

2024 Penn EnviroLab Graduate Conference

Elemental Thinking: Troubling States of Matter

Conference Program

March 22 - 23, 2024

University of Pennsylvania
Philadelphia, PA

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Elemental Thinking: Troubling States of Matter

The approach to study environmental systems and change through the classical elements – fire, earth, water, and air – has been formative to the composition of environmental studies and its disciplinary configurations of expertise. Recent scholarship has called for the more-than-natural recognition of the elements through their relational qualities (Alaimo and Starosielski 2016, Myers, Papadopoulos, and Puig Bellacasa 2021), acknowledging that elements are constituted through phase shifts in which their states of matter are momentarily materialized through ongoing encounter, mixture, and transformation (Peters and Steinbergs 2019). After all, water is also vapor, oxygen composes a flame, fire falls to ash, and runoff trickles through porous bedrock. Accelerated by environmental injustice, chemical contamination, displacement, disease, disaster, and climate change, the reverberating stakes of our current socio-ecological crises further demand we rethink engagements with the elements as more than distinct states of matter. Drought, wildfire, particulate pollution, and acid deposition do not operate independent of anthropogenic activity and its colonial/racialized logics; they epitomize and compound each other.

Yet thinking through admixture is only the first step in attending to elemental ecologies that are already and always in relation. The modes and intensities of these processes come to (re)make and be (re)made by their metamorphing relations, not just their particular material forms. Thresholds of evaporation and combustion; speeds of decomposition and regrowth; the suspension, accumulation, and dispersal of particles and sediments are not just mediating mechanisms between states of matter, but ongoing and contingent processes through which situated materialities and meanings travel, are held, and also congeal.

Following Stengers' provocation that "there is no identity of a practice independent of its environment" (2005:187), EnviroLab's 2024 graduate student conference in environmental anthropology revisits the theoretical and methodological work of troubling the elements as inseparable from the conditions of and our obligations to troubled ecologies. We ask: What are the political and ethical implications of thinking elementally? How might ethnographic conceptualization retool elemental thinking as a mode of inquiry grounded in the processes critical to the survival of human and more-than-human worlds? How do reconfigurations of the elemental help us think through the Anthropocene and the anthropos-not-seen (de la Cadena 2015)?

Schedule

Friday, March 22, 2024

8:30 am - 9:00 am Arrival/Breakfast*

9:00 am - 9:15 am Introductory Remarks
Prof. Nikhil Anand (Penn)

9:15 am - 10:45 pm Panel 1: Multimodal Elements
Organized by: Pablo Aguilera Del Castillo (Penn)
Discussant: Prof. Mary Pena (Smith College)

Abolissons les tropiques, Melina Campos Ortiz (Concordia)
Yakumama's Entanglement, Vered Engelhard (Columbia)
Industrial Breeze, Somak Mukherjee (UCSB)
Subterranean Dissolutions, Pablo Aguilera Del Castillo (Penn)
Homescapes make the world we live in?, Tatiana Acevedo Guerrero (Utrecht)

10:45 am - 11:00 am Break

11:00 am - 12:30 pm Panel 2: Seeds and Other Minutiae
Organized by: Carolina Angel Botero & Xiao Ke (Penn)
Discussant: Prof. Kregg Hetherington (Concordia)

Bury your parables, Eva Rose Steinberg (CUNY Graduate Center)
Making Something out of an Empty Sea, Eda Tarak (UCSC)
Wild (Land) Relations, Aaron Su (Princeton)
Seeds as a Site for Humanistic Inquiry, Dr. Jawhar Cholakathodi (Calicut)
Seeding Participation, Xiao Schutte Ke (Penn)

12:30 pm - 1.30 pm Lunch**

1:30 pm - 3.00 pm Panel 3: Refashioning Ruin
Organized by: Nipun Kottage (Penn)
Discussant: Prof. Vinay Gidwani (Minnesota)

Elemental Waste, Danhue J. Kim (MIT)
Mining Second Nature, Owen Harrington (Penn State)
Ruin and Repair in Human-Elephant Relations, Rebecca Winkler (Penn)

3:00 pm - 3:15 pm Break

3:15 pm - 4:15 pm Keynote: Exposed to the Elements
Prof. Austin Zeiderman (LSE)

Saturday, March 23, 2024

8:45 am - 9:15 am Arrival/Breakfast*

9:15 am - 10:45 pm Panel 4: Bodies/Grounds

Organized by: Noa Machover & Vivian Bi (Penn)

Discussant: Prof. Kai Bosworth (VCU)

Subsistence Fishing in Transition, Sheyda M. Aboii (UCSF/Berkeley)

Making Milk, Chandani Attiyya Nash (NYU)

Earth-Eating, Lu Rose Biltucci (Rutgers)

From the Anthropocene to Autoimmunity, Maria Fernandez Pello (UT Austin)

10:45 am - 11:00 am Break

11:00 am - 12:30 pm Panel 5: Climate and its Elements

Organized by: Tayeba Batool (Penn)

Discussant: Prof. Nida Rehman (CMU)

Air Beyond Conditioning, Marcus Yee (Yale)

Counting trees and carbon, Malcolm Sanger (McGill)

Multiplicities of Carbon, Ziya Kaya (Arizona)

Adapting the Forest, Raka Sen (Penn)

Do Glaciers Roar?, Ihsan Arsalan (Rice)

12:30 pm - 1.30 pm Lunch**

1:30 pm - 3.00 pm Panel 6: Entangled Ecologies

Organized by: Abhi Sanghani (Penn)

Discussant: Prof. Sarah Vaughn (UC Berkeley)

Drip Irrigating the Fluid Land, Yida Jiao (John Hopkins)

The Substance of Time, Mason Smith (UCLA)

Durable Landscapes, Stephanie Ratte (Columbia)

Thera-forming, Randy Burson (Penn)

The ground beneath the Wind Horse's feet, Logan Emlet (Yale)

3:00 pm - 3:15 pm Closing Remarks

Prof. Kristina Lyons (Penn)

* Breakfast served in Widener Auditorium (see map on page 7)

** Lunch served on the Rooftop Terrace (see map on page 7)

Getting Here/There

The conference is held in Widener Auditorium at the Penn Museum, located at 3260 South Street in Philadelphia, PA. Visitors can enter through the Main Entrance during Museum hours (Tuesday-Sunday, 10am-5pm), or the East Entrance at other times.

Conference attendees do not need to pay Museum admission. Please let the front desk at either entrance know you are attending EnviroLab's conference hosted by the Department of Anthropology and sign in.

Food

Breakfast and lunch will be catered for all conference presenters and attendees. Breakfast will be available in Widener Hall 30 minutes before the scheduled panels of the day and lunch will be served on the Rooftop Terrace (weather permitting) at 12:30 pm on both days.

The Museum Cafe is located on the Main Level of the Museum and open from 10:00 am - 3:00 pm on Friday and Saturday. They serve sandwiches, salads, and a soup of the day, as well as a variety of drinks and snacks.

There are a number of food trucks scattered around the Museum on Spruce St (between S University Ave and S 34th St) and S 33rd street (between South St and Walnut St).

