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Placing resources: Junior mining companies and the locus of mineral potential

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Keywords: Resource becoming, Resource potential, Place, Mining, Copper

ABSTRACT

Ideas of resource becoming have become prominent across scholarship in resource geography over the past two decades. In this article, I link processes of becoming with those of place. Drawing on research focused on copper exploration and the junior mining sector, I describe the way resource potential is articulated through three distinct practices of placing: the placing of resource prospects within narratives of copper deficits; the placing of resource prospects in space; and the placing of resource prospects in juxtaposition to other projects. These promotional, taken-for-granted practices within the junior mining industry not only underscore the way resource potential is tied to spatial and temporal narratives, but illustrate how the locus of resource potential is found in areas beyond the underground.

1. Introduction

Resources are not, they become. This observation from Erich Zimmermann's (1933) work in resource economics has resonated across scholarship in resource geography over the past two decades. Zimmermann examined the way natural resources come in and out of use based on shifting social demands. His work shows how natural resources—as elements of the biophysical world that have a social value—are connected to cultural, political, and economic systems. The notion of resource becoming draws attention to these complex social relations, locating the origins of resource emergence in society instead of in an autonomous, disconnected nature. The underlying appeal of becoming is that it focuses on process, troubling assumptions of resource permanence. Expanding on Zimmermann’s framework, scholars have outlined how resource becoming includes not only the work of the social imagination, but also the material means of knowledge production that create resources as objects of calculation, investment, and value.

In this article, I build on Zimmermann’s insights to link processes of becoming with those of place. Focusing on mineral resources, I analyze how exploration companies place sites of mineral exploration within commodity narratives, in space, and in relation to other resource projects. The prospect of resource potential, I demonstrate, stems from the way particular targets of exploration are situated within wider sites and temporalities of resource provisioning. While scholars have drawn attention to the practices of measurement and labor through which certain subsoil domains become resources, my analysis draws attention to the relational elsewhere of resource potential. I show how potential in one location is engendered through particular practices of placement. I utilize place here, then, not as a noun, as in much of the rich literature on place, but as a verb, to place. Just as scholars have shown how places are dynamic, tied to narrative formation, and articulated through selective incorporation of external processes (Massey, 1995; Hoelscher, 2003; Martin, 2003), placing resources is a process that links areas of exploration with extra-local narratives, sites, and associations.

I develop this argument through an analysis of metallic minerals and the junior mining sector. So-called “juniors” are small mining companies that seek investment to explore mineral resource prospects around the globe. It is through these actors, social spheres, and investment mediums that the majority of metallic resources (gold, copper, nickel, silver, etc.) become mineral commodities. In contrast with the considerable body of scholarship on mining giants like Newmont, Rio Tinto, and BHP Billiton (Welker, 2014; Rajak, 2011; Kirsch, 2014), there has been much less written about junior companies, which number in the thousands (for exceptions see Tsing, 2000; Majury, 2013; Kneas, 2016; Gilbert, 2020). Unlike the giants, junior companies are not focused primarily on mining; they are more interested in resource speculation and exploration. Some junior companies produce viable mining operations, but most produce very little. If successful, they often sell out to or partner with larger mining companies. Even junior companies that fail to identify a viable mineral deposit are often successful in garnering investment along the way. “Placing resources” encapsulates the tactics that these junior companies employ to promote themselves and their projects. The data I present center primarily on copper, but the dynamics I discuss are widespread across the minerals

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https://doi.org/10.1016/j.geoforum.2020.05.007
Received 29 September 2019; Received in revised form 7 March 2020; Accepted 10 May 2020
Available online 13 May 2020
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that underpin the junior sector.\footnote{For similar dynamics at play in the rare earths market, see Ozden-Schilling (m.s.) and Phadke (2018).}

A number of scholars have examined how resource becoming not only relies on the production of subsoil knowledge in a specific site, but is a complex process that involves sociotechnical imaginaries and geopolitical relations (Lis and Stasik, 2017; Szolucha, 2019; Phadke, 2018). Articulations of shale gas potential in Europe, for example, have taken shape within discourses that emphasize the need for lower-carbon energy as well as energy security vis-à-vis Russia (Kuchler, 2017). In the case of Estonia, ideas of national patrimony have combined with energy security, producing what Kårg Kama (2016) productively terms the “contending geo-logics” of shale oil extraction. This scholarship underscores how resources emerge in particular sites within temporal projections of the future (Childs, 2020; Olofsson, 2020) and geopolitics of those locations (Valdivia, 2015). It illustrates the multiplicity of actors within the public sphere who navigate uncertain and contested fields of knowledge and politics. These conflicts are not just disputes over resource extraction, but constitute the very processes through which resources emerge as objects of significance (Kama, 2019; Lis et al., 2019). With junior companies, the grids of space and time in which they place their projects are largely constructed by the junior companies themselves, as opposed to reflecting contested national arenas that are shaped by diverse political and public interests. The theoretical value of placing helps reveal the logics through which these companies construct these spatiotemporal configurations, situating questions of resource potential in relation to the agency and practices of junior explorers.

