Recalcitrant Lifeworlds

Decolonizing the History of Human-Plant Relations

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Abstract This article analyzes how a failed rubber crop from the plantations of British India became indispensable to the shaping of Indigenous ecologies in the India-Bangladesh borderlands. While a growing scholarship focuses on plants that became profitable within plantation histories, this article instead shows that failed commodity crops like *Ficus elastica*, locally known as Jri Bamon in Meghalaya, India, exhibited recalcitrance to a range of state and scientific regimes. In an argument that disrupts the European-centered narrative about the triumphant expansion of knowledge and territory, the author introduces "recalcitrance" as an interspecies co-laboring between humans and plants, unknowable through botanical and capitalist practices emerging in a colonial context. Drawing on archival and ethnographic research, the article first studies the nineteenth-century colonial frontier in Assam in British India, where Jri Bamon was molded as a rubber crop in the plantation regimes. Second, it studies the present-day Indigenous ecologies of the Khasi Hills in Meghalaya, near India's international border with Bangladesh, where this tree is historically grown as an infrastructure of mobility, called the living root bridge. The recalcitrant materiality of Jri Bamon surfaces through each of these human-plant encounters, providing pathways for those who would engage with it on its own terms.

Keywords plant materiality, failed colonial plantations, India-Bangladesh borderlands, living root bridges, Indigenous ecologies

Introduction

In the summer of 2018, I was hiking through a forest route in the East Khasi Hills District of Meghalaya—a rainy, hilly region in the northeastern part of India, close to Bangladesh. There I saw some trees that were several centuries old. Their roots formed expansive labyrinths in the soil and in the air. Green moss grew on their bark, and multicolored insects crept in and out of the crevices that looked like tiny waves on their trunks.

"What are these wavy patterns?" I asked Janphai, a young woman from a nearby War Khasi village, also an interlocutor for my project.[1] The Khasis are an Indigenous

1. I do not follow the general method of using pseudonyms for all my interlocutors. My choices are determined by ethical considerations of both protecting and representing the interests of my different

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community in the state of Meghalaya, holding "schedule tribe" status under the Indian constitution. "These?" Janphai said, in turn touching the rough crevices of the tree. "Looks like rubber cuts . . . made a long time ago." She spent a few moments letting her fingers run through the callused tissue. Janphai had withdrawn into her thoughts. We were quiet for a while, after which she asked if I wanted to see a tree bridge from her childhood.

Janphai's "tree bridge" belongs to a Khasi tradition of growing a tree called Jri Bamon (*Ficus elastica*, rubber fig) near rivers, and weaving its aerial roots across waters to form a unique structure called the living root bridge. The more-than-two-hundred-year-old living root bridges draw on the tree's long life and expansive growth to hold fragile ecologies together. They have enabled mobilities of people, goods and ideas across naturally and politically fractured terrains. While Jri Bamon is crucial within the Indigenous ecologies of Meghalaya, the same tree was discarded as a "failed" rubber crop in the nineteenth-century colonial plantations of Assam in British India. The "rubber cuts" seen on the surfaces of these old trees today are remnants from the colonial period when the tree was categorized as a resource object for the emerging rubber markets. Through archival and ethnographic insights, my article argues that the Jri Bamon's materiality confounded capitalist notions of space, time, and productivity. I show there was a recalcitrance to its material growth pattern that was elusive to the colonial botanists but legible to the Indigenous plant experts who harnessed its growth to build literal and figurative bridges across human and nonhuman worlds.

At the onset it is also important to problematize the botanical name *Ficus elastica*, which was given by the nineteenth-century colonial botanists of British India, who noted the rubber secreting capacities of this tree. The Linnaeus school, to whom most colonial botanists belonged, reduced plants to a hierarchical, classificatory system to fit commercial logics, in the same way that the colonial census reduced conquered populations to numeral logics. I will therefore use the term *F. elastica* sparingly—mainly for referring to the source materials from the colonial era. The name I use for the tree is Jri Bamon (one among multiple names for the tree in Northeast India), which in Khasi language suggests a moody, willful tree that grows only where it wishes.[2]

Jri Bamon's recalcitrance foregrounds questions of plant materiality in historical discussions on colonial scientific histories, Indigenous ecologies, and ways of reimagining the world. Within histories of agroforestry and plantations in British India, scholars have pointed toward the failures of colonial forest conservators, botanists, and planters in cultivating particular commodity crops. For example, K. Sivaramakrishnan's brilliant

interlocutors. For the person I call Janphai here, I use a pseudonym due to the sensitive nature of the border routes through which we traveled. However, my other interlocutor, Morningstar Khongthaw (appearing later in the article), is a grassroots environmental activist who publicly campaigns for Indigenous voices; as such, I decided to represent his politics along with his name here.

2. For example, in parts of Assam and Sylhet, Bangladesh, the tree is also known as the "Borgos" or "Borgach," literally translating as the "Big Tree." In some parts of the Khasi hills the tree is known as "diengjri."

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study on the making of "modern forests" in colonial Bengal elucidates the inability of the British to naturally regenerate Sal, botanically *Shorea robusta*, an important timber tree of South Asia. In northern Bengal, the system of "taungya" from Burma was ultimately adopted by the British, which involved growing agricultural crops along with Sal to "re-obtain the grassy conditions favouring Sal regeneration."[3] More recently Arnab Dey's insightful study on the tea environments of colonial Assam has focused on the unpredictable workings of pests on the tea plant, botanically *Camellia sinensis* var. *assamica*, within the plantation setting. He argues that a historical focus on "epidemiology and pest ecology" in the tea story in Assam demonstrates that "Western scientific 'rationality'" was a nonstarter to begin with.[4] These studies underline that acclimatizing even historically successful commodity crops to conditions of mass production have been marked by episodes of failure within colonial scientific regimes. This chapter therefore studies crop failure as a process of recalcitrance whereby the material world of plants disturbed the capitalist world of science and order.

Plant materiality is an emerging conception within the field of posthumanism where plants are not simply vegetal objects for food, medicines, textiles, and decoration but also potent beings with capacities for bringing change in human endeavors.[5] While the significance of posthumanist literature is obvious in the era of climate change, there is a growing critique that the focus on the nonhuman world, including plants, animals, and microbes, is unwittingly sidetracking histories of colonialism, race, class, gender, and Indigeneity—thereby positing the "human" itself as a universal, homogenous category.[6] My article, in many ways, addresses this critique and demonstrates how writing decolonized histories of human-plant relations require combining of posthumanist perspectives with analytical frameworks of postcolonial thought and Indigenous studies.