Accessibility

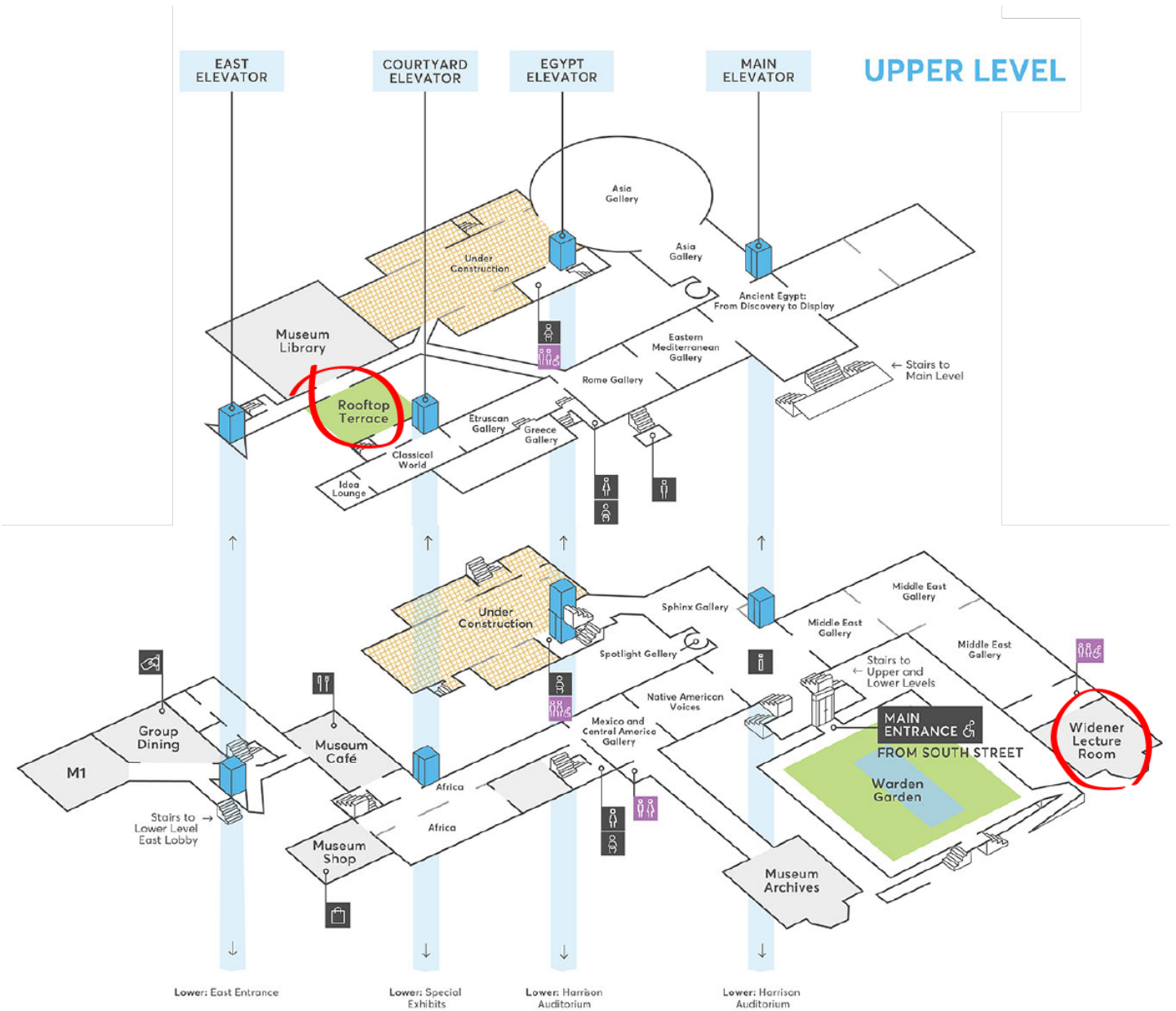
The Museum is ADA compliant. Both Widener Hall and the Rooftop Terrace are accessible via elevator.

Gender neutral restrooms on Main and Upper levels of the Museum are marked on the map (*page 6*), including the one right outside of Widener Hall. Please let an EnviroLab member know if you are in need of a private space (e.g. a lactating parent) at any point during the conference. We are happy to find an office or classroom for you in the Anthropology Department or work with Museum staff to find more accessible accommodations.

Quiet Spaces

The Museum Library is located on the Upper level of the Museum and open from 9:00 am - 5:00 pm on Friday and Saturday. Please let an EnviroLab member know if you require a private space and we are happy to find an office or classroom for you in the Anthropology Department.

Venue Map



UPPER LEVEL

MAIN LEVEL

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Keynote

Exposed to the Elements: Navigating Race and Nature in Fluvial Colombia

3:15 pm - 4:15 pm, Friday, March 22

Dr. Austin Zeiderman, LSE



Colombia's Magdalena River has long served as a conduit for the expansion of colonial and racial capitalism in the Americas. A period of stagnation began in the 1950s, but state-backed projects have recently sought to resuscitate commercial navigation through a series of engineering works. This initiative has brought the Magdalena back into focus as a node for the articulations of race, nature, and capital underpinning the contemporary global order. The river is now a rich site for considering how to attune elemental thinking to the hierarchical regimes of difference central to the environmental and economic present.

Panel 1

Multimodal Elements

9:15 am - 10:45 am, Friday, March 22

Organized by: Pablo Aguilera Del Castillo, University of Pennsylvania

Discussant: Prof. Mary Pena, Smith College

Abolissons les tropiques: An ethnography of becoming with snow in three blog entries

Melina Campos Ortiz (melina.camposortiz@concordia.ca)

Concordia University, PhD Student

In February 2020, I was invited to join a team studying snow at the Concordia Ethnography Lab. Less than a month later, COVID-19 kicked in, and I had to start my studies, not in Montreal but San José, Costa Rica, where I was born and raised. Snow was utterly alien to me, and suddenly, I had to make ethnographic sense of it from “the tropics.” In these three blogs, I use process-based writing to engage with seasonality from my embodied experience. In the first entry, I explore snow sensoria absence; in the second, I engage with snow sensoria anticipation; and in the third and final one, I present how paying attention to snow helped me deal with uncertainty while I found my place in a new city. Ultimately, studying snow from the perspective of my “tropical” upbringing led me to explore the meaning of space, place, and north-south power relations in anthropological knowledge production.

Yakumama’s Entanglement: Walking, Remembering, Cherishing in Lima’s Lurín and Rímac Rivers

Vered Engelhard and Arely Amaut (vle2104@columbia.edu)

Columbia University and University of British Columbia, PhD Students

In the Andes, water is often referred to as yakumama (water-mother). Water is a mother, an ancestor, a teacher. From the perspective of the ancestral territory, water is the blood that connects and feeds all the lands and beings, the body of the community or ayllu (deities, nature and humans as family). Communities see the world as alive and those who live in it as people. The territory is made in mutual raising (crianza mutua) among beings towards harmony (Valladolid 2014). Within Andean cosmology, water is raised as a seed, in a relation of mutual nurture, like with animals and plant seeds. Water is neither extracted as a resource nor measured as the classical elements. It is a person whose corporeality isn't physically fixed to a state of matter nor spiritually separated from the land. Yakumama transfigures and traverses the whole body of the territory where we live. Ayllus “cherish it, at times, as another member of the family (as mother or as child), and, other times, as deity, context in which the runas [human people] relate through care and respect” (ABA 2001, 77). In this presentation, we share our research unfolding from pathways of restoration, bringing our thinking-feelings (Escobar 2014) around collaborations in care and respect of

the Rímac and Lurín rivers. These rivers, from which the urban ecosystem of the port city of Lima subsists, have their headwaters thousands of feet upwards, in the peaks of the Andes of Huarochiri. Walking up and down these rivers, we inhabit the dismembered ecosystem that the modern urban culture of forgetting and systematic violence brings. In contrast, the farmers communities (comunidades campesinas) in the highlands, care for the headwaters that feed the city and for the ancestral memory of the territory. Walking the paths of the yakumama opens possibilities of re-membering through the ancestral territory in community (ayllu). Our research comes out of collaborations across the Lurín and Rímac basins all the way up to its headwaters, in intergenerational exchanges of knowledges (intercambios de saberes). We interweave with elders, publics schools, and environmental, artistic and communal organizations. As artists and academics, studying with yakumama as teacher positions us within broader processes of remembering and healing that configure our production. This presentation hopes to contribute to elemental thinking by engaging creatively and critically with yakumama's pedagogy.