The ontology of resources has been a central theme in theorizations of resource becoming, probing the types of knowledge, narratives, and politics that help determine what resources are, how they are known, and what social formations might arise from their emergence (Richardson and Weszkalnys, 2014; Kneas, 2017). This paper calls for more focus on ontologies of resource potential. Literature on resource ontology includes, of course, underlying questions of potential, as Kama’s (2015) analysis of “unconventional resources” effectively shows. Rhetorically parsing out potential is nevertheless a useful way to avoid some of the pitfalls associated with discourses of resource inevitability—the powerful notion across popular, political, and academic spheres that resource presence means eventual resource extraction (Nader, 2004; Chapman, 2013; Hughes, 2017). Junior companies, even as they evoke this specter of eventual extraction, are focused less on cultivating and selling resources as they are on resource potential. In her analysis of oil exploration in São Tomé and Príncipe, Gisa Weszkalnys describes how the prospect of petroleum depends upon recurring “observations of potential” to ward off doubt that nothing is really there (Weszkalnys, 2015, 2016). In a competitive marketplace of investment, junior companies likewise require continuous observations of potential. While these observations may relate directly to the subsoil domains that juniors are targeting, they are often located elsewhere. Just as recent work has examined the substance of speculation (Ferry, 2020) and the locus of energy materiality (Balmaceda et al., 2019), placing resources asks us to think about the locus of mineral potential and the means through which it is observed.

Potential refers to the capacity or latent ability to become something in the future. As Giorgio Agamben argues, however, potential also means impotentiality, or the equal likelihood of something not happening (Agamben, 1999: 177-184; Agamben, 1995: 44-48). In other words, potential evokes a field of possible outcomes between un-becoming and actualization. A helpful illustration of the dialectics of potentiality comes from Mette Svendsen’s (2011) study of fertility clinics in Denmark, where couples are asked to donate unused embryos for biomedical science. It is the blank space of disposal, the prospect that this biological material would otherwise be thrown away, that helps donating couples envision alternative potentials for embryonic cells within fields of biomedical science. The articulation of potentiality, Svendsen shows, is thus one that arises from the resetting of particular narratives that place cell material into new temporal and ontological fields of possibility. Like the blank spaces that help produce new understandings of potential for embryonic cells, the impotentiality of resource exploration—the notion that sites of mineralization might produce nothing of value—is embedded within the work of junior miners. This resonates with Ian Hacking’s description of speculation—“a playing with and restructurin of ideas to give at least a qualitative understanding of some general feature of the world” (1983: 213). Placing resources describes the way junior mining companies “play with” and “restructure” commodity narratives, notions of space, and comparative projects to elicit “qualitative understandings” of potential for their exploration targets.

This paper draws on ethnographic fieldwork that I have conducted since 2016 at two global mining conferences, the large annual meeting of the Prospectors and Development Association of Canada (PDAC), held in Toronto, and the smaller Vancouver Resource Investment Conference (VRIC). The five-day PDAC meeting, with an average of 25,000 attendees, and the three-day VRIC meeting, with an average of 4,000 participants, are spaces where financial investors and mineral exploration companies situate themselves and each other within overlapping storylines of global markets and subsoil resources. Venues like PDAC and VRIC are important arenas of cultural production in the way they establish and reinforce industry norms, practices, and expectations (Rajak, 2011). These large and small gatherings embody a shared social world that assorted actors refer to as “the junior mining space.” Both the PDAC and VRIC conferences feature commodity and market assessments by industry research firms and industry analysts who evaluate junior companies for an annual fee. Hundreds of junior companies occupy booths on the large convention floors, pitching their projects to potential investors, handing out one-page information sheets and multipage documents called corporate presentations. The corporate presentations are often what the companies present in 15-minute sessions away from the convention floor, and in one-on-one meetings. I conducted participant observation at the 2016, 2017, 2018, and 2019 PDAC meetings and the 2019 and 2020 sessions of VRIC. During these meetings I attended sessions on commodity forecasts, observed interactions in the exhibition halls, and conducted informal interviews with junior company representatives and industry analysts. The aspects of promotion that I focus on here span the realm between enthusiastic hype and more ritualized forms of communication. Promotion is an essential—if not always successful—part of what junior companies do.

In the next section of the paper, I examine discourses about future copper deficits that are projected to arise due to increased demand, decreased supply, and fewer projects coming online. I explore place as a practice of narrative alignment through which junior companies interested in copper place their prospects within deficit storylines. In the following section, I analyze place as a practice of location, examining the ways that junior companies locate their projects in space by positioning their exploration targets in relation to existing mines and other sites of exploration. In the final part of the article, I examine place as a practice of juxtaposition, outlining the ways that junior companies selectively compare their projects, or elements of their projects, with other junior companies as a way to foster distinction and value. These variations of placing, including aligning, locating, and juxtaposing, capture the spatial and temporal ways in which juniors cultivate notions of resource potential.

