On the Modes of Existence of Technical Extraction in Chile, or, How We Extract

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Can anything be made without extraction? Are there modes of productivity that do not transport materials out of one place and into another, and in part just by doing so, create derivative value? Where does the impossibility of *ex nihilo* creation leave us, as empirically minded, self-supposedly *creative* humans who wish to add something of our own to a common world; who offer up perspectives and render contexts in ways that we hope will preserve and service the integrity of communities, materialities and justice? Are the patriarchal, colonial, racist and exploitative roots of modern capitalism and empirical research so intertwined as to render the motives of everything we see, and make from that seeing, complicit with these common d(en)ominators?

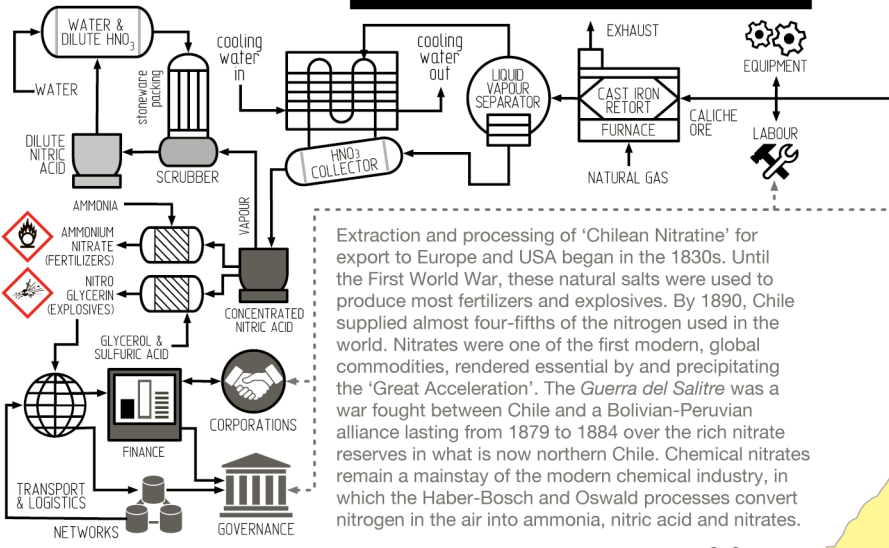
For more than a century, the South American nation of Chile has seen the materials and character of its territories rendered into commodities, largely servicing the interest of monetary profit both foreign and domestic. In this, Chile is rather like my own birthplace of Canada, a country that has quarried minerals, hewn wood and drawn water to sustain the wealth of that nation. Chile's shifting fortunes, however, have repeatedly intersected with discernable technical rearrangements, three great booms and busts of hype and actual productivity in agriculture, communications and energy. The Canadian Shield was allowed to become a more stabilized bedrock for the extractive industries of the North, which would not profit as quickly or inordinately from the agile synchronicity of globalized logistics of shipping, nor suffer as dearly from the fragility of global commodity markets that these economic cycles bring about.

The fortunes and failures of Chilean resource extractions are a subtext of the stories we now tell ourselves about the Anthropocene, of the 'Great Acceleration' and the elaborations of modern industry that such curves diagnose and extrapolate. The continual surge of hastened productivity, starting in the mid-20th century and continuing into our current moment, began as a continuation of a European addiction to (agricultural) productivity that was initially fuelled by injections of fertilizer provided by saltpeter extraction from Chile. This addiction became the backdrop of post-war synthetic chemistry innovations that could pull nitrogen from the