Industrial Breeze: Figurations of Urban Air in Satyajit Ray's Calcutta Trilogy

Somak Mukherjee (somakmukherjee@ucsb.edu)

University of California, Santa Barbara, PhD Student

Figurations of urban air by engaging with its material and phenomenological reality, as a broader ecological site for imagining Calcutta's manifold crises surface throughout Satyajit Ray's (1921-1992) oeuvre. In this paper, which is an chapter excerpt from my dissertation project "Elemental City: Ecology, Media, and Narratives of Crisis in Postcolonial Calcutta", I will be exploring two films by Ray: *The Adversary* (1970) and *Company Limited* (1971) to reflect on his treatment of urban climate as a multi-sited imaginary. I will argue how we can read this figuration of climate as a metaphor for energy dynamics, for example, heat as I will distress leading to bodily exhaustion and a larger continuum of social degradation. And yet, as I will demonstrate by reading different visual aspects of these films, the material reality that shapes the film takes us to an elemental imaginary of urban air that underscores a persistent cultural imagination of Calcutta's perpetual crisis. It reflects on the imagination of staying with air's material dynamism which is inseparable from the permanence of climate precarity. Thus, the elemental imagination of air in Ray's cinema is also a position that negotiates a difficult trajectory: of thresholds of perception and representation. Ray's exploration of the "industrial breeze" tracks a mode of elemental thinking. It is a central component of his films set in Calcutta that invites us to think of Calcutta as a hybrid narrative apparatus of an "Elemental City": an enmeshed site of textual and material elementality. I define 'industrial breeze' here as an entangled narrative convergence borne of a combination of material reality, collective cultural production, and creative expression. This idea facilitates air's emergence as what Jeffrey Cohen describes as "storied matter". It reflects an imagination of staying with air's material dynamism which is inseparable from the permanence of climate precarity. Therefore by reading the writings of Ray and his contemporaries, his films, and theorizations of air's materiality (geophysical and cultural), I will argue how the narrative of the industrial breeze in Ray's cinema meaningfully builds up to the broader epistemological framework of the elemental city:

founded equally upon material reality, discursive postulations, and creative articulations across different textual forms and media.

Subterranean Dissolutions

Pablo Aguilera Del Castillo (pablo3@sas.upenn.edu)
University of Pennsylvania, PhD candidate

The Yucatec Karst Aquifer System is the largest aquifer in Mexico (197,600 square km). This subterranean world remains a highly contested matter of public concern whose boundaries, shape, chemistry, and legal status are constantly negotiated between technoscientific experts and local communities. In the last decades, concerns about water pollution have become ubiquitous and far-reaching, defining the terms in which people engage with water in all its forms. Framed by these challenges, a key question has become particularly relevant to Yucatecans: How polluted is the subterranean, and who is responsible for the pollution? In this paper, I trace the various scientific studies on contamination, juxtaposing them with the various experiences of changing water qualities of the local residents. In doing so, I argue for the need to understand the transformation of the aquifer as an overall process, not of pollution but of dissolution, where underground boundaries and structures are getting quickly fragmented, dislocated, and destructed in primarily invisible ways. Furthermore, I build on Helmreich's (2021) point that the representation of a physical phenomenon actively produces its chemistry to consider new ways in which the proposed heuristic of "elemental dissolution" reconfigures the political and expert-based claims of Yucatecans communities about the transformation of the subterranean.

Homescapes make the world we live in? exploring homes in urban Colombia

Tatiana Acevedo Guerrero (t.acevedoguerrero@uu.nl)
Utrecht University, Assistant Professor

Unequal and rapidly changing environments, global south cities have managed public services through a myriad of socio-technical configurations that provide differentiated alternatives depending on social position. Population living on low-income neighborhoods, which in the south accounts for 60–70% of urban housing, seldom has access to regular piped water on their homes. They rely on small-scale service providers, rain harvesting, and other ways of water provision 'beyond the network' and engage in domestic water storage practices. This project takes water as an entry point, undertaking an investigation into the homes of urban Colombia. It follows water, as it is essential for sustaining everyday life, and goes beyond it, into other material and atmospheric components of the home. Stored (stagnant) waters are never only water but are also home to large communities of organisms such as bacteria and mosquitoes, that eventually continue their lives outside water. The concept of homescape is proposed to denote a produced place in which interdependent social, material and ecological processes unfold in and around the domestic, but are not independent of broader socio-economic power relations and ecological dynamics. By focusing on the everyday life inside and around homes, in low-

income neighborhoods of Barranquilla and San Andrés, the general aim of the project is to understand the interconnected infrastructural histories and arrangements, ecological changes, and social power relations that constitute homescapes. It then casts a spotlight on the domestic scale as a critical, yet overlooked, vantage point for understanding urban socio-ecological relations in a context of inequality and climate change. In doing so, the project suggests new ways to think about the processes sustaining the possibilities for life in southern cities (where most of humanity lives). Methodologically, this project combines multi-modal ethnography and water quality work. Involving in-depth interviews, photovoice elicitation, body-mapping, auto-ethnographic exercises, and life histories, multi-modal ethnography opens up inquiry to intimate topics/experiences/insights that cannot be accessed otherwise, or at least not as completely. It enables a polyphonic approach in which, after training, community members work together with social scientists to pool their lived experiences and interpret them. Through autoethnography exercises, incorporating water diaries, these community members write/talk about experiences happening in the context of the home, block and neighborhood, emphasizing their everyday interactions with different types of water (rain, groundwater, treated water), water pollution, and mosquitoes. In turn, the physiochemical/microbiological changes in domestic water, as well as the breeding of mosquitoes, is captured through water quality work.

Panel 2

Seeds and Other Minutiae

11:00 am - 12:30 pm, Friday, Mar. 22

Organized by: Carolina Angel Botero & Xiao Ke, University of Pennsylvania

Discussant: Prof. Kregg Hetherington, Concordia

Bury your parables: We're literally sowing seeds

Eva Rose Steinberg (esteinberg@gradcenter.cuny.edu)

CUNY Graduate Center, Anthropology, PhD Student

Walking through the fields of the Utopian Seed Project's Experimental Farm is simultaneously promising and devastating: for every lush row of plants is another that is shriveled, eaten by pests, or full of seeds that never germinated. These patches of bare soil underscore the question at the center of our food systems: how will we feed ourselves if the seeds won't grow? Seed saving emerges as the solution to crop biodiversity loss due to anthropogenic climate change, but often their symbolic richness overshadows the material necessity of viable seed. While considering seeds as culturally significant strengthens the push to preserve them, these methods often separate the physicality of seed as plant embryos from their role as metaphors for hope, survival, and abundance.

