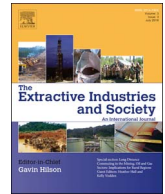




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Mining Temporalities: An Overview

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ABSTRACT

This introduction to the special issue 'Mining Temporalities: Extractive Industries and the Politics of Time' examines contemporary debates regarding the time-resource extraction nexus. Elaborating on themes such as the temporality of mining landscapes and extraction's seasonality, rhythms and cycles, as well as the entanglements of past, present and future in extractive industries, attention is drawn to the multiplicity of temporalities associated with the extractive industries and their diverging (often conflicting) perceptions, representations, discourses and politics. Thus, this introduction, and the special issue in general, aims to advance recent scholarship on temporal dynamics in the extractive industries.

1. Introduction

Many scholars have highlighted the dominance of 'spatialized thinking' in the social sciences, that is, the tendency to think of the economy and society in terms of continuous spatial transformations on a global, rather than on a temporal scale (e.g., Hassan, 2010; Klinke, 2012; May and Thrift, 2001). Studies conducted on mining and other extractive industries seem to be no exception. Indeed, it is intuitive to think of mining environments as physical places in which miners, whether individuals or large-scale companies, extract materials useful to the global economy by spatially modifying these same environments (cf. Bridge, 2004). In contrast, it seems less intuitive to think about mining as a complex set of multiple temporal processes, a tendency which may be partly attributed to, as Nancy Munn notes, 'time's pervasiveness'. This, coupled with its 'infinite complexity' and its apparent transparency in everyday life, seems to be, paradoxically, an obstacle to a focus on temporal issues (Munn, 1992: 93, 116; see also Kümmerer, 1996: 217). In response to the dominant 'spatial imperialism' (May and Thrift, 2001), and to the difficulties highlighted by Nancy Munn, a number of studies have emerged that promote a 'temporal turn' (e.g., Bear, 2016; Hassan, 2010). Subsequently, this turn has generated a growing amount of research focused on the relationship between time, resources and the extractive industries (e.g., Ferry and Limbert, 2008; Halvaksz, 2008; Smith, 2011; Weszkalnys, 2014; and several papers recently published in this journal, such as Rochlin, 2015; Salman et al., 2017; Peña and Lizardo, 2017).

This special issue further examines the relationship between resource extraction and temporality by exploring and comparing

representations, perceptions, experiences and politics of time that are related to extractive activities carried out at different levels in different regions of the world – from large-scale coal mining in Australia and Southern Africa, through artisanal gold and diamond mines in West Africa, to abandoned asbestos and gold mines in South and North America. To this end, we use the expression 'mining temporalities' in order to underline how resource extraction – whether of metals, minerals or combustible substances (e.g., oil, coal, gas) – can be understood by untangling a complex mesh of multiple temporalities: durations, rhythms and cycles – with different velocities, intensities and extensions – that different social actors try to know, tame or manipulate by (de)synchronising them in line with contingent and often conflicting strategic interests. To use the word 'temporality' in the plural does not only mean exploring, recognizing and describing these different levels and types of temporalities, but also understanding how they are socially and culturally constructed and manipulated by heterogeneous social actors in specific political and economic contexts.

The idea of multiple temporalities that we build upon in this special issue considers as its starting point the potential conflict and non-synchronicity of mining temporalities. Moreover, it does not consider stasis and synchronicity as the final – actually obtained or simply desired – outcome of extractive processes. While it is true that many mining operations around the world can be interpreted as efforts to articulate or synchronize different temporalities (e.g., market cyclical temporalities and cycles of production), it is also true that there is always a non-synchronizable temporal element (e.g., the long-term regenerative capacity of natural resources compared to the rapid mining rhythms of extraction). In addition, a certain degree of de-synchronization or

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temporal disjunction can be actively sought or maintained by miners: when they accumulate, for example, high value/low volume minerals (such as gold and diamonds) that they sell only when market prices align with their profit expectations. In other words, from the point of view of this special issue, both synchronicity and non-synchronicity are never given; rather, they are the result of active work by social actors to establish or maintain specific 'temporal regimes' (Jordheim, 2014). In this light, extracting minerals or combustible substances means organizing temporal levels, speed and rhythms of production, as well as producing temporal narratives that support or contest such organization. In other words, this special issue not only examines the temporalities directly related to extraction processes, but also deals with perceptions, representations, discourses and politics of time.

In the following sections, we further examine three important aspects of the relationships between mining and time. The first, *From landscapes to timescapes*, considers the temporalities layered into mining landscapes and incorporated into resources, infrastructures and people's activities and bodies. It proposes envisaging mining as a form of extraction of time from the environment, and human labour and resources as a form of materialization of time. These dynamics can be understood as what we call the 'mining of temporalities'. The following section, *Seasonality, rhythms, and cycles*, examines mining as a set of multiple and complex temporalities influenced by contingent situations which are affected by local and global actors in diverging political and economic scenarios, or what we define as the 'temporalities of mining'. Subsequently, the section *Entanglements of past, present and future in the extractive industries*, scrutinizes the ways in which mining activities become established as a configuration of ideas and perceptions of the past, present and future, an approach which takes direct inspiration from the idea of historicity (Hirsch and Stewart, 2005). Finally, *Politics of time and temporal inequalities* situates the relationships between extraction and temporality in a strategic political context, emphasizing that mining temporalities are not natural phenomena, but constructed and negotiated, and driven by the particular and often diverging interests of different actors. The papers in this special issue, which are briefly introduced in the final section, all contribute to our general aim, which is to examine, untangle and advance the recent scholarship on temporal dynamics in the extractive industries.