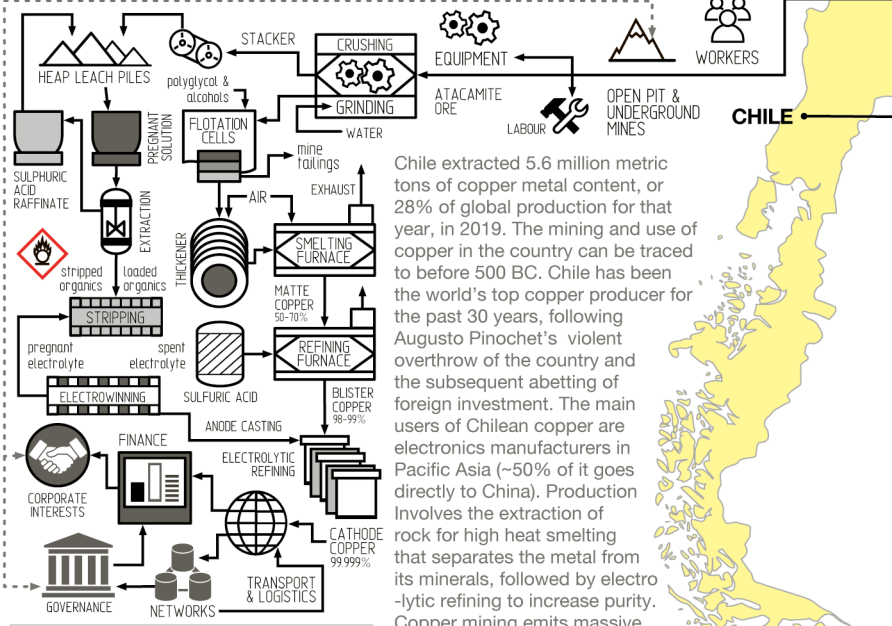
NITRATE *sal petrae* 'salt of rock'
White crystalline salt used as fertilizer, explosives, and to preserve foods. AKA 'Chilean saltpeter','White Gold' 'Chinese snow'; potash, soda, potassium nitrates; *salitre*, *caliche*.

ON THE MODES OF EXISTENCE OF TECHNICAL EXTRACTION IN CHILE

...or, *How We Extract.* Comparative schematics of the ongoing colonial harvesting of the materials, territories, cultures, and stories of the mineral rich regions of South America between the Andes and the Pacific Ocean.



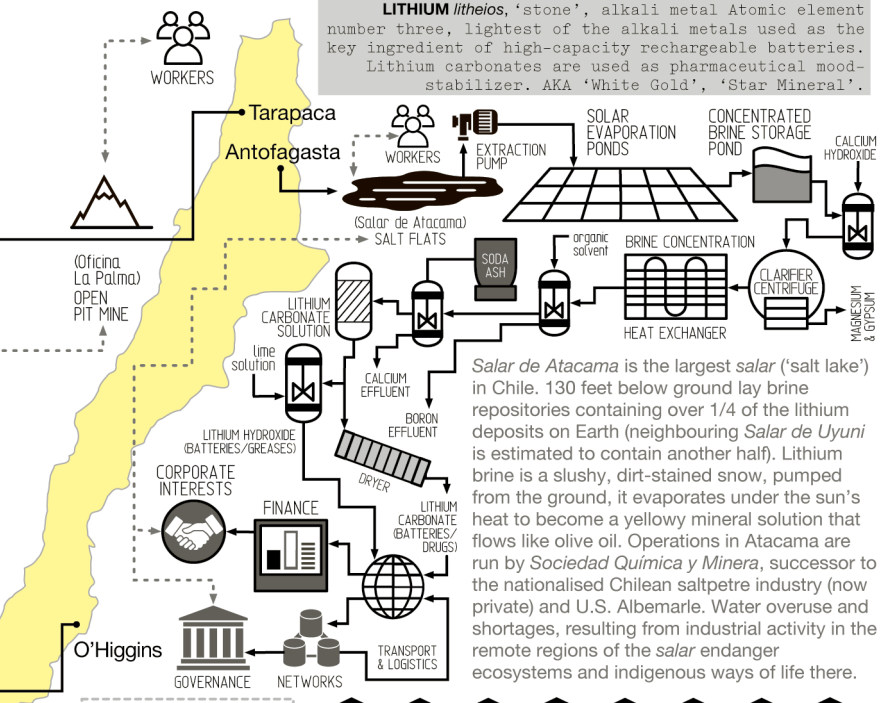
Extraction and processing of 'Chilean Nitratine' for export to Europe and USA began in the 1830s. Until the First World War, these natural salts were used to produce most fertilizers and explosives. By 1890, Chile supplied almost four-fifths of the nitrogen used in the world. Nitrates were one of the first modern, global commodities, rendered essential by and precipitating the 'Great Acceleration'. The *Guerra del Salitre* was a war fought between Chile and a Bolivian-Peruvian alliance lasting from 1879 to 1884 over the rich nitrate reserves in what is now northern Chile. Chemical nitrates remain a mainstay of the modern chemical industry, in which the Haber-Bosch and Oswald processes convert nitrogen in the air into ammonia, nitric acid and nitrates.