In introducing the notion of a "recalcitrant" tree, my article attempts to reimagine the postcolonial theory of subaltern resistance against dominant structures of power.[7] Subalternity, within a posthumanist outlook, moves beyond the limits of resistance and involves a "relational" politics that includes not only grassroots peasantry and Indigenous peoples, whose commons were expropriated, but also an overlooked nonhuman world whose ecologies were reordered/individuated through colonial modes of governance. Individuation, here, refers to the production of both human and nonhuman lifeforms, as atomized, alienated members of a capitalist society, reduced to exchange value for marketing and domination.[8] Inclusion of nonhuman actors, however, is not superimposing them with anthropocentric intentionality; rather it is a "braiding-in" of a more-than-human, socio-ecological form of being, where plants also forged mysterious

3. Sivaramakrishan, *Modern Forests*, 229.

4. Dey, *Tea Environments and Plantation Culture*, 11.

5. For a discussion on plant materiality and posthumanism, see Attala, "Edibility Approach"; van der Veen, "Materiality of Plants"; Myers, "From the Anthropocene to the Planthroposcene"; Bennett, *Vibrant Matter*.

6. Willey, "World of Materialisms."

7. A foundational text for theorizing subaltern resistance is Guha, *Elementary Aspects of Peasant Insurgency*.

8. Simon-Ingram, "Alienation, Individuation, and Enlightenment."

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alliances or "councils," as Indigenous scientist Robin Wall Kimmerer describes it, in the face of socio-ecological disturbance.[9]

While the history of science scholarship, including works by Londa Schiebinger and Banu Subramanium, has variously focused on the colonial histories of botanical knowledge production, my article shows how these histories were complicated by recalcitrant plant-human communities whose repressed, rhizomatic lifeworlds grew against and along forced capitalist visions of individuation.[10] Drawing on Schiebinger's distinction between "epistemology," which questions "how we know," and "agnotology," which questions "why we do not know," I introduce recalcitrance as a planetary co-laboring between humans and plants, unknowable through botanical and capitalist practices emerging in a colonial context.[11] I explain recalcitrance in three ways:

First, I study recalcitrance as a subaltern plant relationality where *F. elastica*'s repression as a commodity crop led to unknowable alliances *under* the plantation territory of colonial Assam, British India. By re-signifying F. elastica's "failure" as a form of subaltern recalcitrance, I highlight why the field of commodity studies may benefit from including imperfect crops.[12] I argue that histories of failed crops provide an archival trail for registering struggles against the Plantationocene—a term proposed by Anna Tsing and Donna Haraway to signify how the extractive logics of the plantation dominate much of modern human-plant relations.[13] In the case of *F. elastica*, they illuminate a historiographically neglected archive of "more-than-human" actors where plantation environments were unmade both by recalcitrant crops and Indigenous smugglers.

Second, I study recalcitrance as a planetary co-laboring between humans and plants, articulated in the Khasi Indigenous practice of building living root bridges. Planetary, here, is not a flattening of *F. elastica*'s or Khasi Indigenous's subjectivities to the universal. Instead I think with Gayatri Spivak's notion of "planetarity," which is about recognizing that planet earth is "in the species of alterity, belonging to another system," yet we "inhabit it on loan."[14] Our relation with plants is also similar—as crops and commodities, plants may be subjected to capitalist notions of time, space, and form, but as "planetary" beings they never quite abandon their own worlds.[15] Drawing on Spivak's notion of planetarity and Schiebinger's politics of ignorance, I argue that recalcitrance is about acknowledging an "unknowable" alterity *situated* outside of the received

9. Kimmerer refers to the mysterious alliances of plant communities as the "council of pecans" that regulate their fruiting and flowering cycles according to socio-ecological factors. See Kimmerer, *Braiding Sweetgrass*

10. Schiebinger, *Plants and Empire*; Subramaniam, "Methodologies for the Pressed."

11. Proctor and Schiebinger, *Agnotology*.

12. A few examples of commodity studies focusing on capitalism's success story across the globe include Warman, *Corn and Capitalism*; Bealer and Weinberg, *World of Caffeine*; Zuckerman, *Potato*.

13. Mitman "Reflections on the Plantationocene."

14. Spivak, "Planetarity," in *Death of a Discipline*.

15. Michael Marder argues that when we encounter a plant, we often encounter two or more different worlds, and recognizing this axiom is already to let plants maintain their uniqueness. Marder, *Plant-Thinking*, 8–31.

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knowledge of the Cartesian dualisms of nature-culture, subject-object, human-nonhuman. My initial insight about colonial botanists not understanding *F. elastica*'s recalcitrance while the Indigenous plant experts did, is hence not about who *knew* more. Rather I theorize "recalcitrance" as the threshold of "unknowability" recognized by the Khasi bridge builders who engaged with the tree's situated otherness with a humility absent in the colonial scientific taxonomies.

Jri Bamon is named by the War Khasi bridge builders living on the southern hilly slopes of Meghalaya, bordering Bangladesh. The War are a subgroup of the Khasi communities, who have a distinctly marginalized relationship to the political economy than their counterparts living in the state capital Shillong. In a place where border drawings between India and East Pakistan in 1947, and later between India and Bangladesh in 1971, disrupted Indigenous socioeconomies, the living root bridges of the War Khasis offer pathways for everyday commerce and societies to move in the shadow of security regimes. The recent government nomination of the living root bridges for the UNESCO World Heritage Site in March 2022, and prevailing notions of "development" centered on resource extraction in Meghalaya, however, pushes the bridges into a new present of heritage and conservation. While the emerging UNESCO politics is part of my wider research, in this article I will situate the bridges within the tourism economy growing around them since 2012 and grassroots Indigenous critiques emerging against state-endorsed development and tourism in the region.

