see Burling, 2005). The books create an imagined laboratory of democratic practice and transformation. This conceptualises history as an evolutionary process with discernable patterns but without a clear end.

UCD Image 4: Non-linear transition in technological change
Development without telos is also manifested in how technological transformation is discussed in the trilogy. Technology cuts across the three facets that typically denote social development: it represents an on-going transformation of the human relationship to nature; it both harnesses and embodies particular structures of social power; and, in its scientific formulation, entails the rationalization and codification of knowledge (Rosenberg, 2006, p. 329). And it plays a special role in the drama that unfolds across *Mars trilogy*. The remarkable capacities of the human species are continuously situated in a relation to a democratic plurality: not of a single polity but a wider, intersocietal universe of conflict, renewal and cooperation. There are a number of references to the 'godlike new powers' that humanity now enjoyed to remake the world(s) around them (Robinson, 2013a, Kindle Location 779). But this breakthrough leads to dramatically different outcomes depending on the class and societal perspective assumed. Most starkly the invention of the longevity treatment (as noted at the outset, a medical process that dramatically extends human life) on Mars diffuses back to Earth with hugely destabilising consequences. Capturing the uneven and combined relation of the Martian colony to Earth, its invention in the former has manageable effects, but its transmission to the latter intensifies the most oligarchic features of Earth's socioeconomic order, with Malthusian pressures and a 'physicalisation of [social] class' the result (Robinson, 2013c, Kindle Location 3416).

These 'imagined experiences' serve as an iteration of the inner nature of development. Transformative innovations in the human relation to nature, modes of social power, and new knowledge forms, i.e. *development,* as such, will occur in an 'internally differentiated (across the dimensions of space, time, number and social form, etc.)' yet also 'interactive, synthetic' form (Rosenberg, 2006, pp. 333–334). Technology is transmitted across this uneven landscape in a form mediated by the separation of (and consequent competition among) many societies; and this socio-spatial dimension directly affects the nature of their temporality, generating its non-linearity. In other words, while Robinson did not put the sociological reasoning present in the text in these exact words, he nonetheless told a story of social transformations where the latent 'causal structure of development… is intrinsically both uneven and combined' (Rosenberg, 2006, p. 333). Relatedly, within Robinson's conception the socio-political and scientific do not form entirely different categories. The narrative's focus on scientific specialists becoming political actors also sees them attempting to apply their apparatuses of knowledge to the complexity of the social world (e.g. see Robinson, 2013c, Kindle Location 3445 - 3446). Thus these two facets of developmental evolution, the political and technological, are seen as intertwined and embedded. The pinnacle of this lies in the advance of Mars to the 'stage' of postcapitalism through an inductive process of evidence-based testing and learning.

UCD Image 5: Uneven and combined geographical space: the planetary biosphere as a physical web of interactive multiplicity
Historical sociologists have frequently registered the natural world as an important force in social development. Nature constitutes 'the largest single source of uneven development'; as such, it is a source of both spatial differentiation and, due to its on-going evolution, temporal change and renewal (Rosenberg, 2010, p. 180). Natural crises have also played a crucial role in human history on countless occasions; from the Black Death (Anievas and Nisancioglu, 2015, pp. 77–79; Epstein, 2000, pp. 38–72) to 'the Little Ice Age' (Parker and Smith, 1997, pp. 7–8). They have often provided ecologically based compulsions for institutional and socioeconomic change. And they are never wholly natural but interweave with the social fabric and productive capacity of societies to determine an eco-social outcome (Davidson, 2012, p. 409). To a large degree *Mars trilogy's* imagined universe is underpinned by this tradition of socio-ecological theorising. However, its forward looking orientation invites us to reflect on

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how the web of interactive multiplicity found in the natural world will continue to shape human life in conditions of technological acceleration.

The most pronounced ideological debate in the book concerns not capitalism but 'terraforming': whether to seek to create on Mars a breathable planetary biosphere through industrial intervention. This cleavage expresses, in a fantastical, otherwordly form, a dimension of social development that is present in the real world: the human capacity to self-reflect on the nature of our interconnection with the physical world and manage its planetary evolution. Robinson visualises terraforming as a reciprocal process of stewardship. The environmental 'terrain' is described as a force for 'progressive differentiation, and thus the evolution of new species' (Robinson, 2013c, Kindle Location 50). But this is then situated within a combined, interactive whole as 'all the members of a biosphere evolve together, adapting to their terrain in a complex communal response' (ibid). Robinson thereby goes beyond a treatment of the natural world as uneven; he pushes this conceptualisation further by pointing out the interactive multiplicity found in the human-nature relation. Accordingly, nature's physicality plays an ethical role as a source of constraint on human power, 'no matter how much we intervene in it, is *essentially out of our control*' (ibid, emphasis added). These limitations on human agency impart normativity to the process. No matter how great the technical accomplishments of humanity become they retain an inherent element of vulnerability to the natural world even as its physical makeup is profoundly transformed. The 'new' humanity that arises in the trilogy is therefore by no means a dominant force over nature but a component of it.