2. From landscapes to timescapes

As Bridge (2004) notes, classical political economists see the environment as a 'storehouse' from which humans extract useful resources through technological processes that, in turn, physically change it. However, studies on mining as 'a form of landscape modification' show that extractive processes do not act on inert places (ibid.: 209). On the contrary, these landscapes are inscribed with, for example, different (and often conflicting) social relations, communal histories, individual memories and governance structures (e.g., Lentz, 2006; Pine, 2007; Halvaksz, 2008; Wheeler, 2014; Grund, 2016). Considering mining environments as modified landscape can be a way to bring to light their inherent socio-cultural, material and discursive dimensions, as well as the contested and conflictual effects of extractive processes. With this in mind, Ey and Sherval (2015) borrow the notion of 'minescapes' from Burtynsky (2009) in order to 'emphasis[e] both their dynamic and often contested socio-cultural relations, and their material-discursive dimensions' (ibid.: 3). This perspective resonates with a number of studies that emphasize the processual and dialectical character of the production of landscapes (e.g., Bender, 2002; Hirsch, 1995; Liesch, 2014). Moreover, the notion of minescape, and others such as the enclave (Ferguson, 2005; Appel, 2012), hot-spots (Pijpers, 2016), contested terrain (Bridge, 2004), concessionary politics (Hardin, 2011) and cohabitation (Panella, 2010), stress that extractive environments are not politically and ecologically neutral (D'Angelo, 2012), but should be considered as spaces charged with a range of political, economic, ecological and social interests.

All these approaches examine the social and spatial transformations of mining landscapes. The idea that time plays an important role in these socio-spatial transformations is also embedded in the application of terms such as minescapes, cohabitation and hot-spots. In order to theorize and make this role even more explicit, Ingold's (2000) and Adam's (1998) analyses of 'timescape(s)', or Bender's (2002) and Stewart and Strathern's (2003) insights on the relationship between time and landscape can be sources of inspiration for thinking about extractive landscapes temporally. What is common to these studies is the idea that socio-environmental life must be approached from a different perspective than the Newtonian linear conception of time which orients much of the Western way of thinking, that is, the time of calendars and clocks. As Adam (1998) notes in *Timescapes of modernity*, being aware and making visible the nonlinear temporal dimensions of social life and the non-reversibility of ecological processes has an important impact on how we perceive, know and use the environment (see also Hofmeister, 1997). Adam (1998: 9) is specifically concerned with how 'industrial time' is 'implicated in the construction of environmental degradation and hazards' and how it is perversely used to solve the same problems it creates. To oppose the Newtonian assumptions of 'industrial time' and its ability to hide its nefarious outcomes, Adam believes that it is necessary to recognize the temporal multiplicity of environmental phenomena (1998: 50, 54). Since the worst damages and environmental hazards tend to develop in the long-term (1998: 17), a crucial step towards a more sustainable way of life could be that of taking into account the 'ecological impact of time' beyond the human timespan, as suggested, for example, by Kümmerer (1996).

Kirsch, in his study of the environmental perspectives of the Yonggom, who are exposed to the pollution produced by the Ok Tedi mines in Papua New Guinea (Kirsch, 2008), embraces Adam's (1998) analysis and agrees with her 'on the need to think in alternative temporal scales' (Kirsch, 2008: 294). Yet how great must the time scales be through which we think about mining and environmental changes? According to Irvine (2014), in order to understand how certain events or local situations are related to a deeper and more general historical and environmental context, it is necessary to extend our temporal horizon to distant geological epochs. Only in this way can we truly understand the Anthropocene, that is, the age in which humans have become a geological agent capable of transforming the world like other natural forces. To this end, he proposes taking a step towards the 'abys of time' with the geological notion of 'deep time'.

The reflections on the relationship between landscape and time offered by Ingold (2000) and Bender (2002), as well as those of Irvine (2014) on deep time, converge in the notion of the 'deep time of resources' proposed by D'Angelo (forthcoming). This notion is not only a tacit invitation to reflect on the long-term environmental implications of mining activities in a specific extractive context, such as Sierra Leone's artisanal mines – a context that seems to be dominated by imaginaries centred on short-term, accelerated temporalities – but is also an invitation to think about resources as a condensation of plural temporalities. The underlying idea is that mining is a form of articulation of multiple temporalities that aims to appropriate the millennial work done by the non-human component of the environment. The notion of the deep time of resources, therefore, encapsulates an additional invitation to broaden the meanings of the concepts of valorisation and productivity so as to include both human and non-human labour (see Hofmeister, 1997). More importantly, this perspective makes it possible to interpret resources as time that has been materialized or is being materialized (cf. Bender, 2002: 103; Ferry and Limbert, 2008: 15). It follows that extracting resources means extracting a multitude of non-human temporalities that have materialized in specific forms. Thus, a resource is not just a cultural category linked to specific human needs, along with modes of seeing and evaluating the environment (e.g. Bridge, 2009), but also a temporal object, *made of* time and conditioned by a plurality of temporalities that miners articulate or (de)synchronize to achieve their goals.

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