The article is divided into two sections across which Jri Bamon's recalcitrance glimmer. The first section focuses on Jri Bamon as a failed plantation crop in Assam and is based on a reading of administrative and botanical reports from the nineteenth- and early twentieth-century British colonial state in India. The second section is an ethnography that draws on participant observation and informal interviews with Indigenous activists and border residents in the Khasi Hills, Meghalaya, between 2018 and 2022. While referring to the living root bridges' position in border economic networks, I am aware of my role in publicizing these places. I have therefore deliberately fictionalized the exact locations/details of the lesser-known bridges, so they remain intractable in my writing even as I discuss their politics.

Recalcitrance in a Colonial Frontier

Rumors about a "rubber tree" growing in the forests of Assam reached British colonial circles in Calcutta in 1810. William Roxburgh (1751–1815), superintendent of the Calcutta Botanic Gardens, collected specimens of this tree and named it *F. elastica* or India-rubber tree. Though Roxburgh was affirmative about the economic potentials of *F. elastica*, the colonial government could not immediately assess the natural reserves of this resource, as most regions beyond Bengal were not under colonial rule. The first official surveys to map the Indigenous rubber tree were conducted by the colonial botanists only in the 1830s, after the annexation of Assam by the British government.

William Griffith (1810–45) conducted his tour to study *F. elastica* in 1837. He was a British botanist appointed by the commissioner of Assam to study the flora and fauna

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of the newly captured territories. His "Report on the Caoutchouc Tree of Assam" is significant because he provides an illustration of the growth pattern of the *F. elastica* in the forests.[16] Griffith writes that with an average height of one hundred feet, *F. elastica* deserves to be listed among the largest fig species of the world; yet it was the unique characteristic of its aerial roots and trunk that intrigued him the most. They represented what Griffith called the amalgamation of two contradictory natures.[17]

At one level he found the *F. elastica* self-destructive, as the roots and branches of the tree cohered around the trunk with such firmness that the death of the "tree was sure to occur sooner or later."[18] At another level *F. elastica* was also parasitical in nature, as its seedlings "as a rule" grew on the forks and crevices of other trees, where the young seedlings remained epiphytes for years until they threw out more aerial roots, which, on reaching the ground, metamorphosed into a vigorous tree, often strangling the host plant.

By being both self-destructive and parasitical, *F. elastica* confounded taxonomical categories. The colonial archive where the initial botanical surveys and analysis are registered is replete with these moments of uncertainty and bewilderment.[19] At first colonial botanists thought *F. elastica* looked similar to other fig trees like the Banyan, and it was hence categorized by Roxburgh as "Ficus." However, its roots were far more mobile than any other known fig species, such that its branches often overtopped the surrounding ecology and formed what Griffith called a dominating "network."[20] Through this network *F. elastica*, locally known as Jri Bamon, traveled deep into the forest, in such a way that it was practically impossible to understand the full extent of the tree's labyrinth.

Jri Bamon's mobile ecologies played an important role in shaping the tree's behavior within the controlled settings of the plantation. In the beginning, however, Griffith discouraged the establishment of rubber plantations. He suggested to colonial administrators that *F. elastica* is abundantly available in the northeastern tracts of British India, such that a plantation-based investment was not necessary because the existing forests of Assam alone could meet all market demands for rubber.[21] Backed by the imperial-capitalist rationality of "primitive accumulation," Griffith's suggestions made nature in

16. "Report on the Caoutchouc Tree of Assam made at the request of Captain Jenkins, Agent to the Governor General by William Griffith, Assistant Surgeon on Deputation with the Bhutan Mission," dated Gowhatty, 10 Dec. 1837, Foreign Department, Political Branch, 24 January 1838, No. 46., National Archives of India (hereafter NAI), New Delhi. Insights related to William Griffith's report and Charduar plantations have appeared in my previously published work. This section reproduces and builds on earlier insights by offering new archival sources and theoretical conceptions on the Charduar plantations. See Majumdar, "'Objects' of Appropriations."

17. "Report on the Caoutchouc Tree of Assam."

18. "Report on the Caoutchouc Tree of Assam."

19. Apart from Griffith, colonial forest officials like D. Brandis reported on the elusive growths of *F. elastica*. See "Report by D. Brandis containing suggestions regarding Forest administration in Assam," Home, Revenue and Agricultural Department, Forest Branch, October 1879, Nos. 41–43, NAI.

20. "Report on the Caoutchouc Tree of Assam."

21. "Report on the Caoutchouc Tree of Assam."

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the colony abundant, cheap, and claim-less for appropriation.[22] The transition of the forests as a resource base for extraction, however, emerged contentiously.

The colonial government resorted to a policy where existing forests with rubber trees were auctioned to private capitalists in the form of leases. For instance, in 1848, the Charduar forests of Assam (now called Chariduar, located in Sonitpur District, Assam) were divided into two parts and leased out to two European companies—Messrs Martin & Co. and Messrs Ritchie & Co.—for a period of fifteen years for rubber extraction.[23] Initially the system worked profitably, as the companies did not have to invest in heavy machinery and organized labor and simply depended on the local communities to collect rubber at a meager wage. By 1860s, however, a crisis emerged when the colonial administration started referring to the "savage rubber tappers."[24]

The "savage rubber tappers" referred to Indigenous communities like the Mishings and Hrussos, who had previously chosen to collect rubber for the government-sanctioned companies but were now colluding with the many independent European speculators in the region, who paid a much more competitive price for latex. The European speculators were the right-wielding "interlopers" of the white world, who, armed with an emerging language of free trade, often challenged the colonial governments in courts against monopolistic control over resources. The colonial administration, therefore, found turning against the "speculative tribes" an easier option.[25] Soon an ideological discourse emerged against these communities, where their complex identities and livelihoods were subsumed within the reductive category of the "rubber tapper" and then struck down by the racist discourse of "savagery" which also took up an "environmentalist" tone at this time. For instance, at exactly the moment when the Indigenous communities were trading with the speculators, a distinct discourse about the need to protect the trees from the "savagery" of the rubber tapper's axes, emerged in the colonial archives.

The "savage rubber tapper," inflicting deep gashes on the tree to extract rubber, was not an isolated colonial image. It came from a larger discourse of the environmentally reckless Native growing in other parts of colonial India too in the 1860s and 1870s.[26] Such discourses justified a series of military and legal actions that expropriated forests lands from Indigenous communities and transformed the region into a colonial "resource frontier"—or a zone of endless capital accumulation for the state.[27] The next decades, therefore, saw colonial borders pushing violently into hitherto sovereign regions bordering Assam—like that of the Hrussos, Nagas, and Adis—rich in resources like timber, lac,

22. For Karl Marx's concept of "primitive accumulation" and its significance for capitalist expropriation of Indigenous commons, see Linebaugh, *Stop, Thief*.