2. Aligning copper futures

In his presentation on the future of copper at the 2019 PDAC meetings, Michael Schwartz of Teck Resources, a Canadian mining company, framed his talk around two images of street scenes in New York City—one from 1900 that was full of horses and another from...
1913 that was full of cars. Looking at the 1900 image, Schwartz challenged the large audience to “find the car.” Viewing the 1913 image, Schwartz wondered if anyone could “find the horse.” Such a rapid transition from horse to car over a span of 13 years, Schwartz suggested, had important lessons for the future of copper. World consumption of copper totaled around 22 million tons in 2017. By 2028, according to sources compiled by Schwartz, the world will demand between 4 and 8 million tons more, with even further rates of growth by the mid-century. Part of this increase will come from China, the world’s largest consumer of copper. A more profound source of demand, Schwartz detailed, will come from the centralization of copper in a world increasingly defined by electrification and the utilization of carbon-free power. Schwartz then showed slides that highlighted the difference in copper content between conventional cars (18 kg), hybrid cars (60 kg), and battery powered cars (85 kg). When factoring in the copper needed for hybrid and electric buses (90 kg and 370 kg, respectively), as well as the many tons of copper required for solar panels, windmills, and everyday electrification, Schwartz forecast a future in which copper will replace petroleum as one of the key materials of modern social life.

An overall sense of excitement permeated Schwartz's presentation. From his emphasis on horses and automobiles in New York to his reiteration of the projected increase in copper content across green infrastructure, Schwartz was visibly animated about the future importance of copper. His repeated emphasis on the differences in copper content between various items underscored his point that the upper limits of copper's utility are unknown. Though his presentation centered on copper demand, Schwartz's enthusiasm was really about the possibilities of copper and the prospect of copper deficits that such a shift in modern infrastructure would bring about. As he then illustrated, predictions of increased copper demand parallel forecasts of dwindling copper supply. The world’s largest copper mines, Schwartz explained, are reaching the end of their productive lives. What is more, discovery of new copper deposits has not kept pace to offset these declines. As Schwartz outlined, this signifies a potential difference between global demand and supply of nearly 10 million tons of copper by 2030. Thus, three storylines of increased demand, decreased supply, and limited discovery converged in Schwartz’s presentation to comprise an overall outlook of copper deficits.

This is the discourse of copper that junior mining companies try to place their projects within. Imagery and narratives of increased demand and constrained supply circulate widely within the global mining industry (Fig. 1). Headline after headline in industry press over the past few years has treated these copper deficits as a near certainty. “Strong and long copper deficit on its way,” declared an article in the February 2018 edition of Mining Journal (“Strong and long,” 2018). “Global copper market, demand on the rise,” announced an article on Mining.com in January 2019 (“Global Copper,” 2019). Industry press is not alone in repeating these projections. Investment firms, commodity analysts, and academics have all contributed to a discourse of future copper shortages (Eshkaki et al., 2016).

Scholarship on resource estimation, at a national, regional, and global scale, reveals that such forecasts are highly variable and subject to manipulation (Limbert, 2015; Fry, 2018; Teschner and Paavola, 2013). These forecasts tend to say more about contemporary issues and anxieties than they do future resource constraints. While most in the junior mining industry take the prospect of copper undersupply as a given, this assessment is not universal across all fields of mineral geology. Recent scholarship by academic geologists suggests that existing copper mines are more than able to supply copper needs well into the future (Mudd and Jowitt, 2018a, 2018b). Reflecting a similar point, one industry analyst from the London-based CRU Group even raised the possibility of a future copper surplus (“Copper deficit,” 2019). The price of copper is less in 2020 than it was in 2014. Trade disputes between the US and China, combined with slowing economic growth, and the continued economic fallout from Covid-19, indicate strong headwinds facing copper in the short term. The immediate horizon of price uncertainty demonstrates the extent to which predictions of future copper shortages (and elevated copper prices) represent what Jane Guyer has termed “evangelical time,” the orientation towards long-term horizons that obfuscate more medium-term timescales (2007). Consistent with Guyer’s notion of future horizons marked by change, temporalities of copper demand and supply take as a given major political and economic transformations related to energy use. Discourses of copper deficits are evangelical, in Guyer’s sense of the term, in that they imagine a world after – after major shifts in energy production and distribution have taken place.

Junior companies have been some of the most active promoters of the prospect of future copper shortfalls. Deficit language has become something of a standard refrain for copper exploration, one that has increased in scope and frequency across the promotional pitches of...
junior companies over the past five years. In a 15-minute presentation to investors at the 2018 PDAC conference, for example, the president of Carube Copper, a junior with primary interests in Jamaica, opened with a PowerPoint slide titled, “Why Copper?” Text on the slide outlined the importance of copper for the generation and transmission of electricity and further emphasized the central role of copper for renewable energy. Images at the bottom of slide compared the copper content of “old technology,” a coal fired power plant (1.3 tons per megawatt) and a 1970s automobile (15 kg), and “new technology,” a solar farm (6.8 tons per megawatt) and an electric car (60 kg).

Like Schwartz, Carube’s president emphasized the disparity in copper content between conventional and green technologies. These sorts of figures (15 kg versus 60 kg) circulate widely in the promotional imagery of junior copper explorers. What gives them particular resonance, I believe, is the scale of their difference. Optimistic forecasts of future copper demand suggest an increase of around 15–20% by 2030. Unlike the incremental year-on-year uptick displayed by aggregate figures of projected demand, the difference between 15 and 60 is more dramatic. In the same way that a social world defined by horses could not fully anticipate a world defined by automobiles, the increase from 15 to 60 suggests that the future world of copper requirements may exceed current forecasts.