Metaphors abound in anthropology: from decomposition to growth, from wakes to shoals, and from forests to fungi. In this paper I explore how looking towards the natural world and its processes as metaphors for surviving in the anthropocene is seductive, yet invisibilizes the dynamic relationships present in these environments. Drawing on ethnographic fieldwork conducted in the southeastern US, I am interested in how the labor and knowledge of farmers and breeders in alternative food movements is obscured when we romanticize seeds without taking into account the material conditions of possibility required to grow food in the anthropocene. Within seedwork emerges the tension between the difficulty and (oftentimes) hopelessness of breeding climate resilient crops and the potential these adaptations represent and, ideally, might embody. Metaphors are often inadequate for capturing the nuance needed to not just imagine, but also enact alternative futures. As we look towards methods of ensuring the survival of human and more-than-human worlds, at what point do we need to put aside metaphors and attune ourselves to the physicality of seeds and their relations? In other words, how might us academics, as people who so often think in metaphor, reconfigure our work to account for the materiality of seeds without losing sight of their radicle potential?

Making Something out of an Empty Sea: Copper, Lead and Algae in Global Trade

Eda Tarak (etarak@ucsc.edu)

University of California Santa Cruz, Department of Anthropology, PhD candidate

This paper reflects on 18 months of ethnographic research in an industrial coastal town along the Gulf of Izmit in Northwestern Turkey, a narrow basin in the Eastern corner of the smallest sea in the world, the Sea of Marmara. The paper aims to understand the material conditions of the coastal development, maritime industries, and marine and coastal ecologies by focusing on industrial ship maintenance practices such as hull cleaning and a moment of ecological phase shift in the Sea of Marmara in the spring and summer of 2021. I track the recent history of ship cleaning practices in the gulf through attention to the copper and lead that leak into the sea and collect at the bottom layers of sediment since 2008. I consider marine micro-organisms such as algae, diatom, and dinoflagellates that travel from far-flung places with the ships and end up in shipyards at the Gulf to be removed from the surface of the ship's hull with pressured water, blasted into particles in the air and then finally land in the sea. Finally, I look at a moment of major algae bloom and the gelatinous aggregate created by algae that covered the sea from the benthic layer to the surface for months as a moment of ecological phaseshift and an ethnographic moment of study where materialities of water, sediment, chemical, and algae were responding to each other. I ask, what kind of imaginaries of global trade reproduce an image of land and sea as separate? And what human and nonhuman labor undo this binary of land/sea and fixed/fluid? In showing human and nonhuman labor that muddies the separation of land and sea, I argue that ecological phase shifts take place in narrow and small basins like the Gulf of Izmit are scalable examples of ecological shifts that global trade and heavy industries can create in bigger bodies of water, like oceans.

Wild (Land) Relations: Indigenous Critiques of Domestication in a Precarious Taiwan

Aaron Su (aaronsu@princeton.edu)

PhD Candidate, Department of Anthropology, Princeton University

In comparison to the US (89%) or China (76%), Taiwan's "food self-sufficiency rate" (糧食自給率) hovers at an alarming 31%, a statistic that is increasingly exacerbated by the country's precarious global standing. In response, the government has invested millions of dollars in new technologically enhanced monocropping programs, hoping to dramatically increase domestic crop yields on rural Indigenous farmlands. However, these programs of technological uplift not only elide Indigenous agricultural systems and foodways in the country; they also advance a militarized and geopolitical understanding of Taiwanese state-building at the expense of Indigenous land relations and sovereignty.

Through 19 months of ethnographic fieldwork, my research examines how, in pushing for the adoption of large-scale monoculture programs (rice and corn) on Indigenous-owned farmlands, state-run agriculture research departments place blame on Indigenous traditional wild crops for their lack of immediate economic output. Yet, drawing from an elementally-attuned environmental anthropology which rethinks conventional thresholds and states of matter, I analyze how Amis Indigenous activists are challenging the wild-domesticated binary, emphasizing that wild crops have more potential to generate sustainable land relations for a future Taiwan over militarized practices of agricultural nation-building. I think through the materiality of different crops at stake in this conflict to

tease out two opposing temporalities: a state-endorsed temporality of crisis aimed at rescuing the nation in the short term, and an Indigenous emphasis on relations with the land over the long term. Drawing from a wide range of scholarship in queer theory, environmental anthropology, and critical Indigenous studies, I explore how cultivating wild relations with the land, stewarded by Indigenous communities, offers an alternative future for Han and Indigenous Taiwan to the crisis language of geopolitics (Barker 2013, Conklin 1995, Halberstam 2020, Hetherington 2020, Million 2009, Moreton-Robinson 2020, Whyte 2017).

Seeds as a Site for Humanistic Inquiry: Mapping Resistance and Movement through 'Seed Care' and 'Sovereign Forest'

Jawhar Cholakkathodi (jawharct@gmail.com)

University of Calicut

This paper is an attempt to understand the indigenous ways and means to resist the 'coloniality of power' (Walter Dignolo:2009) operated in the context of India. The green revolution of the 1960s and new gene revolution adversely affected the social, environmental and political fabric of Indian society. Both these revolutions have been changing the traditional practices of agriculture and it also led to loss of great variety of gene pool in the country. Here I look at 'seed care' (in situ) and 'sovereign forest' (ex situ), two different initiatives to protect and conserve indigenous seeds and it works as a material site for archiving, memorizing and resisting capitalist appropriation of environment and ecology.

'Seed care' is a community owned and operated gene bank in Wayanad, operated since 1997. This community seed bank conserves, consumes, cultivates and commercializes traditional seeds and genetic repositories. 'Sovereign forest' is an art installation by world-renowned artist Amar Kanwar. At the centre of the installation, Kanwar projected Natabar Sarangi's collection of 272 individual species of rice seeds. Both these art projects (in different ways) are a response to the existing conflicts between local communities, state and corporations over natural resources and it proposed a different worldview about the relationship between nature, social practice. In the context of elemental thinking these two initiatives help us to explore the relationship between natural elements like seeds and ecological movements in the post globalised Indian subcontinent. .

In this study I propose an 'object oriented' social inquiry to understand community resistance, and social and environmental movement in contemporary society. And I argue that as sociological imagination (CW Mills:1959) and geographical imagination (David Harvey:2005), biological imagination also contributed to the better understanding of society. By looking at these two seeds projects, I further argue that practices among the indigenous communities became a site to produce and maintain biological imagination in the new bioeconomies.

Seeding Participation

Xiao Schutte Ke (kxy@sas.upenn.edu)

PhD Candidate, Department of Anthropology, University of Pennsylvania

What does it take for grass seeds to germinate and grow perennially at the world's "Third Pole"? Thinking with the tiny vitality of seeds as well as their promiscuous pollination, this paper examines the construction of an Indigenous expertise network in the past decade centered around a seemingly simple practice of grassland seeding. Working adjacent to China's vast investments in grassland restoration on the Tibetan plateau in the age of climate change, nomadic-herder-turned grassroots conservationists seem to have made their low-budget seeding efforts indispensable. While Chinese environmental scientists are debating large-scale measurements of degradation and restoration, in the past fifteen years, a small fraction of nomadic herders—across a few sites on the Tibetan plateau—started to experiment with ways of seeding their home pastures. This paper looks at how Tibetan herders encode care into efficacy, and Indigeneity into expertise, while making a hybrid network appear distinctively indigenous without excluding nonindigenous participation. Based on ethnographic fieldwork and archival materials, I look at the communicative processes of seed selection, site choice, soil talk, climate evaluation, livestock interaction, planting training and learning, labor recruitment, as well as media representation. In doing so, I explore how reflexive discoveries of ecological degradation may afford the reconfiguration of ecological rapport, thereby rearranging ethnoracialized participation. I also argue that, in a network of seeds and seeding, the asymmetries between Chinese and Amdo Tibetan languages help to both develop and restrict the social domain of learning—cultivating a science-like plateau seeding meta-discursive framework based on Tibetan pastoralist vernacular.