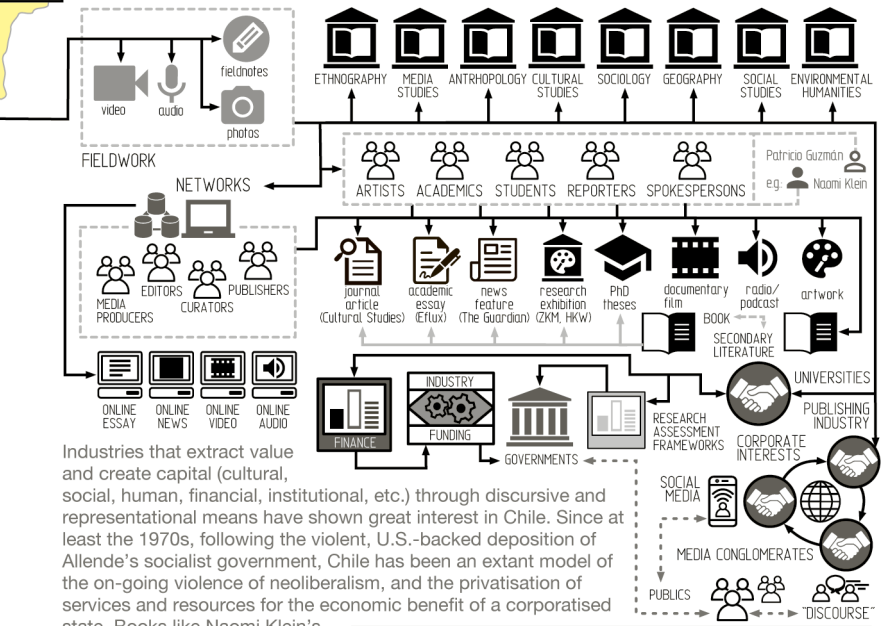
Chile extracted 5.6 million metric tons of copper metal content, or 28% of global production for that year, in 2019. The mining and use of copper in the country can be traced to before 500 BC. Chile has been the world's top copper producer for the past 30 years, following Augusto Pinochet's violent overthrow of the country and the subsequent abetting of foreign investment. The main users of Chilean copper are electronics manufacturers in Pacific Asia (~50% of it goes directly to China). Production Involves the extraction of rock for high heat smelting that separates the metal from its minerals, followed by electro -lytic refining to increase purity. Copper mining emits massive quantities of trace elements, mine tailings and toxic SOx (sulphur oxide) gases. Mine tailings are often dumped directly into the sea, reshaping coastlines and endangering ecosystems.

COPPER *cuprum, cyprium* 'cyprus metal'
Red-brown soft metal with high ductility, electrical and thermal conductivity. Used in electrical wiring, roofing, plumbing, industry, brass and bronze alloys; metabolic mineral. AKA 'Azure', *cobre*.

LITHIUM *litheios*, 'stone', alkali metal Atomic element number three, lightest of the alkali metals used as the key ingredient of high-capacity rechargeable batteries. Lithium carbonates are used as pharmaceutical mood-stabilizer. AKA 'White Gold', 'Star Mineral'.



Salar de Atacama is the largest *salar* ('salt lake') in Chile. 130 feet below ground lay brine repositories containing over 1/4 of the lithium deposits on Earth (neighbouring *Salar de Uyuni* is estimated to contain another half). Lithium brine is a slushy, dirt-stained snow, pumped from the ground, it evaporates under the sun's heat to become a yellowy mineral solution that flows like olive oil. Operations in Atacama are run by *Sociedad Química y Minera*, successor to the nationalised Chilean saltpetre industry (now private) and U.S. Albemarle. Water overuse and shortages, resulting from industrial activity in the remote regions of the *salar* endanger ecosystems and indigenous ways of life there.



Industries that extract value and create capital (cultural, social, human, financial, institutional, etc.) through discursive and representational means have shown great interest in Chile. Since at least the 1970s, following the violent, U.S.-backed deposition of Allende's socialist government, Chile has been an extant model of the on-going violence of neoliberalism, and the privatisation of services and resources for the economic benefit of a corporatised state. Books like Naomi Klein's agenda-defining *The Shock Doctrine* (2007) precipitated a host of studies, artworks, fieldwork, film and other media making Chile into a case-study for late 20th century geopolitics.