As I saw with Carube Copper, junior companies often begin their presentations with copper deficits. In these investor sessions, as well as the promotional material that populate the trading floors at these conferences, imagery of hybrid cars, solar panels, and electrification is abundant, as are graphs that emphasize the spectacle of future deficits. A common framing is found in the promotional materials of Trilogy Metals, a junior company with exploration projects in northwest Alaska. Echoing its investor presentation that I attended in 2018, Trilogy’s 2018 investor pamphlet opens with bolded text that says, “Copper = Energy,” followed by a series of bullet points related to hi-tech energy and the Paris Climate Accord that underscore the growing value of copper (Trilogy Metals, 2018). Bolded text at the bottom page encapsulates the argument: “Copper is the Green Metal of the Future,” with “Copper” highlighted in brown and “Metal” in green. Trilogy’s 2019 investor presentation goes one step further (Trilogy Metals, 2019), its first page adorned with images of a solar panel, a windmill, and an electric car (Fig. 2). Like Trilogy and Carube Copper, the twitter feeds of junior explorers with interests in copper feature a stream of imagery associated with green infrastructure. Sierra Metals, a company with exploration projects in Peru and Mexico, for example, re-tweeted (in early 2018) an infographic that compared the copper content between a VW Golf (20 kg) and Chevrolet Bolt (82 kg).

These framings, promotions, and representations are, again, about placement. Junior companies are placing their projects within copper narratives that center on growing demand and diminished supply. In quite literal ways – as in the layout of their corporate presentations – junior companies place descriptions of their exploration targets alongside imagery and graphs that signpost a world that needs copper. The story of copper exploration that many juniors tell, therefore, begins and ends with the projected temporality of heightened copper usage. This framing is meant to validate the value of junior companies’ exploration targets. The temporalities of resource potential and deficit forecasts seem to align – just as one imagines copper deficits, the other suggests copper presence. This sense of correspondence is defined by the temporal tense of the future perfect, a tense “in which the present becomes a mode of pastness by being projected into a perfected future” (Povinelli, 2011: 168). If the future is defined by high cultural and economic valuations of copper, the argument goes, it would have been worth investing in this company’s exploration program.

In terms of how we locate resource potential, these temporal articulations are noteworthy. They reveal how the becoming of potential for a particular resource enlists temporalities that extend beyond the boundaries of any one site of prospective mineralization. Potential, here, does not reside in materially mediated understandings of particular subsoil locations, but is located elsewhere – in electric buses in New York City, in figures outlining potential demand for electric vehicles, in imagery of windmills, solar panels, and other forms of green energy. These images reflect efforts to index notions of resource potential not only in relation to measurements of subsoil mineralization but in relation to projections of shifting social demands. Junior miners are locating potential not within society as currently constituted, but within a transformed social world. It is as if these narratives take recent...
promotions of a Green New Deal as a given or fait accompli. They are chronicles of resource triumphalism (Bridge, 2001) in which copper is the victor.

Notably, the promotion of copper deficits is typically unaccompanied by commodity prices. Even as the spectacle of increased copper content in electric vehicles points towards higher copper prices, junior companies seldom articulate what those prices might be or how they matter in direct ways to the immediate valuation of their projects. In other words, there are abundant quantitative projections related to copper content, aggregate demand, and deficit, but surprisingly few projections about future price points on copper, as well as if, when, and how these prices will change the valuation of given exploration targets. The underlying argument of copper’s future, therefore, is more of a gesture towards high priced copper, as opposed to a mode of calculation that would lower the threshold of economic viability for existing projects.

3. Locating Prospects

Kutcho Copper Corporation is a junior company with control over the “Kutcho Property” in northern British Columbia—a “High Grade copper-zinc VMS development project.” Kutcho describes the project as one located within a “development-friendly region with a number of major projects in various phases of development and construction” (Kutcho Copper, 2018: 10). An associated map situates the Kutcho Property in relation to these sites. Two are symbolized as “producing” mines while four others are marked as “permitted development” projects. Kutcho Copper exemplifies the subtle, if overt, ways junior companies locate their projects in space (Fig. 3). Kutcho’s account of northern British Columbia as a “Top tier mining jurisdiction with major mines and permitted projects” depicts the legal context as amenable to mineral extraction and therefore a low-risk political environment. Indeed for the junior mining sector, British Columbia is often described as a “safe jurisdiction.” In highlighting other sites of exploration and extraction that are located nearby, Kutcho reinforces this point: if other companies have no legal or political trouble permitting mineral projects, then neither should we.

Placing resource prospects in relation to other sites of exploration and extraction is also a way to engender inherent notions of resource potential. Adjacent sites of past mining or present exploration help naturalize the area’s subsoil as one of mineral possibility. Kutcho describes how the company’s prospect is located within the “King Salmon Terrain,” which it defines as a belt of geological activity known for massive sulfide copper deposits (Kutcho Copper, 2018: 13). To locate a project in proximity to an existing mine or other sites of exploration presumes an underlying geological connection or equivalence between these places. In this way, neighboring mines like “Red Chris” and exploration projects like “Brucejack” not only validate the Kutcho target, but instill a degree of expectation about further exploration. This sort of locational rendering is ubiquitous amongst junior explorers.