Panel 3

Refashioning Ruin

1:30 pm - 3:00 pm, Friday, Mar. 22

Organized by: Nipun Kottage, University of Pennsylvania

Discussant: Prof. Vinay Gidwani, University of Minnesota

Elemental Waste: Oyster shells, calcium carbonate, and the atmosphere.

Danhue J. Kim (danhue@mit.edu)

Massachusetts Institute of Technology, History, Anthropology, and Science, Technology and Society (HASTS) program, PhD student

My research concerns socio-ecological relations surrounding oysters in a Southern port city in South Korea. Oysters enter into the city's dense aquaculture networks, where their flesh has become a major source of capital accumulation and nutrition since the 1960s. Tethered to this is an annual byproduct of 300,000 tons of oyster shells. Due to inadequate waste management systems, the oyster shell dumpsites have long produced an inequitable distribution of rotting biowaste, environmental contamination, and stench. Today, this wastescape is being transformed through re-imagining oyster shells: no longer as waste but as their chemical element, calcium carbonate. This has redirected the shells' discard pathways from dumpsites to laboratories as they come to be re-known as 'elementally productive'. Through multi-sited fieldwork conducted for my MSc dissertation, I examine how human, oyster, and microbial bodies have, often violently, intermixed, and how new relational modalities are produced through reconfiguring the shells' material-semiotic being. Particularly, I focus on two sites. First, residential areas near the dumpsites where the decades-old rotting shells are understood in relation to air – airborne odours, pathogens, and contamination – to understand the atmospheric injustice that oyster shell waste assembles. Second, the laboratories of recycling industries, where oyster shells are re-made and re-purposed into another form of lively (or deathly), elemental capital. Although such recycling initiatives are meant to be pioneering an ecological solution to the mounting oyster shell waste in the city, I caution against the techno-optimism of elementalising shell waste as the only economically productive solution. Further, I demonstrate that within this elemental, industrial shift, the residents' concerns once again become inequitably congealed. For discussing this work, I delve into employing sensory ethnography, particularly focusing on attuning to the olfactory dynamics of waste and recycling as a method for facilitating elemental thinking.

Mining Second Nature: Resource-making, waste, and value in Pennsylvania's push for a coal-waste driven "critical minerals" industry

Owen Harrington (ofh5033@psu.edu)

Penn State University, Geography, PhD Candidate

Pennsylvania has long been the site of extensive coal mining, burning, and wasting, leaving the landscape scarred with the fly ash heaps, acid mine drainage, and slag piles which continue to pose socio-ecological problems. In 1952 the dean of Penn State's College of Mineral Industries predicted that by 2000 A.D. rare earth elements (REEs) would be recovered from coal ash in economically significant quantities. As of 2023, this has yet to happen— these elements have continually proved difficult to separate from their mixed-state into a viable commodity form. However, Dean Steidle's quote is regularly referenced by Penn State's "Center for Critical Minerals," one of several research institutes started at American universities over the past decade amidst a nationalism-tinged resurgence of interest in "critical minerals." This shift is part of a waxing 'common sense' that transitioning to low-carbon energy systems will entail increased demand for the minerals needed to make the "clean energy technologies" central to dominant transition imaginaries. Thus, the IRA and IIJ acts have allocated funding for critical mineral development, including substantial amounts for research on extracting REEs from coal. Suddenly, these wastes seem poised to solve multiple practical and ideological problems for the U.S. and its domestic capitals: they recast new forms of extraction as both mining and remediation, give coal companies a stake in energy transitions, promise to revive beleaguered coal communities, and represent an easy-to-access "above-ground mine." What remains to be seen is to what extent current discursive shifts stressing economic nationalism and energy transition will succeed in drumming up the technology and capital to transform these wastes into resources. This paper argues for the value of a multi-modal, ethnographic approach to studying the work being expended to affect this transformation. Crucially, thinking with these waste/resource residues entails focusing on how the problem they represent to industrial, academic, political, and civil society actors is not simply chemical— per Marx "no chemist has ever discovered exchange-value either in a pearl or a diamond." Thus, this research will utilize event ethnography at multi-stakeholder conferences, interviews with scientists, and analysis of government hearing transcripts to understand the ways these wastes/values figure into the contradictory and/or complementary projects of a variety of actors. It builds off work in geography and kindred social sciences on "deterritorialized extraction," resource-making projects, the dialectic of waste and value, and critical mineral "re-shoring" to show how these wastes are (re)problematized and (re)made within political, economic, and environmental projects operating at diverse, interconnected scales.

Ruin and Repair in Human-Elephant Relations

Rebecca Winkler (rwinkler@sas.upenn.edu)

University of Pennsylvania, Anthropology, PhD Candidate

Human-elephant relations in Thailand are fraught. Since the advent of elephant tourism thirty years ago, thousands of elephants are now living and laboring in severely

impoverished conditions, often alongside marginalized humans whose suffering goes unrecognized (Cadigan 2016). Rates of death and injury among humans and wild elephants due to encounters that wildlife biologists term “Human-Elephant Conflict” are reported by Thai authorities to have increased by 180% in 2023 fostering new discussions on elephant population control measures (ThaiPBS Jan 19 2024).

Though they have never been recognized or written about in conservation literature, among some indigenous Karen communities there is a long history of humans, captive elephants, and wild elephants co-inhabiting forest landscapes. Human-elephant relations in this context have also been transformed by state territorialization of forests and changing forms of elephant commodification in tourism. My dissertation fieldwork within some of these communities documented projects to repair relations and carve out alternative futures for humans, elephants, and forests. While still living within political and economic constraints, Karen elephant owners, non-elephant owning villagers, and NGO workers have been creating alternative economies in which elephants are not valued for their labor capacities and cultivating new spaces where humans and elephants can know each other (*sinya lohsah*). In doing so, Karen and NGO interlocutors attempt (in different ways and to differing degrees) to listen to what elephants communicate and try to repair some of the unevenly distributed harms of the recent past. Rather than trying to recreate an idyllic past in which humans and elephants are imagined to have lived in harmony, these practices of listening and responding aspire to move through and beyond repair, crafting alternative ways of being that support mutual flourishing.

Panel 4

Bodies/Grounds

9:15 am - 10:45 am, Saturday, Mar. 23

Organized by: Noa Machover & Vivian Bi, University of Pennsylvania

Discussant: Prof. Kai Bosworth, Virginia Commonwealth University

Subsistence Fishing in Transition: Improvising While Falling In and Out of One's Element Along the Anacostia River

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UCSF, Department of Humanities and Social Sciences and UC Berkeley, Department of Anthropology, MD/PhD Candidate

This excerpt from an in-progress dissertation chapter will attend to the elemental in the affective sense, as in “a small but significant presence of a feeling or abstract quality,” (Oxford English Dictionary 2023). I take this sense of “being in” or “out of one’s own element” as a jumping off point to story the historical and arguably ongoing damage to the Anacostia River, a tidal waterway coursing through Washington, D.C., and Maryland, and the communities living nearby differently. I center the improvisational practices of subsistence fishers along the river’s banks and among its depths as an orienting and disorienting means of interrogating the flow of chemical elements into and out of bodies; the patency and breakdown of base materials evocative of urban redevelopment and rapid displacement; and the senses of home and (un)belonging that abide among accruing debris. Relying on ethnographic engagements with fishers, scrap tackle, and discards, I take up the project of “generating other ways of storying long-standing narratives” as increasingly highlighted by elemental studies (Papadopoulos et al. 2021). I describe how fishers often fish off of a crumbling seawall where few or no other fishing piers exist; negotiate fishing after torrential rain amid trash rafts floating on the river’s surface; craft leader lines from others’ discarded hooks, lines, and bait; leave behind remnants that tell the tale of their fishing practice; form and revise their own tackle boxes in conversation with other fishers; and engage the olfactory and visual presence of raw sewage in or near favored fishing spots. I interpret one fisher’s improvisational suggestion that the hook landed “just where God wanted it,” as an invitation to alternatively imagine the sustenance of a contaminated riverscape undergoing change. And I ask how an attention to the elemental feel of a space, place, or practice can, in turn, alter the “idiom” of the city (Ranganathan et al. 2023), tracing otherwise subsistence (im)possibilities and routes of ongoing exposure within shifting, “late industrial” (Fortun 2012) terrain.