23. "Report by D. Brandis."

24. "Assam and Cachar India Rubber Trade," Foreign Dept., Revenue A, July 1872, No. 13–26, NAI.

25. For a history of "speculative tribes" in the northeastern frontiers of British India, see Kar, "Nomadic Capital and Speculative Tribes."

26. Rangarajan, *Fencing the Forest*.

27. Tsing, "Natural Resources and Capitalist Frontiers."

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rubber, and laws like the Indian Forest Acts of 1865 and 1878 created Reserved Forests that ousted Indigenous claims and "enclosed" forests for exclusive government control.[28]

Rubber plantations were started in the 1870s in this background of widespread expropriation of Indigenous relationships with forests. By this time, a global rubber boom had busted Griffith's earlier assumption that naturally growing rubber trees would suffice. Sidney Mintz, writing on the Caribbean sugar economy, argues that plantations are produced through a "synthesis of field and factory."[29] This synthesis entails a simplification of the lived complexities of human-plant relations to fit the logics of capitalism. It uproots commodity plants from their biodiverse temporal landscapes, and disengages humans from noncapitalist modes of relating to the natural world. Both humans and plants within the plantation are subjected to a monoculture ontology that endorses and propagates certain lives at the expense of others. The rubber plantation started as an imperial project at Charduar, Assam, in 1873, had the same operative intentionality.

Charduar forests, which was earlier leased to European companies was the chosen plantation site.[30] The site had wild rubber trees that became "objects" of scientific study and experiments. The goal was to transform the "wild" Jri Bamon into the "tameable" botanically knowable species *F. elastica*—whose body could be molded to extract rubber at a desired rate. Jri Bamon's pace of growth, however, was considered too slow for the capitalist mode of production, where plants needed to grow quickly to produce commodities in bulk. For example, the tea plant (*Camellia sinensis*)—a successful commodity crop in Assam—matured to produce tea leaves within a quick period of one to three years in the plantation setting. Jri Bamon, however, took many decades to reach the stage when it could produce rubber profitably. The plantation's commercial viability was therefore recurrently questioned within the official circles.[31]

Another concern that emerged among the botanists, just a few years after the plantation's start, was its elusive growth pattern. Gustav Mann (1836–1916), a German botanist, who had earlier worked for the Kew Gardens of London, was the keeper of the Charduar rubber plantations in the 1870s and 1880s. His reports on the Charduar plantations noted a series of failed experiments where the usual practices of growing the plant from seeds and cuttings did not work. He then decided to replicate the natural growth pattern of the Jri Bamon as an epiphyte by putting its young seedlings in the barks of other trees. At first the seedlings seemed to grow well in the air. However, in 1875, just a few months after their cultivation, all the epiphytic seedlings died without a discernible cause, bringing Charduar plantations to a standstill. At that time, a local community, the Mishings, bailed the plantation out by selling four hundred seedlings

28. For a discussion on the emergence of forestry laws in colonial India, see Rangarajan, *Fencing the Forests*; Sivaramakrishnan, *Modern Forests*.

29. Mintz, *Sweetness and Power*.

30. Gustav Mann, Conservator of Forests, Assam, "Rubber Plantations in Assam," Home Department, Forests Branch, May 1884, Nos. 1–5, NAI.

31. Mann, "Rubber Plantations in Assam."

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to the botanists. The plantation keepers' knowledge regarding Jri Bamon remained scant in the coming years too.

Dietrich Brandis (1824–1907), the inspector general of forests, visited Charduar in 1879 and remarked, "We know nothing" about why two trees (*F. elastica*) of the same size and at no great distance from each other yield such different quantities of rubber.[32] Incomprehensibility, hence, remained a persistent theme in the plantation reports on Jri Bamon. The many failed experiments of the initial decades clarified that it was futile to recreate the conditions of natural growth for the plant. Mann noted in 1884 that the attempt to grow *F. elastica* "in the forks of other trees . . . has almost been given up."[33] He instead remarked that "trees planted on small mounds of earth of 3 to 4 feet in height" grew much better. Indeed, most of the rubber trees in Charduar plantation were eventually grown in this manner.

To plant the young seedlings, straight lines of about twenty feet breadth were cleared through the Charduar forests. The lines with the planted seedlings were set one hundred feet apart, and this distance between the lines was allowed to retain its forest cover. The rubber plantations in Assam were hence started as a form of plantations existing within the forest itself. The labor employed here was also different from that of other plantations in the region. Tea plantations of Assam, for example, involved the creation of walled settlements and recruitment of indentured laborers from mainland India in the nineteenth century because the local population was considered too hostile by the private planters.[34] Rubber plantations, however, operated as a form of state-led botanical experiment in the nineteenth century that had not yet opened to commercial trading and privatization. Instead of having a migrant labor force, Charduar plantations drew on the existing pool of Indigenous forest workers, despite concerns about their participation in rubber smuggling. The decision to employ labor locally came in the wake of state pressures of keeping infrastructural costs related to housing low while also drawing on a labor force that knew the forests well. Charduar's peculiar existence as a forest cum plantation, however, made it a space of subversive economy and ecology. The operational years of the plantation between 1873 and 1920 witnessed several cases of "theft" and "smuggling," implying that the plantation regime continued to be challenged by its subaltern actors.[35] In the late nineteenth century the plantation also became the site of a strange ecological phenomenon that shaped my understanding of Jri Bamon as a recalcitrant tree.

In 1893 Charduar plantation, after decades of botanical experiments, was being readied for the first systematized rubber tapping exercise. A few months before, however, there was an attempt to "thin" some lines of the plantation by "killing out" the

32. "Report by D. Brandis."

33. Mann, "Rubber Plantations in Assam."

34. Behal, *One Hundred Years of Servitude*.

35. "Rubber Plantations at Charduar in Assam," *Proceedings of the Inspector General of Forests*, nos. 1 and 2, February 1896, NAI.