Apart from its primary ventures in Jamaica, for example, Carube Copper recently announced its acquisition of three exploration properties in southern British Columbia. In its investment portfolio, Carube lists these properties as being, “Favourably located in the Cascade Magmatic Arc, a rapidly emerging copper gold porphyry belt in Southwest B.C.” (Carube Copper, 2018: 18). Upon a map of southern British Columbia and Washington State, Carube superimposes what it defines as this geological terrain (Fig. 4). In doing so, the company not only specifies its three exploration properties within this space, but also highlights four other “known copper deposits.” In a similar vein, the junior company Broadway Gold Mining narrates its copper-gold Madison Project as being located in “the legendary Butte-Ananconda mining region” of southwestern Montana (Broadway Gold, 2018). A company-produced map further defines this “legendary...mining region” by locating the geographic proximity between the Madison Project and existing mines run by Montana Mining and Barrick Gold.

What Broadway Gold suggests is that the same geological forces that produced the famed Anaconda copper pit must be at work for the Madison location. The same is true for Carube Copper and Kutcho Copper. These iterations of proximity are basic ontological arguments that cast the subsoil in these defined regions as one of inherent mineral potential. Exploration, from this spatial vantage point, makes sense. As Copper North headlines the “exploration potential” of a prospect in Yukon: this is “The Right Neighbourhood for Copper” (Copper North, 2019). These maps and spatial iterations help render these terrains as investible spaces (Li, 2014), as landscapes of “natural abundance [and] social emptiness” (Bridge, 2001: 2156) that are inviting of resource discovery.

While geological processes do indeed produce particular rock formations, within those zones there is considerable variability, which terms such as “zone” and “belt” obfuscate. At VRIC 2020, I asked an exploration geologist whether his company’s map of a defined resource zone, which highlighted the locations of two known deposits, excluded other sites of more marginal mineralization or cases of unsuccessful exploration in that same area. “Of course,” he said, readily acknowledging this erasure, adding, “I guess you could say that we [exploration geologists] tend to be optimists.” Optimism here is referring to the best-case scenario for exploration, the mineralization he hopes to uncover. Optimism becomes synonymous with potential. In this and other cases, this potential comes from elsewhere, from the spatial grid that the company has itself constructed to include existing mines and conceal stories of mineralization that did not pan out.

Locating exploration projects in relation to other sites of mineralization is not only a function of seemingly natural geographic proximity. Indeed, the scale and boundaries of projected spatial symmetry is highly variable. While Broadway Gold Mining configures a small corner of southwestern Montana as its target zone, SoGold, in its promotion of copper exploration in Ecuador, depicts a spatial frame that includes the massive copper deposits of central Chile. As I have seen throughout the company’s presentations over the past three years, SoGold invokes the specter of the “Andean Copper Belt” as a way of aligning northern Ecuador with mining regions in southern Peru and central Chile. In its public presentations and promotional material, SoGold often includes a map of Ecuador superimposed upon Chile, suggesting a direct correspondence between Chile’s central area of copper mineralization and relatively unexplored areas of Ecuador that are of interest to SoGold (Fig. 5). In this way, SoGold draws on enduring narratives of Andean resource wealth and uniformity—the notion that the Andes are essentially the same across South America—to help naturalize a connection between Ecuadorian and Chilean subsoil domains (Kneas, 2018).

Such comparisons even transcend continents. The junior company Aston Bay is one with copper and zinc exploration targets in the Canadian Arctic. In its representation of its flagship Nanavut project, Aston Bay highlights the location of the nearby Polaris Mine. In doing so, the company not only refers to the area as a “Sediment-Hosted Copper and Zinc Belt,” but also calls it “Elephant Country.” In mining parlance, elephants are rare, very large mineral deposits that tend to be found together. Aston Bay further describes Nanavut as having “Congo-style” copper. “Congo-style” is direct invocation of recent discoveries of large copper deposits known as Kamoa-Kakula in the Democratic Republic of Congo by Ivanhoe Resources (now Ivanhoe Mines). When I asked personnel from Aston Bay about this term—a term in the inherent contrast between the Canadian arctic and equatorial DRC—they suggested that Nanavut and Kamoa-Kakula are both “sediment-hosted” deposits. While they then admitted to me that the term also reflected “a
"bit of promotion," the promotion works precisely because it seems to have a geological justification. Like narratives of copper's future utility and the deficits that will come with it, the practice of placing prospective resource targets within particular spatial configurations highlights how extra-local sites of mineralization are enlisted to help conjure resource potential. In the same way that junior companies ask investors to view particular projects from an imagined world of copper scarcity, they likewise frame their exploration around prior and ongoing sites of exploration and extraction. SolGold is asking potential investors to consider the company's exploration of Ecuador by envisioning the history of copper mining in Chile. Broadway Gold wants Anaconda Copper to be part of investors' assessments of its exploration program. Aston Bay not only wants investors to align its project with other notable mines in Canada, but also with recent discoveries in the Democratic Republic of Congo. These "qualitative understandings" of space (Hacking, 1983: 213) become reference points and benchmarks of potentiality. The subjective nature of these connections is especially apparent in the way they move between seemingly natural connections to comparisons that transcend continents and oceans.