Making Mothers Milk: Black Maternal Bodies, Scientific Imaginaries, and Lab-Grown Breastmilk

Chandani Attiyya Nash (cs2544@nyu.edu)

New York University, American Studies, PhD Student

On the heels of the lab grown meat industry, two U.S companies -- TurtleTree Labs and Biomilk, are developing lab-grown breastmilk replacements. These projects claim to offer techno-utopian solutions to both environmental and embodied problems around infant feeding, by de-coupling cows milk from industrial agriculture and expanding the immunological benefits of breastmilk to non-breast fed babies. The cornerstone of both projects is the immortalized cell-line: the first and most infamous of which was derived from the stolen biological material of a young black mother -- Henrietta lacks. This paper explores this nascent form of technocratic milk-making at multiple scalar registers. Situating lab-grown breastmilk replacements in the long, radicalized history of infant feeding within the U.S, including forced wet-nursing under chattel slavery, and coercive formula marketing in the 20th century, it interrogates the ways in which black reproductive bodies, on both the imaginative and cellular levels, have been called on to feed and sustain both scientific knowledge and white life.

Earth-Eating: A (Dis)order of Intimacies

Lu Rose Biltucci (lu.rose.biltucci@rutgers.edu)

Rutgers University, Women's, Gender, and Sexuality Studies, PhD Student

This project asks questions of the act and phenomenon of earth eating, pathologized as geophagia, a form of pica. Often a behavior attributed to pregnant persons or children, and overwhelmingly a raced and gendered activity, earth eating occupies a mythic place in the historical and scientific record. Earth is not a stable element physically nor semantically. Soil, dirt, or earth functions as an amalgamation—obscuring minerals, organic matter, air, water, as well as pollutants and chemical legacies, within an ever-changing admixture which provides the medium for plant, animal, and fungal life to interact, proliferate, and decay. My project attempts to account for and attend to this mysterious appearance of eating earth across archives of anthropology, history, medicine, and psychiatry, and ask what complex admixtures this act and phenomena creates in and amongst bodies and soils. My approach is twofold—first I attempt a critical recounting of anthropological and medico-psychiatric literatures which document this act and phenomena, applying the methodology of “reading along the bias grain” of the archives (Marisa Fuentes, 2016). I ask: what is the effect—beyond the category of the biological—of earthen materials as they permeate and interact with bodies? What sort of intimacy occurs between bodies and soil with the consumption of earth? Further, how do notions of the human materialize in archival imprints of the act, and what does desire for this intimacy also tell us about (dis)order, indexing not just biological but socio-political systems out of joint? Secondly, I speculate on the utility of ethnographic study for earth eating, seeking to clarify the act and phenomena not just as an intimacy with the more-than-human, but as an operation of subjugated knowledges which get buried beneath the “expertise” of the scientist of

multiple disciplines. Here is perhaps a poetics of that which is buried, with interrogating this subjugation functioning as a kind of metaphorical grave-digging.

From the Anthropocene to Autoimmunity: an elemental media approach to the immune system

Maria Fernandez Pello (mfpollo@utexas.edu)

University of Texas

This paper draws from years of ethnographic research into an experimental therapy that promotes the introduction of microscopic intestinal worms into human bodies in order to treat autoimmune conditions. Such experiments are inspired by an ecological turn in immunology that understands the immune system less like a defense mechanism and more like a system of active interchange between the organism and its ever-changing environments. Autoimmune diseases become associated with the environmental conditions of highly-industrialized societies, where anthropogenic activity has caused unprecedented ecological disruption in systems that are necessary for our survival, including those that reside inside of the body. Attending to the ways in which individuals use symptoms to trace intestinal worms as they change their internal ecologies, the paper proposes an elemental media approach to the immune system as a non-visual, non-conscious interface that mediates between microscopic and macroscopic ecological networks and their vastly different space-times. Such an approach renders bodies as “elemental media devices” (Engelmann and McCormack), proposing to understand autoimmune diseases as the elemental manifestations of multiscale ecological assemblages that are making themselves felt through bodies. An auscultation of the body becomes an auscultation of microscopic elemental worlds, worlds that are only accessible through the traces that they leave on the body and which call us to act through an “elemental imperative” (Lingis). Ultimately, the elemental approach also reframes the immune system as a collective and intergenerational project that connects human and nonhuman bodies across space and time. A symptom is never just a bodily experience: it is an experience of, and a call from, the (elemental) world.

Panel 5

Climate and its Elements

11:00 am - 12:30 pm, Saturday, Mar. 23

Organized by: Tayeba Batool, University of Pennsylvania

Discussant: Prof. Nida Rehman, Carnegie Mellon University

Air Beyond Conditioning: Attending to Uncertainty in Singapore's Voluminous Histories

Marcus Yee (marcus.yee@yale.edu)

Yale University, History, PhD Student

Nationalist modernity in Singapore involved the explication of tropical air from a taken-for-granted background condition into a stable object of governance. Its “territorial revolution” was nothing short of an “atmospheric revolution” (De Koninck 2017). Authoritarian state control looms largely over the history of air in Singapore, or the “air-conditioned nation,” where Lee Kuan Yew, the island city-state’s postcolonial founding father, famously deployed air-conditioning technology as a means of bringing efficiency to the enervating tropics. However, such a historiography of nationalist modernity’s triumph over the furies of nature obscures longer colonial and postcolonial histories of epistemological and ontological uncertainty surrounding air as an urban elemental condition. This paper traces the changing, unsettled substantiation of air in Singapore against the backdrop of the city-state’s urban history, focusing on the historical formation of ideas about air and reading the urban environment as a form of “climatic media” (Choy 2011; Furuhashi 2022). Vignettes of Singapore’s urban history point to the state’s attempts to govern air through sanitation, urban planning, and real estate, only to come up against the element’s fleeting form and flow. These vignettes are “voluminous” not only in their emphasis of verticality in urban space, but also in the foregrounding of elemental materiality and significance (Billé 2020). Uncertainty ties the histories of air in Singapore to today’s rising atmospheric anxieties over urban heat islands, climate change, and the carbon-intensive “comfort security” of air-conditioned architectures, suggesting that air’s historical substantiations can come to commensurate and coalesce its emergent presences.