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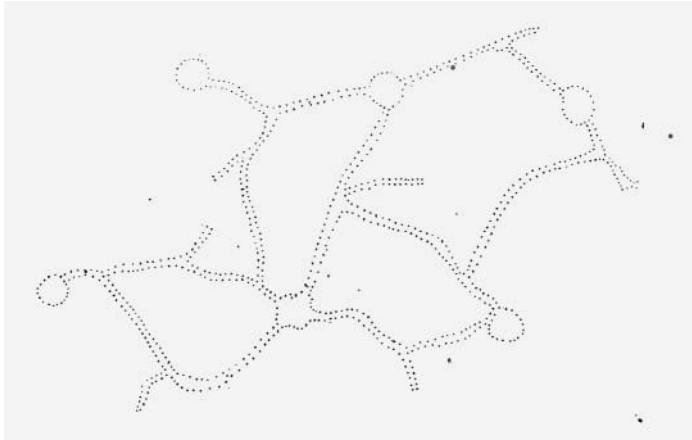

Figure 1. Sketch of the joint root system of the *F. elastica* trees (trees represented as circles, twenty-five feet apart) at Charduar, drawn by J. Mckee, officiating conservator of forests, Assam, 1893. "Proceedings of the Inspector General of Forests for February 1896, Rubber Plantations at Charduar in Assam," Proceedings Nos. 1 and 2, NAI.

surplus weaker rubber trees by tapping them heavily.[36] But to the astonishment of the plantation keepers, the trees refused to die, even after being hacked. Young shoots would constantly spring up. On examining by botanists, something incredible was found. E. M. Coventry, an imperial forest official, noted that all the underground roots of the neighboring *F. elastica* trees had "anastamosed," or joined together, so "that the plantation (extending over an area of 1043 acres) had practically become one tree."[37] On April 28, 1893, J. Mckee, officiating conservator of forests, Assam, in his correspondence with the secretary to the chief commissioner of Assam, produced a sketch (fig. 1) of how the different trees of the plantation had become one elaborate "root system."[38] Thereafter the exercise of thinning the plantation was stopped.

I argue that Mckee's sketch is an archival evidence of Jri Bamon's subversive network within Charduar. Planted in lines and trimmed at the will of the forest officials, the labyrinth was now a covert underground society, gaining strength hidden from the human gaze. There was therefore a recalcitrant subalternity to the Jri Bamon that was growing as well as dying in the plantation setting, a lively materiality that cuts across the perception that plant bodies could be molded/separated at will by the techniques of botany and science. "Recalcitrance" in this context is not simply defiance to scientific expectation but a deeper relational ontology emergent through the tree's nonrecognition of individuation within the plantation's forced environment. When hundreds of Jri Bamon trees were cultivated in close proximity with each other, there emerged an extraordinary condition of subterranean growth: the rhizomatic underground roots that traveled and communicated in the ground in search of water and minerals found themselves tangled and convoluted in the roots of many others like them.[39] These

36. "Rubber Plantations at Charduar in Assam," NAI.

37. Coventry, *Ficus elastica*.

38. "Rubber Plantations at Charduar in Assam."

39. An increasing number of scientists today are focusing on the concept of the rhizosphere, as broadly referring to the hormones and microbiomes secreted by plant roots for communication. See Mommer et al., "Advancing in the Rhizospehere."

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tangled bodies of a forced monoculture protected its weaklings by joining together as recalcitrant members of a plant-based subalternity—unknowable to the Cartesian botanical mind, who saw these trees individuated and divided on the ground.

Here I think along with ecologist Suzanne Simard who has written about the presence of "mother trees" in the forest.[40] These are trees with greater root systems that foster a diversity of mycorrhizal fungi through which plants grow in the forest, not in competition, but in collaboration. Simard argues that the earlier ecological view of plants constantly competing with each other for nutrients is, in many ways, a projection of capitalist worldviews on plant life. In reality plants often grow complex ecological communities that exceed/evade the capitalist logics of simplification.

Jri Bamon's expansive labyrinth similarly grew in the literal and metaphysical gaps of the plantation order and confounded botanists who eventually discarded it as a "failed" crop. The observations of the botanists, many of whom were intrigued by the ecological phenomenon at Charduar, did not mesh with state capitalist goals—in these goals Jri Bamon needed to grow fast, give latex, and die fast to meet the capital turnover. The rubber plantation industry of the British empire ultimately moved on to other rubber tree species—like the Brazilian tree, *Hevea brasilinensis*, that had proven successful in the plantations of Southeast Asia.

This is an aspect that has contributed to *F. elastica*'s obscure position within the rubber historiography, compared to other species like the *Hevea brasiliensis*, which has been studied widely in the works of scholars like Joe Jackson, Greg Grandin, Michael Dove, and Lucile Brockway.[41] The historiographical trajectory laid down by these scholars has duly followed the story of the plant whose success in the rubber plantation setting was phenomenal in the late nineteenth and early twentieth centuries.

Indeed, after the dissemination of Hevea seedlings from Brazil into the British colonies of Southeast Asia, this tree became the dominant source of natural rubber for the industrial world. Most scholars mentioned above have either concentrated on this dissemination or used this process as the context for presenting wider arguments about botanical networks, plantation economies, and transnational histories of empire. For instance, Brockway uses exchanges of *Hevea* seedlings across the botanic gardens of London, Calcutta, and Singapore to trace how "economic botany" contributed to the prosperity of empire; similarly Dove presents the Hevea plantations in Borneo as the setting for comprehending "dual household economies" and "statecraft." The question of *Hevea*, its material attributes and ecologies, however, remain marginalized within these wider processes of the political economy—except perhaps in Grandin's work.He shows how *Hevea* was an "ecological complex" with an array of parasitical microorganisms living on it, and these organisms eventually contributed to the failure of Henry Ford's rubber

40. Simard, *Finding the Mother Tree*.

41. Jackson, *Thief at the End of the World*; Grandin, *Fordlandia*; Dove, *Banana Tree at the Gate*; Brockway, *Science and Colonial Expansion*.

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plantations in the Amazon.[42] As *F. elastica*—the failed rubber crop—remains obscure within the histories of commodity studies, the multiple stories about the Jri Bamon emerge in my article to unravel the plant's significance as a historical subject.