The practices through which junior companies place their projects within these constructed grids of resource potential are based on "not/not not" type arguments, or negative, double negative relations. The proposition here is one that admits that Broadway Gold's Madison project is not the same as the famed Ananconda deposit, that SolGold's discovered potential in Ecuador is not the same as Chile's history of copper extraction, or that Aston Bay's "Congo-style" prospect is not the same as Ivanhoe's Kamoas-Kakula discovery. At the same time, the logic of these comparisons is that Broadway's Madison project is also not not Anaconda, that Ecuador is not not Chile, and that Aston Bay's Nunavut is not not Kamoas-Kakula. What if the Madison prospect turns out to be a very large deposit? What if Ecuador's copper content is much greater than we see now? What if Nunavut ends up being a discovery with copper content on par with Kamoas-Kakula? Performance theorist Richard Schechner examines the not/not not dynamic as it pertains to actors impersonating historical figures (e.g. Daniel Day Lewis in the film Lincoln is not Abraham Lincoln, but also not not Abraham Lincoln). The field of performance that emerges between the negative, double-negative relation is, Schechner argues, one of "limitless potential" (1985: 123). It allows performers, be they actors or junior mining companies, to gesture towards equivalence without being held accountable to obvious contradictions. By being defined according to what they are not, resource prospects that exist within this conceptual space (of negative/double relations) never have to say exactly what they are.

3.1. Blue-sky Prospects

Placing mineral prospects within certain regions and in relation to existing mines is also an argument about time. By situating a prospect in relation to an existing or historical mine, junior companies outline a temporal story in which exploration in the present bridges past and future forms of extraction. SolGold's sense of equivalence between Chile and Ecuador becomes a proposition whereby Chile's history of copper mining morphs into Ecuador's present mineral potential and future resource extraction. In its recent round of promotion, SolGold makes these arguments while adding a novel twist related to the future meanings of copper, equating copper in the 21st century to steel in the 20th. At the 2019 PDAC meetings, in the lobby of the Four Seasons Hotel attached to Toronto's Convention Center, SolGold-sponsored imagery adorned the central pillars of the hotel's lobby. Underneath a picture of a group of men carrying out nondescript exploration, large
text declared, “COPPER is the new iron ore, ECUADOR is the new Pilbara” (Fig. 6). Pilbara is the region of Australia known for its long history of iron ore extraction, a key pillar of 20th century steel production. This reveals how mineral exploration becomes tied to narratives of historicity (Richardson and Weszkalnys, 2014), the process of continually connecting exploration in the present to mineral extraction in the past.

The temporal trajectories of exploration are articulated further in the way juniors narrate future exploration. Junior companies always center their promotional pitches around a flagship project. This is the project that they are seeking investment for in order to continue exploration activities in the immediate term. Their overall portfolios, however, are not restricted to these sites. Apart from these primary projects, juniors also promote early stage exploration projects. Thus, junior companies not only place their flagship projects in relation to existing mines and sites proven mineralization, but also in relation to more speculative areas. These are often located in the same district as the flagship project, but not always. For example, Candente Copper’s flagship project in Peru is called Cañarico Norte, which the company describes as a feasibility-stage project with measured and indicated resources. Alongside Cañarico Norte, Candente is also promoting Cañarico Sur, a copper-gold-silver prospect, which the company defines through language of unknown potential. The meaning of Cañarico Sur is less about what areas of mineralization have been explored and more about the spaces that have not. When I asked one industry analyst about why junior companies seem to pair exploration of their flagship project with sites of greater uncertainty, he said that junior companies never want to let go of “exploration upside.” In other words, junior companies actively cultivate a balance sheet of mineral potential in such a way that potentiality does not disappear into actualization (Agamben, 1995: 45).

Fig. 5. SolGold map suggesting mineral correspondence between Ecuador and Chile. (SolGold, 2019).
The positioning of a flagship project alongside a more speculative one is a prevalent feature amongst the promotional pitches of junior companies. In addition to its flagship project called Arctic, Trilogy Metals emphasizes other sites of mineralization in the immediate vicinity and, further afield, a project called Bornite, which the company describes as an “Exciting Exploration Opportunity” (Trilogy Metals, 2018). These projects taken together, Trilogy argues, constitute “exploration upside” across the entire district – meaning the district is one where exploration is on-going and potential ever-present. Even as Trilogy has outlined plans to construct a mine based on the Arctic site, it continually tethers that project to ongoing speculation and more “open” resource potential. Of interest to how we understand resource potential is the temporal story that comes with this practice of placing. Arranging these primary projects alongside ones of even greater uncertainty connects future extraction on the flagship property with future exploration in other locations. This produces a horizon of exploration that continually resets the temporalities of potential. Even as companies advance exploration in one site – drawing focus away from undefined potential to more narrow questions about the scope of mineralization, mineral grade, and economic feasibility – they deflect some of that attention elsewhere, enfolding the potential of the speculative sites into the overall narrative of the flagship project.