Counting Trees and Carbon

Malcolm Sanger (malcolm.sanger@mail.mcgill.ca)

McGill University, Communication Studies, PhD Student

This presentation is based on a chapter of my dissertation that looks at practices of counting around reforestation. Thinking about the matter of wood as an element troubles classical Western systems (Furuhashi 2019), while carbon occupies a central place in elemental responses to climate change. Canadian tree planters are largely urban, middle-class, white students earning enough money in a few spring months for tuition or a trip to

Mexico. Their labour – paid as piecework, about 10-20 cents per tree – includes intimate bodily techniques like carrying hip bags full of trees, pushing a shovel into the ground every few seconds, watching out for grizzly bears, and, crucially, keeping track of how many trees you’ve planted that day. This counting of seedlings, boxes, and bag-ups in a rain and bug-soaked notebook is a low-tech counterpart to the counting of carbon atoms that climate scientists studying global warming and concentrations of carbon in the atmosphere do. Climate scientists in Vancouver track the effects that planting trees might have – dealing with sequestration capacity and additionality – through large-scale models of nature-based climate solutions. By working across scale – while considering the issues involved in scaling action – I consider how counting carbon and counting trees interact with one another through the work of climate scientists and tree planters. In between is a range of public and private actors, including politicians looking to “take action on climate change” and corporations looking to profit from the financialization of carbon credits and offsets.

How do elements interact with quantitative methods, and how does the counting of scientists reach down to the labour of tree planters? How are these relatively invisible matters (of trees and climate change) communicated and what other material relations and histories are left out of these elemental stories (Starosielski 2019)? Climate change communication might look like the exchange of carbon atoms between tree roots and mycorrhizal fungi in the soil – what is deemed “talking” by Canadian scientist Suzanne Simard – or it might rely on the invention of pulping wood to make paper from trees. Finally, archaeologists counting Culturally Modified Trees work on Indigenous land claims wherein the number of CMTs in an area might denote “continuous, exclusive and sufficient occupation.” My ethnographic work around these practices of counting considers how and what elements reveal about environments and climate and how they might enable a variety of actions and relations across scales.

Multiplicities of Carbon: Digital/Analog Regenerative Agriculture in Turkey

Ziya Kaya (ziyakaya@arizona.edu)

University of Arizona, Anthropology, PhD Candidate

This paper explores regenerative farming and the imaginations of carbon sequestration and carbon trading on farms through digital farming technologies (sensors, satellite images, GIS, smartphone apps, Big Data) in Turkey particularly in line with the European Green Deal. With a focus on addressing soil erosions and damage resulting from the overuse of Green Revolution technologies (such as fertilizers, pesticides, irrigation, and machinery) and the increasing climate anomalies (e.g., droughts and floods), the Ministry of Agriculture and Forestry in Turkey has initiated various technopolitical projects centered around regenerative agriculture. These projects include reducing chemical use, prohibiting stubble burning, and promoting soil testing, crop rotation, cover crops, and no-till or reduced tillage practices. During my 18 months of ethnographic research in the technoscientific and agricultural landscapes of Turkey, I have observed the term “regenerative” being used as an alternative to “sustainability.” I have encountered aspirations to store carbon as organic matter in the soil, utilizing farming techniques that leave the soil surface undisturbed, i.e., not “broken down” (Puig de la Bellacasa 2021), to prevent the release of carbon as CO₂ and,

thus, enable the soil to regenerate itself in a more biodiverse and productive ways. These practices have faced resistance from farmers due to longstanding farming practices, which have been mostly cultivated through “the Green Revolution’s ghost” (Welker 2012). With the emergence of new digital technologies, there is an expectation to monitor farmers’ practices, measure carbon sequestered, and establish tradeable carbon quotas for various sectors, from construction to airlines, projected to be mandated to pay for their carbon-emitted products traded into the EU in the future. In examining the technopolitical challenges of constituting diverse meanings and forms of carbon (as organic matter under soil, CO₂ above soil, and quotas outside soil) through various human and nonhuman relations that evoke the soil’s potential for “Life” (via regeneration) or “Nonlife” (via breakdown) (Povinelli 2016), I investigate the dynamics of capital within agrarian landscapes. I question the relevance of the notions of capitalist extraction of nature as a commodity and the dispossession of farmers from their lands through technocapitalist interventions in light of the emerging diverse meanings of carbon.

Adapting the Forest: What the changing relationship between people and the forest tells us about climate change and adaptation

Raka Sen (rakasen@sas.upenn.edu)

University of Pennsylvania, Sociology, PhD Candidate

People have inhabited the Sundarbans for the past 200 years, and during that time they have always relied heavily on the natural resources of the forest. The forest provides food, materials for shelter and cooking, and livelihoods for local people. The mangrove trees for which the forest is named even provide protection and buffer from storm surges in the face of natural disasters. Realizing the importance of the forest, through their stories and folktales, local people have created sustainable patterns of consumption. For instance, Bonobibi, the goddess of the forest is only known to send her tigers to attack those who exhibit greed in the forest, taking even slightly more than they need. Through these stories, the forest has flourished and has continued to share this abundance with local people. There is no shortage of literature showing the importance of understanding the relationship between humans and nature or specifically forest dwellers and a forest. In this chapter, we will explore what the changing relationship between people and the forest tell us about climate change and adaptation? To do so, I will explore three key changes to the relationship between the people and the forest: 1.) Traditional forms of forest work that have fallen away 2.) The intensification of forestry governance and 3.) The creation of and militarization of the Indian-Bangladeshi border.

Do Glaciers Roar?: Tracing Transformation in the High Mountains of Shimshal

Ihsan Arsalan (ia21@rice.edu)

Rice University, Anthropology, PhD Student

This paper elucidates the ways that enable the intertwined survival of high mountain communities and glaciers in the Karakoram region of Pakistan. I trace the intersecting and enmeshed lives of villagers and glaciers in Shimshal Valley which is situated within the

Karakoram Range through Stacy Alaimo's lens of transcorporeality. I investigate glacier-human relations that are going through exponential transformations, breakdowns, and reconfigurations as rising temperatures are making the glaciers surge with greater force. This raises a series of interconnected questions I wish to explore through my future research: How do disruptions like the glacial flood transform the embodiment of shared experience between glaciers and local people? How does the transformation define their everyday lives? What kind of environmental stewardship arises out of this transformation? In asking these questions I want to comprehend how people from Shimshal sustain themselves through the elemental force of glacial ice. I realized that a social system stemming from precarity and predicated on enmeshed glacier-human survival will allow me to develop a localized concern to shed light on methods of community-based environmentalism. Glaciers move us to creatively imagine the role of communities that are vulnerable to climate change. My paper extends Julie Cruikshank's idea that "glacier stories may not be "about " glaciers in transparent ways but may instead provide imaginative material to think about broader historical issues" by outlining what glacier stories tell us about the contemporary moment and the future to come (Cruikshank 2005).

Panel 6

Entangled Ecologies

1:30 pm - 3:00 pm, Saturday, Mar. 23

Organized by: Abhi Sanghani, University of Pennsylvania

Discussant: Prof. Sarah Vaughn, UC Berkeley

Drip Irrigating the Fluid Land: Ecological Crisis and Chinese Agricultural Technology in Uzbekistan

Yida Jiao (yjiao9@jhu.edu)

John Hopkins University, Anthropology, PhD Student

Since 2018, the "cluster reform" of agriculture in Uzbekistan has invited foreign and domestic investors to establish cluster companies, aiming to attract more capital and technology to address issues stemming from long-term cotton monoculture such as declining yields, soil salinization, and deteriorating irrigation infrastructure. This paper focuses on how the water-saving technologies introduced by Chinese investors are encouraged by the cluster system but constrained by land institutions in contemporary Uzbekistan. Since the Soviet times, Uzbekistan has been designated as a major cotton producer due to its favorable climate. Yet, cotton cultivation is soil-depleting and requires a tremendous amount of water. Glacial meltwater, obtained through pump-lifted canal irrigation, has been supporting cotton production. Persistent overuse of water has depleted the water resources and resulted in ecological disasters. The Uzbekistan government thus hopes to revolutionize traditional irrigation by introducing more advanced water-saving technologies, not only to save water for other uses but also to increase the overall yield of cotton. By studying how a Chinese-invested drip irrigation company navigates the cluster system, this paper argues that the cluster companies have a strong incentive to persuade their contracted farmers to install drip irrigation systems because of tempting state subsidies and the potential for brokerage from the supplier. However, the farmers are hesitant to do so due to the lack of capital and an unstable land tenure system. The result is the privatization of risk for farmers and limited ecological benefits.