Growing Long-Term Bridges

In the hilly forests of Rangthylliang, Meghalaya, a young man is busy entangling the aerial roots of a hundred-year-old Jri Bamon to bamboos placed horizontally over a narrow stretch of the river. He holds a pliable young root in his fingers and weaves it into the crevices of the older roots, tracing the paths that the roots have already chosen for themselves over a century. The roots are then marinated with reddish-brown alluvial soil, sticky and wet from the early morning rainfall. The Jingkieng Jri—translated in English as the "living root bridge"—may yet survive for another hundred years.

The man entwining the aerial roots of the Jri Bamon into a bridge is Morningstar Khongthaw, a resident of Rangthylliang in the East Khasi Hills District of Meghalaya. The village of Rangthylliang, located a few kilometers away from the Bangladesh border, has about twenty living root bridges in its proximity. The "living root bridges" are built by first planting the water-loving Jri Bamon near riverbanks. As Jri Bamon's aerial and underground roots matures over the years, the soil and plant ecologies are strengthened against erosion and landslides. The aerial roots of the tree, when still pliable, are gently woven across the river through a process known in Khasi as *iaki-thied*, or "guiding the roots." Once guided, the bridges exist as animated structures whose roots renew and regenerate themselves for several generations.

Morningstar and some of his friends from the village are currently leading an Indigenous conservation society called the Living Bridge Foundation, which is campaigning to preserve, protect, and multiply the living root bridges (fig. 2). The campaign first emerged in 2017 as a response to Meghalaya government's tourism industry, which has transformed two spectacularly large living root bridges into tourist sites since 2012. Morningstar's campaign, which seeks to mobilize Indigenous channels of building and using root bridges, voices a critique of the government-led tourism and development in the region. However, before delving into this critique, it is significant to understand the skewed histories of "development" in the Khasi Hills of Meghalaya.

In independent India, state-sponsored development works like building roads and bridges have not reached many small villages and hamlets in the Khasi Hills on the pretext that these areas are too "interior" and "hilly." For example, the official website of the Meghalaya Public Works Department notes that out of 5,782 villages in Meghalaya, more than 2,300 villages continue to remain unconnected in 2017 due to lack of roads and bridges.[43] The lack of connectivity in Meghalaya is connected to the lopsided politics of roadbuilding in the region since the nineteenth century.

42. Grandin, *Fordlandia*.

43. "About the Department," Public Works Department, Government of Meghalaya, Official Web Portal, https://meghalaya.gov.in/dept/38 (accessed December 23, 2022).

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Figure 2. Campaign for protection and multiplication of the living root bridges. Morningstar Khongthaw [in the middle] and his friends in the backdrop of a two-hundred-to-three-hundred-year-old Jri Bamon in Meghalaya, September 2018. Photograph by Morningstar Khongthaw.

Scholars working on Indigenous histories in Northeast India, such as Lipokmar Dzuvichu, have argued how "road building provided a crucial site upon which plots of empire building" unfolded. Roads provided "access routes" for the British colonial state to "penetrate, control and incorporate" peripheral areas into the imperial domain; they allowed both military surveillance, taxation and resource extraction from the region.[44] In the late 1820s, for instance, after the First Anglo-Burmese War (1824–26), the British colonial state wanted to establish a shortcut military/trade route between their newly acquired territories in Assam and Sylhet (now in present-day Bangladesh) via the Khasi Hills. Initially, the Syiem (chief) of the Nongkhlaw kingdom of the Khasi Hills, U. Tirot Singh saw roads (a horse-cart trail) as providing economic opportunities for his people.[45] However, upon learning British plans of imposing tax on his region through roadbuilding, Tirot Singh along with several other *syiems* opposed it, leading to the Anglo-Khasi War in 1829. The history of roadbuilding therefore exposes how these projects were connected with state subjugation. Important to remember here is that the Khasi Hills was never formally annexed by the British colonial state, even when places like Shillong became the capital of Assam Province after separating from Bengal in 1874.

In independent India, roadbuilding in the Khasi, Jaintia, and Garo Hills—three major geographical regions of present-day Meghalaya—is interwoven with resource extraction, the region being rich in minerals like limestone, coal, and uranium. Mining corporations in Meghalaya have frequently used development activity like roadbuilding in

44. Dzuvichu, "Roads and the Raj," 473.

45. Nongkhlaw is known as an "illustrious Khasi kingdom" from the early nineteenth century, noted for providing strong Indigenous resistance to British colonial rule through leaders like U. Tirot Singh. See Bareh, *U. Tirot Singh*.

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interior villages for gaining permission for resource extraction from the state. For example, the Lafarge Umiam Private Limited, a subsidiary of the French multinational company, engaged in relentless limestone extraction in Meghalaya since its establishment in 1999 on the grounds that it is building roads and public facilities in the state's otherwise backward regions.[46] Similarly in the late 2000s, the Uranium Corporation of India, a public sector undertaking of the Indian Government, offered to fund road projects in the Khasi Hills that would benefit local connectivity as well as provide access to Mawthabah (uranium-mining site) in the region.[47] The anti-uranium-mining campaign in Meghalaya, however, have provided resistance against the mining of radioactive minerals, despite pressures from "pro-road" groups.[48]

Meghalaya's extraction-centric development is not easily recognized in popular culture because regions like Meghalaya, as Bengt Karlsson argues, are caught up in two schizophrenic realities.[49] The first concerns the pristine hillocks, waterfalls, lakes, and gorges of the Khasi and Jaintia Hills, represented in tourism and national media as the "unexplored" aspects of nature in Meghalaya; the second concerns the "denuded" landscapes scarring the region, where activities like timber logging, coal, and limestone mining have taken a toll on soil, forest cover, and water resources.

Between these realities there exists the question of who holds the responsibility of conserving Meghalaya's natural beauty and who holds accountability for depleting it. The plethora of bans on community-led resource extraction—like the timber ban imposed by the Supreme Court in the 1990s and the ban on "rat hole" coal mining in 2014 by the National Green Tribunal (lifted in 2019)—do not address thorny questions about the state's own investments in extraction and the complex realities of tribal societies in Meghalaya. On one hand they overlook the existence of a powerful group of local coal miners whose access to land, labor, and ecology grows coercively through political patronage from the government, making bans unenforceable.[50] On the other hand, the bans evade specific accountability by invoking the old colonial method of generally shifting the blame on the "reckless Native" even as the government doles out forest lands to multinational companies like Lafarge, whose cement factories solely depend on the limestone quarries of Meghalaya.