A recurring metaphor that juniors use to describe either targets of exploration or wider exploration programs is “blue-sky” potential. At the January 2019 VRIC, for example, I approached a company that was targeting copper-gold mineralization in Nevada. From my initial read of the geological data, it seemed like a small project without much promise. The company CEO, however, repeatedly described the project as one with “blue-sky potential.” Whereas I saw the limited amount of geological information as a sign of doubt, his approach viewed the blank space beyond as a broad field of potentiality. As I found in this conversation and others, blue-sky was a way to frame initial rounds of exploration or sites with limited knowledge. As one company representative described when showing me an area with only cursory, aboveground geophysical readings, “this is our blue-sky.” Blue-sky is largely a synonym for unknown. The language of blue-sky exploration is one that presumes blankness – there could be nothing here. But against that blankness, blue-sky invites “what if” scenarios of imagined potential: what if these areas of geophysical conductivity are the first signs of extensive mineralization?; what if this drill hole returning seemingly marginal mineralization is just the beginning of something much bigger? As I heard one industry analyst joke in a late afternoon panel at the VRIC 2019, “I’ve never seen a geophysical study that doesn’t show potential.”

In relation to how the subsoil is constituted as a locus of resource value, the use of blue-sky is revealing – looking down is equated with looking up, depth is equated with height. As we see with this common language, the locus of subsoil potential is the atmosphere not the subsoil. Open, blue-sky horizons are not only without end, but they are largely uniform, visually speaking. In geological terms, blue-sky makes little sense. For most copper deposits, copper mineralization seldom exceeds one percent. In the context of dense pressure gradients and unpredictable faulting, the extent of mineralization within subsoil environments tends to be defined by stark and unpredictable limits. Yet, with its invocation of a blankness in which all possibilities exist, blue-sky is a powerful metaphor.

4. Juxtaposing Distinction

Walking through the VRIC in late January 2019, I approached a large booth sponsored by Xanadu Mines, a junior exploration company that has been targeting copper projects in Mongolia. On a large poster on one side of the company’s booth, Xanadu promoters showed a cross section of the Zaraa project, its most advanced exploration site. It was placed directly next to a cross section of SolGold’s Cascabel project in northern Ecuador. In this case, however, the logic of the comparison was not to draw on the reputation of Cascabel to indicate the promise of the Zaraa project, but to set the Zaraa project apart. The Cascabel deposit is fairly deep, situated some 600 m underground, a location that raises concerns about the deposit’s economic viability. Underground block-caving, as opposed to open-pit mining, requires a higher grade of mineral content to be economically viable. In contrast, Xanadu’s Zaraa deposit is significantly closer to the surface. Placed side-by-side, the depth of Cascabel helped frame the significance and meaning of Zaraa, and Xanadu’s argument that its project represents one the best “near surface” or “shallow copper projects” in the world. Near surface is a marker of potentiality, the notion that the subsoil position of Zaraa makes it more likely that its copper mineralization will become a viable copper mine.

Near surface, this suggests, is not an obvious attribute, but one that must be articulated and distinguished through deliberate comparison. Talking with one of Xanadu’s exploration geologists about both deposits, he initially narrated the difference in straightforward geological terms. Half-jokingly, I asked, “But what you really seem to be saying is that Zaraa is better than Cascabel?” He laughed knowingly. This precipitated a conversation about investment. The geologist admitted that, in a world of limited investment capital, the juxtaposed image was an argument that investors should prioritize Xanadu due to the accessibility of the Zaraa deposit. The notion of shallow copper runs throughout Xanadu’s promotional material. Numerous bubble graphs highlight the seeming uniqueness of Xanadu’s projects by placing these projects on graphs that show depth and copper content for existing mines and ones in development. As I saw at VRIC 2020, Regulus Minerals, with copper exploration projects in Peru, likewise used a graph that compared the depths of its exploratory drill holes with those of SolGold to articulate a similar argument of near surface. The fact that SolGold is a recurring target of comparison is not only a function of the depth of its Casabel prospect, but also because SolGold is very well-known, due in large part to the scope of the company’s promotional activities.

What we see with these SolGold comparisons is a different form of
placing. As I outlined above, junior companies locate their projects in space in ways that reinforce notions of naturalized domains of resource potential or in ways that suggest some degree of correspondence. Both Xanadu and Regulus Minerals reveal how junior companies also place their resource prospects, individual drill holes results, and the companies themselves alongside other deposits, drill results, and companies with the aim of marking a sense of distinction and value. Distinction, Pierre Bourdieu (1984) reminds us, is about contrast. The valuation and taste of good wine presupposes wine of lesser quality. In distinguishing high art from vulgar reproduction, quality coffee from imitation, social actors define themselves and their associated class positions. The investment world of junior mining is likewise infused with constant processes of distinguishing the esteemed from the vulgar, the companies that have a chance to mine the underground from those who are only “mining the stock-market” (Fulp, 2008). The articulation of resource potential not only requires distinction, but a shared cultural field of signification that makes this difference meaningful (Ferry, 2013).

Take, for example, NGEX Resources, a company with three copper prospects along the border between Chile and Argentina. As I first witnessed in the company’s 2018 presentation to investors at PDAC, NGEX often lumps these projects together, as if they represent a single copper deposit, which NGEX refers to as the project constellation. “Constellation” is doing two types of work in this regard. It refers to the cluster of NGEX projects, but it also acts as a proper noun, the name of one larger project instead of the assemblage of three smaller ones. According to NGEX, its project constellation contains some 1.5 million tons of copper with a grade of nearly 0.60%.