In the narrative arc this vulnerability is most brutally exposed not on Mars, but Earth. The melting of the Antarctic ice sheet (Robinson, 2013c, Kindle Location 8622 - 8673) takes place at the end of book 2, leading to an extraordinary rise in sea levels across this globe referred to as 'the great flood'. It is seen as a major turning point in human history forcing revolutionary social change; a breakdown in the relationship of the human social world to the physical biosphere, which, in turn, aggravates to breaking point the existing economic order. Like the Black Death it therefore constitutes an eco-social event that catalyses change, triggering a series of mini-Tsunamis unevenly spread across the geographical surface of earth to which societies respond. Humanity is forced to collaborate. The capitalist labour market collapses, a Mars-like economy emerges and the United Nations is reborn in the crisis efforts.

Conclusion: towards a politics of uneven and combined development

The story arc of the Mars trilogy explores 'one of the world's paroxysms of breakdown and reordering' (Robinson, 2013a, Kindle Location 2825). Harrowing violence sits alongside and intersperses with utopian emancipation. Late capitalism in this vision comprises a decaying structure of normalised inequality and violence. The third world war that arises at the close of book one is indicative of how Robinson captures the innate complexity of progress (Robinson, 2013b, Kindle Location 6848). Lacking the formal declarations of the two previous world wars, it emerges through a series of uneven crisis-points that spiral into a combined outburst of violence. Arising through the militarisation of social grievances in a global order wracked with deepening inequalities, rather than a failure of diplomatic statecraft, it appears closer to what Mary Kaldor calls a new or non-linear war (Kaldor, 2016, 2013). This provides the backdrop for the *universal rescue operation.* And this formulation reflects the non-linear conception of the shift between modes of production. Change arises in the text as a response to circumstances. And thus the new order that emerges may not even be perceived as change at all (Robinson, 2013a, Kindle Location 923).

This context gives the trilogy a particular salience in the real world twenty-first century. It is going through a similar paroxysm of breakdown and reordering analogous to the long crises seen in the fourteenth (Davidson, 2012, pp. 506–517) and seventeenth (Parker and Smith, 1997) centuries. To both understand these real world processes, and develop a normative political response, conceptualising their uneven and combined development is essential. Linking these images to precepts is actually consistent with Waltz's methodological approach, even if the conceptualisation itself departs from his realist assumptions. He used his theoretical framework to interrogate and probe the utility of political prescriptions in international affairs (Waltz 2001: 15). The images presented here similarly offer a guide to normative politics that is sociologically grounded. They distil real world logics and expose the intersocietal processes that might shape future crises and breakdowns of the capitalist system, thereby opening up horizons for system change.

Each of the five images drawn together point to precepts that could form a politics of uneven and combined development. Competitive geopolitical logics (image one) between societies are part of the inner dynamism of international politics. But they can be subverted and distorted away from the tradition of power politics and towards the aspiration for systemic change. To do this, however, requires embracing a plural multi-societal conception of democracy (image two) and managing the inherent conflicts and demands that this entails through peaceful negotiation and coexistence. A politics of non-

linearity (images three and four) should similarly reject telos as an end state or single unilinear goal. Once 'the ends justifies the means' is abandoned, politics can be reset as a response of the democratic plurality to tackling acute social crisis. And recognising the planetary biosphere as a physical web of interactive multiplicity situates humanity as a steward of the natural world (image five); a normative position that derives from our genuine vulnerability to ecological distress.

Stretched across a diverse, multi-layered international milieu, *Mars trilogy* shows how even humanity's farthest outposts in settled space are still profoundly shaped by the interactive totality of human life. This insight has applicability to the social world separately of any notion of extra-planetary settlement. By foregrounding 'the international' as the fulcrum of system change *Mars trilogy* offers a simulation that, despite its fictional nature, appears more plausible and concrete than the predictive expectations prevailing in the postcapitalist literature. It helps develop the outline of a politics of uneven and combined development in the face of the general crisis of capitalism in this century; one that stresses the importance of the democratic plurality as an antagonist to the centralised hierarchies of digital mega-corporations; it underlines the importance of co-dependence and international embeddedness for radical governments and movements seeking change; and it emphasises the importance of knowledge diffusion and data sharing to realise the emancipatory possibilities of new technology. Holding these facets together is the non-linear character of the system change. And this leads, in turn, to a final political conclusion. Rather than a unilinear developmental expectation local specificities are embraced. Place-centeredness, mapped against the unevenness of the geographical world and the socio-cultural particularities of a polity, becomes a key source of radical possibility and an outcome of the *fact* of non-linear temporality.

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