Political independence from British colonial rule in 1947, and creation of Meghalaya in 1972 as an autonomous hill state (separate from Assam) within India, therefore,

46. *Shillong Times*, "HC Dismisses Petition."

47. Karlsson, "Nuclear Lives."

48. In 2017, many NGOs "reiterated" their opposition to plans of uranium mining in Meghalaya on account of health hazards. *Shillong Today*, "Anti-uranium Groups Reiterate Their Opposition."

49. Karlsson, *Unruly Hills*.

50. Insight based on interviews conducted in the Jaintia Hills District of Meghalaya in 2018 and 2021 about the growing powers of the "coal mafia" in the region. Recently, local newspapers have also written on the political patronage that the miners receive from the state. See *Shillong Times*, "HC Sniffs State Government Role."

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did not translate into economic and ecological freedom for many tribal communities. Extractive operations and legacies of subjugating mentalities survived even in postcolonial times, long after the whites left. The nation-state framework embraced by India created constitutional categories like "schedule tribes" to recognize the historical marginalization of "tribal" communities from land and resources. Yet in practice these categories, despite their obvious significance, reify and romanticize tribal living, failing to encapsulate the heterogeneity of Indigenous experience shaped by differences and hierarchies in immediate political and economic situations.

For instance: the word "Khasi" is a generic term defining the people dwelling in the eastern half of the state of Meghalaya that are categorized as "schedule tribe."[51] In reality, however, Khasi includes many groups and subgroups of people who have historically dwelled the contiguous Khasi and Jaintia Hills, with a notable proportion of the population today being in present-day Bangladesh.[52] The living root bridges are built by the specific communities who identify themselves as War, living on the southern slopes that border Meghalaya's territories with Bangladesh. Many of the villages here do not have roads built by the government. Morningstar's campaign about the living root bridges is significant because it raises a critique about the notion of development from these very edges of political and infrastructural marginality. As a War Khasi resident of a southern border village, he argues that tourism plans developed by New Delhi and Shillong lack a basic understanding of the living root bridge's ecology in the region. During one of our conversations he remarked, "Tourism is worst in Meghalaya. . . . The government doesn't understand that the cement from the concrete steps and railings built to make the sites reachable to people (tourists) is actually causing the living roots to dry up. They see the two living root bridges at Nowhet and Nongriat villages as . . . tourist spots."[53]

Morningstar's words underline how government-led tourism appropriates these bridges without a concern for their ecological and social relevance. Apart from the environmental harm inflicted by construction works, tourism also "fixes" the bridges at Nowhet and Nongriat (fig. 3) as singular, exhibitionist sites, affecting the lives of communities who use these bridges for their daily lives. The announcement of UNESCO nomination has threatened to bring all the other bridges, which form a network of human and plant mobility in the borderland, under state surveillance.

In the winter of 2018, while repairing a lesser-known living root bridge, Morningstar explained to me that Jri Bamon is a "moody tree" that extends its aerial roots over hilltops, in deep valleys, and at the edges of rivers—all of which are places of its own

51. "Schedule tribe" is a constitutional category in India that recognizes the historical marginalization of the tribal communities in India, making them eligible for affirmative action like reservation in government jobs, educational institutions and territorial protection.

52. For a history of Khasi culture and society, see Nongbri, "Revisiting the Oral."

53. Interview conducted with Morningstar Khongthaw in the East Khasi Hills District of Meghalaya on December 23, 2018.

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Figure 3. The double-decker living root bridge at Nongriat, East Khasi Hills, June 2018. Photograph by the author.

choosing. These are also places that do not have surface roads or steel bridges. As an infrastructure, the living root bridges address the ecological need of the "moody" Jri Bamon to extend its aerial roots and the social/infrastructural need of the War Khasi communities to move across steep gorges. Jri Bamon, here, is not a subservient entity because the bridge itself becomes a prop for the tree to continue its expansive growth across fractured terrains. The War Khasi bridge builders have thus respected and facilitated an ecology of plant mobility to enable their own mobile lives across terrains divided by natural and political borders. In doing so, they create a planetary infrastructure where the heterogeneous temporalities of humans and plants mingle to create a long-term interspecies collaboration. Century-old living root bridges, for instance, exist because the War Khasi bridge builders *relate* to the Jri Bamon as a "co-builder" whose expansive roots would continue the project of bridge making beyond human lifetimes, into the future.

The living root bridges are therefore fundamentally different from the stifling technologies of colonialism and capitalism for whom Jri Bamon's expansive growth was historically slow and problematic. What I call "recalcitrance" are the planetary *co-laborings* between the War Khasi and the Jri Bamon that work their lively futures together amid the vulnerability of being in the present. The alterity of this collaborative human-plant relation is also important because it articulates the marginalized politics of Indigenous geographies, which in turn reiterates Kim TallBear's arguments about "interspecies" thinking needing "Indigenous standpoints."[54] In the border villages of the Khasi Hills, living root bridges open pathway for alternative ways of being in surveillance-heavy political borderlands. They indicate how Indigenous communities draw on their relations with plants to shape their own ecologies despite the disruptions of state-formation and border regimes.

54. TallBear, "Why Interspecies Thinking Needs Indigenous Standpoints."

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Now as tourism and heritage projects grow around the living root bridges, activists like Morningstar use the moment to powerfully articulate the shared politics of human-plant well-being in the Khasi Hills. Through campaign phrases like "living root communities" and grassroots programs like the "Hands on Roots Initiative" organized in border villages in 2021, the Living Bridge Foundation is mobilizing the connected labors of humans and plants in bridge conservation. The "Hands on Roots" program involved gathering of experts from village to village to inspect, repair and grow living root bridges. It also involved discussing the ecological and economic cost-benefit rubric of tourism, so stakeholders are better positioned to make business decisions like opening guesthouses, food stalls, and craft stalls for the tourists. The presence of the Meghalaya government's current minister of food, civil supplies, and consumer affairs in one of the programs of the 2021 "Hands on Roots Initiative" indicates possibilities of an autonomous conservation discourse gaining political relevance in the state. However, it also raises concerns about the state's ability to dictate the campaign's future, in a formative stage.

While activists like Morningstar are campaigning for meaningful representation of the living root bridges in terms of their Indigenous significance, there are also others like my interlocutor Janphai who do not mind the invisibility (as long as it lasts)—an aspect I realized when Janphai decided to show me her childhood bridge.