For NGEX, the meaning of these figures is one the company articulates through a graph that places the company’s project constellation alongside what the company defines as the world’s top 50 copper resources, including those in operation and those in development (Fig. 7). Of this group, NGEX shows, only three undeveloped projects are in the hands of junior mining companies. Despite what seems to be a good number of copper exploration projects, the graph argues that NGEX is one of a select few projects that exist within the investment space of the junior sector. A corresponding map of the world plots junior-held copper projects, subtitled by the phrase “There are not that many!” (NGEX Resources, 2018). In the same way that near surface is not an obvious feature of Xanadu’s project, the impression made by NGEX that its project represents one of a select few large copper projects with the investment upside of a junior company is something that the company must produce through selective comparison, an articulation of potential that emerges when NGEX places its constellation project alongside others. Notably absent in the NGEX map and graph are all of the projects and junior companies I have described here (SolGold, Xanadu, Trilogy, Garube Copper, Kutcho Copper).

Selective comparison is not just about overall project size, but a strategy that transcends all aspects of meaning-making related to junior mining companies. Even though it was omitted from NGEX’s map of valuable copper prospects, SolGold often places its drill hole data against drill holes from other notable copper mines. In the company presentation to an Ecuador-sponsored investment forum at the 2017 PDAC meetings, for example, the CEO displayed a graph that showed 25 drill results of high copper content. Seventeen of these results were from SolGold. The remaining were from known mining sites around the world. As such, SolGold reinforces its argument about geological richness and high copper content by enlisting drill results from elsewhere. SolGold’s drill results, this graph shows, are distinct. In framing its drill results around those of existing mines, SolGold also suggests a degree of equivalence. If these other drill tests ended up becoming economically viable mines, the same must be true of SolGold’s project. Unlike Xanadu’s description of the company, however, SolGold’s comparisons erase questions of depth, positing an underground where measures of copper content can be read on analogous terms.

Thus, whereas companies are quick to emphasize spatial proximity between their projects and existing mines, companies also emphasize departures from other projects. Through this selective comparison and juxtaposition, juniors attempt to distinguish their projects from the field. The fact that they do so reveals how mineralogical data in relation to a resource project does not speak for itself. The stories of resource
projects are not confined to the narrative elements of those prospects, but rest on the selective deployment of stories told elsewhere. Resource potential, in this sense, is contingent upon the ability of junior companies to enfold projects elsewhere into their own. Indeed, junior companies often seem to say just as much about other companies as they do about themselves.

5. Abundance and Absence

Across the three dimensions of placing that I have outlined in this article (placing in narratives, in space, and in contrast with other projects) there are distinct, even contradictory, notions of abundance and absence. Forecasts of future copper supply imagine a world of abundant copper usage, a prospect that is reinforced by figures showing the difference in copper content between old and new technologies. In a world that demands more than 30 million tons of copper, the red metal is everywhere: from automobiles and buses to solar panels, windmills, and enhanced electrical grids. For junior companies, however, the appeal of this world made of copper is really about absence – a projected shortage in copper production from both existing mines and those slated to come online. It is the scope and scale of this deficit that junior companies evoke to justify current exploration projects and gesture towards resource potential. Absence factors into discourses of copper deficits in another way. The prospect of global copper deficits presupposes that political and social systems will transform in significant ways. Green infrastructure is taken as inevitable, obfuscating the politics of this transition and the forces that are aligned against it.

While projections of copper deficits underline a future of strained supply, junior mining companies place their projects in space in a way that foregrounds copper abundance. Even as these companies reiterate narratives of diminished production, their own projects presume ample amounts of subsoil copper. SoGold equates Ecuador’s future with Chile’s past. Trilogy Metals portrays a copper district with “extra-ordinary exploration upside.” Kutcho Copper describes an “emerging copper belt.” Xanadu Mines says its projects are only “scratching the surface” of Mongolia’s copper potential. For junior companies, therefore, the prospect of limited copper discovery is a global phenomenon but not a local one. At least not a local one for individual companies. For even as junior companies emphasize the exploration upside of their projects, they are less generous in how they talk about the projects of others. The sense of distinction undertaken by junior companies through selective juxtapositions is an argument about scarcity. These comparisons make it seem as though there are only a few projects worth investing in. From Xanadu Mine’s argument about a scarcity of easy-to-mine near surface projects to NGEX Resources’ notion that only three junior companies control large copper projects, or Kutcho Copper’s emphasis on the company’s comparative investment value, these juxtapositions reinforce notions of absence. In these cases, potential in one location is called forth by downplaying potential elsewhere.

Placing resources describes the ways junior mining companies continually mark out the conceptual fields of space and time within which potential exists and exploration can occur. This is about the articulation of resource potential rhetorically instead of empirically. The value of placing resources as a framework is not only the way it raises questions about the location of resource potential, but how it depicts the relationship between junior mining companies and their subsoil targets of exploration. Taken literally, the phrase placing resources evokes the prospect of junior companies literally putting resources into the subsoil. Mineral extraction, of course, depends upon the existence of subsoil mineralization. But while junior companies cannot put minerals in the underground, they can place potential.

Acknowledgements

This article has benefitted from detailed comments by Jessica Barnes, Colin Hoag, and Maron Greenleaf. I also thank two anonymous reviewers for their insightful and comprehensive feedback and editor Julie MacLeavy for shepherding this article through the period of coronavirus lockdown. The research that forms this article would not have been possible without funding support from the Office of the Provost and College of Arts & Sciences at the University of South Carolina.

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