The Substance of Time in Kazakhstan's Digitization of Livestock Production.

Mason Smith (msmith0308@g.ucla.edu)

UCLA, Anthropology, PhD Student

The process of corporate land enclosure in Kazakhstan has caused a shift to capital-intensive methods of production in the livestock sector. American agro-tech corporations have encountered a lucrative market in factory farms owned by oil and mining oligarchs, and their products are reorganizing social life in rural Kazakhstan. This paper interprets ethnographic data gathered in July and August of 2022 on an industrial dairy farm in Almaty

Oblast. While I expected to be observing manual labor as is typical in agrarian anthropology, my interlocutors spent the bulk of their days in front of the computer, analyzing spreadsheets. Digital herd management software has led to such professionalization of agricultural labor, as it transforms physical phenomena on the farm into numeric values on the computer. What, however, is the basis of quantification that enables the entirety of farm operations to condense onto a single screen? I argue that the calculation of time-values serves this function. Building on theories of the social construction of temporality, elemental thinking informs the core of this paper's argument. I engage with the view of time that Italian political philosopher Antonio Negri outlines in "The Construction of Time" (2003), which states that when capitalist production permeates social life beyond the workday, time ceases to be a meaningful way of measuring labor and becomes a substance to be managed. In light of this perspective, I demonstrate that digital herd management technology treats time as a fluid element that courses through the animal body, akin to water, feed, milk, or manure. This form of management reconfigures the experience of time for both farmworkers and cattle. I illustrate this point through a multi-scalar, multi-species analysis that examines livestock reproductive, digestive, and sleep cycles, the rhythms of labor and leisure in the workday, farmworkers' professional trajectories, and Kazakhstan's position on an imagined timeline of economic development.

Durable Landscapes: Infrastructural Materiality and Urban Flooding in Hawai'i

Stephanie Ratte (smr2224@columbia.edu)

Columbia University, Anthropology, PhD Candidate

This paper takes durability and celerity as entry points for considering how the materiality of proposed flood risk infrastructure, and that of the forces against which it is planned, comes to matter. Recent debates about riverine flooding in Honolulu, Hawai'i have foregrounded community aversion to the further hardening of the urban environment and its infrastructures, with 'concrete' becoming a kind of metonym for engineering interventions that seem to prioritize durability over community wellbeing, environmental quality, and aesthetics. At the same time, concerns around the 'flashy' nature of the steep volcanic landscape emphasize the need to detain or direct large amounts of fast-moving stormwaters, complicating public calls for nature-based infrastructural features deemed, by engineers, to be insufficient here for flooding that occurs suddenly and with great speed. I explore how attending to the temporal modes and qualities of these elemental mixtures—concrete, stormwater, and green infrastructure among them—can illuminate their interdependencies, and offer insight into how particular concerns feature in envisioned times, and landscapes, to come.

Thera-forming: Moving earth to re/make medicine in Wallmapu/Southern Chile

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Disagreements over how to contain the erosion of sandy soils stalls the plans for a long-awaited Indigenous health center. Ancestral authorities ask spirit guardians to allow

excavators to remove a hilltop in order to erect a rural intercultural clinic. An intercultural health facilitator sets out to plant a boulder in the atrium of a 280-bed hospital complex to make present the community displaced from the land on which the hospital stands. This paper aligns these three moments in the construction of intercultural health care in Southern Chile to interrogate how the making of health via medical infrastructures hinges on the material and epistemic reconfiguration of earth and land. If terraforming is the deliberate modification of harsh (albeit often non-Earthly) environments to make them more habitable to human life, then I consider how the deliberate modifications to human living—such as through the development of therapeutic infrastructures—depends upon and re/makes more-than-human landscapes. Conceptualizing this process as “thera-forming,” I focus on how human-land relations in Southern Chile are renegotiated to make space materially and politically for state-backed projects of health- and life-making (cf. Hetherington 2020). In an “intercultural” health system that often brings biomedicine and Indigenous Mapuche medicine under one roof, thera-forming mobilizes health officials and Mapuche authorities, but also local topographers, corporate developers, architectural plans, ritual offerings, and dumptrucks and dumptrucks of earth. This paper considers how the perceived positive moral and a/political valence of health and health care generates the multiple promises of healthcare infrastructures that rally these often discrepant actors behind development projects, environmental intervention, and the expansion of a state-led medical system (Anand, Gupta, and Appel 2018; Chabrol and Kehr 2020). The process of constructing a network of biomedical-like clinics mixes with and transgresses the spiritual ecologies necessary for Mapuche therapeutic action, thereby subducting Mapuche forms health- and life-making through the reconfiguration of therapeutic geographies in Wallmapu/Southern Chile (Dewachi et al. 2014). Ultimately, studying the formation of this health care network through the earthly challenges of its construction offers another way to ground truth the place of medicine in ongoing colonial struggles for life and land.

The ground beneath the Wind Horse’s feet: The place of the elements and the elementality of place between Tibetan Buddhism and Old Anthropology

Logan Emllet (logan.emlet@yale.edu)

Yale University, Anthropology and School of Environment, PhD Student

The elements and the elemental enjoy prominence of place in both the ubiquitous “prayer flags” (rlung-rta) adorning Tibetan sacred sites and the titles peering out from the spines arrayed along a shelf of anthropology’s “greatest hits”, e.g., 'The elementary forms of religious life' and 'The elemental structures of kinship.' What might be learned from thinking through these forms of elementality together? This paper holds together the elementality of place and the place of the elemental in anthropology to suggest a theory of elemental grounds and grounded elements. Tacking between Tibetan Buddhist and Anthropological interpretations of elements and elementality, I expand on that vein of interdisciplinary elemental thinking (reviewed in Engelmann & McCormack 2021) that posits the “elements as media” to theorize elements as grounds – that is, as sets of shared referential relations between diverse domains in the context of which interpretants arise (Kockelman 2012). The ethnographic portion of my argument centers a ceremony called lhasöl (lha-gsol), performed annually by each household in Dolpo, in northwestern Nepal,

to make offerings to local gods in order to ensure good relations and all that they entail – good weather, harvests, and health for humans and the herds. I propose that elements can be usefully understood as *both* a medial abstraction, in the (relatively vertical) sense that they intervene on immanent sensory experience to lump and split in ways that may be expediently manipulated to reveal higher levels of abstraction or deeper levels of truth (Marx [1867] 1992), *and* as an integral system of differentiated categories, in the (relatively horizontal) sense that they afford pragmatic analogies across diverse domains of social life (Turner [1980] 2012). As grounds, elements are that in terms of which, for example, medical and social diagnoses are made, place spirits and intellectual genealogies are propitiated, divinatory signs and diverse cultures are interpreted, and practical actions and evocative fieldnotes are taken.

Acknowledgements

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