I have known Janphai for more than four years now. We first met when she saw me at a tourist site at Nowhet, scribbling notes about the popular living root bridge there. Janphai introduced herself as a political science student while I introduced myself as a student of history. We hit it off—after she asked if all history students took notes instead of enjoying the view. As a college student in Shillong and as a resident of a border village, Janphai often moonlighted between the mainstream and marginal spaces of the state. Her life histories in the Khasi borderlands made me think about an autonomy that marginalized Indigenous ontologies could come to wield by virtue of being obscured and unrecognized in dominant discourses. The point draws on Elizabeth Povinelli's notion about the "cunning of recognition."[55] Here the trade-off for recognizing the brilliant Indigenous design of the living root bridges is to trap those very bridges into preconceived standards of multiculturalism, where these "planetary" infrastructures are made identifiable to the "modern infrastructural ideal" through steps, railings, and signboards that bring in tourists.[56]

The wavy patterns on the body of the Jri Bamon reminded Janphai of a place. Hence we climbed up and down a few hills. After several hours of laborious trek, we reached an intersection of two streams over which was a living root bridge. The bridge was several centuries old, like many others in the region. Its older roots had wavy patterns borne out of rubber extraction done perhaps a century ago. However, rubber extraction, as Janphai told me, was not done anymore except to sometimes use the latex as

55. Povinelli, *Cunning of Recognition*.

56. Graham and Marvin, "Splintering Urbanism," 423–25.

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glue or adhesive. In present times, the expanding aerial roots of the Jri Bamon have a deeply political purpose—that of undermining Indigenous marginality.

Sitting at the edge of the stream Janphai shared moments from her childhood. As a ten-year-old she lived with her grandmother not very far from this bridge. Janphai and her siblings often made swings out of the aerial roots of the Jri Bamon. She and her siblings spent hours swinging on its roots, eating wild berries with chili paste under the tree. Occasionally, she also accompanied her grandmother through the bridge, which was a "shortcut" and a "private" route to border markets. Pointing down the hilly route that eventually led to a border market, Janphai told me, "That is our own path to the border, no visitors here."

The border markets are located amid the many "Line Zero" villages, categorized such by the Indian government because they are located right at the foothills where the territories of India end and the floodplains of Bangladesh begin. While the border itself is unfenced, many of the areas surrounding Line Zero villages are strongly policed by India's Border Security Forces (BSF). The living root bridges, like the one showed by Janphai, provide "off-road," "interior" modes of travel to people living in the shadows of army cantonments. The interiority of these routes channelize mobilities to outward-looking markets at the border, crucial to many War Khasi villages that remain cut off from national supply chains due to lack of roads. The informal weekly markets, for instance, enable Khasi communities to sell their farm produce like bay leaves, pineapples, and betel nuts, and to buy things like electronics, fishes, and puffed rice that come from Sylhet, Bangladesh.

The living root bridges are hence pathways to a trans-species, transnational world of collaboration. Located outside the scope of nation-state and tourism frameworks, this world births an interiority of its own, where the marginalized Indigeneity of the border Khasi communities articulates itself through the sovereignties of its human-plant relationships. Through these human-plant relations, the border Khasis create grounds for new humanisms that moves beyond the exclusivist frameworks of nation states and forge connections with those conventionally considered "foreign" and "non-human." While activists like Morningstar campaign hard to create a space for these subversive human-plant relations within state endeavors, there is also a concern if the growing cacophony of armies and tourism would eventually muffle Indigenous voices. As the two living root bridges of the Khasi Hills dazzle under the spotlight of tourism, my interlocutor Janphai finds relief in the shadows of invisible spaces—where the sanctities of her childhood memories are connected to the secretness of her border routes.

Conclusion

Writing a conclusion for Jri Bamon's lifeworlds is not only difficult but also counterintuitive. As a failed crop and a living root bridge, Jri Bamon harbors what Annemarie Mol calls the "multiplicity of reality in practice."[57] Its presence in human history is a

57. Annemarie Mol's notion of multiple ontological reality overcomes the opposition of the "one-many" dyad because she argues in her study that the "body" is more than one but also less than many. It is related to

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Deleuzian rhizomatic text—it is nonlinear, lateral, decentered with multiple entry points, just like its labyrinths in the forest.[58] Contrary to viewpoints that consider plants sedentary, Jri Bamon's recalcitrance lies in its ability to move worlds that are both planetary and situated, nonhuman and human, unknowable and knowable. There is a transhistoricity to its mobilities that informs human history but nevertheless remains beyond it. The living root bridge existed in the forests of the Khasi Hills during the British colonial period, when plantation techniques were tried on the tree; today when the tree has no role in the plantation setting and colonial rule has long ended, the living root bridge still exists. The bridges, coproduced by the War Khasi and Jri Bamon, channel both human and nonhuman experiences of time. They indicate that the human-plant relation is an ancient one—its histories are far too long, diverse, and complex to be stunted by the capitalist modes of relating to the natural world. Positioning interspecies relations as a subject of historical inquiry involves an understanding of the networks, relationships, ecologies lost—as the world increasingly becomes a bordered, bifurcated place oriented toward violent productivism. In Meghalaya, as coal and limestone quarries take over hills, national armies seal border spaces, and tourism projects appropriate the living root bridges, the histories of the Jri Bamon are brought to the fore once again by Indigenous activists and organizations. These histories, articulated in Indigenous modes of resistance, ultimately lay the groundwork for decolonizing the future of human-plant relations.

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Gilles Deleuze's concept of multiplicity, where he argues that instead of the "enormous opposition" between the "one-many" there is multiplicity, or difference—that is, things, processes that are related but also different, independent—as the crop, potted plant, and the living root bridge in Jri Bamon's history. See, Mol, *Body Multiple*; Deleuze, *Difference and Repetition*.

58. The nonlinear, nonhierarchical, nonstratified, and decentered dimensions of the rhizome have been used as a conceptual metaphor by postmodern philosophers Gilles Deleuze and Félix Guattari to describe a form of thinking and politics that is distinct from the arborescence (hierarchical tree-like, evolutionary growth) of Western/Enlightenment thought. See Deleuze and Guattari, *Thousand Plateaus*.

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