CULTURE INDUSTRY *writing, research, media, art* as published and formatted cultural goods (writing, film, radio, exhibitions) and academic activities (talks, panels, conferences, writing) based on empirical knowledge practices (fieldwork, ethnographies, media capture). AKA 'political documentary', 'conscious media', 'artistic research', 'humanities'.

air, instead of from the Atacama desert. Solutions like the Haber-Bosch process would thereafter provide Germany and the world with their nitrate fix, driving Chile's saltpeter industry into the ground, almost overnight. Another Chilean commodity, copper, is a primary raw material for the electrical, electronic and information economies that flourished throughout the last century, re-invigorating Chillean extraction in the post-nitrate era (many of the conglomerates selling saltpeter would convert their operations to copper). And just as the cupric arc of technological lock-in plateaued, Chile's commodity futures would again prosper through the harvesting of lithium deposits within the country's borders. As high-capacity lithium batteries emerge as the means by which continuous flows of electricity will be provided from less-continuous sources of energy like wind and solar, Chile finds itself with yet another elemental resource curse, another portion of its landmass which global markets are driven to extract, another ambiguous burden of riches that must be negotiated against the sanctity and non-monetary needs of communities and environments.

'Research' is a word we use for work that prefigures or is juxtaposed with 'production'. For some, research is an activity that cross-cuts the cognitive labours of writing (in, say, the humanities), media making (of, say, documentary film) and other creative work (of, say, media making, art or design). Since the millennial turn, the disposition of research known as 'fieldwork' has become pronounced in the study and rendering of infrastructures, global politics and ecologies in peril. Numerous field trips, platforms and group expeditions have taken place that attempt to grasp the effects and planetary magnitude of global capitalism, as registered in particular instances and on particular sites, along the trajectory of a trans-Siberian train, in the case of the 2005 collective experiment, 'Capturing the Moving Mind: Management and Movement in the Age of Permanently Temporary War', or 'Mississippi: An Anthropocene River', also a collective research project and river journey on and along the Mississippi River in 2019. These empirical investigations in motion emerge when competing demands on time and a desire for interdisciplinary horizontality creates the need to conflate

research and production, organizing events and research opportunities that combine private method and public disclosure. In practice, they feel like a performance of both backstages and frontstages, a breakdown of the modernist scenography that separates 'research' from 'production', as well as being a transformative 'training' of multidisciplinary subjectivities that are sensitive and situated.

These experiences of terrains and with people can provide comparative insight and topological connections, in measure with the systemic violence and exhaustion under study. They are also problematic 'rites of passage', as Shannon Mattern puts it in her study of field guides, and effective means of pushing knowledge practices and institutions from the security of abstract hypotheses and conjectures. The research collective I was a part of that visited the Valparaíso port systems, copper mines and communities of Chile for the Logistical Worlds project in March 2017 was all of this: as a group of six or seven people, we visited a Codelco mining smelter; had lunch with local union reps at Port Valparaíso; conferred with foreign and domestic researchers, artists and activist; held discussions with astronomical data cleaners; ate, drank, joked and argued with new friends and fellow travellers, and variously collected notes and media that attempted to draw out how the long, narrow strip of land between the Andes and the Pacific Ocean that is Chile was continuing its long history of infrastructural-becoming. We were also given numerous powerpoint presentations, shown many systems schematics, process diagrams and illustrative operations plans, and plans for the future, most of which relied on or projected value created by extractive means.

Our varied group of researchers, activists, students, artists and media makers had individual and collective intentions and perspectives, sensitivities and emotional responses that also, of course, morphed during our time together. It is a time for which I am immensely grateful, as for the continued relations I maintain with the situations and people I connected with in Chile. And as I diagram these material and knowledge processes, I am compelled toward changing how I understand and engage with 'field' and 'work', as well as the ways I myself render, use, profit from and critically reappraise these

engagements. If the machinations of the mobile desire-machine of fieldwork can (as a mode of critical research on the environment, media and geopolitics) be brought to an abrupt if necessary halt by 2020's COVID-19 pandemic, this has also provided an opportunity to see this kind of work anew, for what it is, what it is not and what it could be.

IMAGES: NED ROSSITER, 2017
ILLUSTRATION: JAMIE ALLEN, 2021