

Amazonia as pharmacopia

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Abstract

This article analyzes the commonly deployed imaginary of the Amazon as a pharmacopia – a cornucopia of ethnomedicinal cures unheard of in the West. Using several fictional narratives (two novels and a film) as a starting point, I explore how the Western imaginary of the Amazon as a pharmacopia is a discursive variation on the environmental imaginary of the Amazon as the “lungs of world” – a vulnerable entity of high import and in need of protection. Both the “lungs of the world” and the “pharmacopia” imaginaries construct the Amazon as a global commons. But I argue that while the “lungs of the world” narrative is conceptually anti-extractivist, as within it the Amazon’s value is attributed to its containment and intactness, which needs to be salvaged, the “pharmacopia” narrative legitimates certain contemporary forms of extraction in the Amazon, such as bioprospecting. Finally, I analyze the dislocations of indigenous ethnobotanical knowledge practices within these representational geographies, and connect my analysis to the experiences of an indigenous Kichwa community in the Ecuadorian Amazon.

Keywords

Amazon, bioprospecting, indigenous knowledge, fantasy, pharmaceutical research

Introduction

Over the centuries, the Amazon region has been fictionalized by Western and Latin American authors alike. These fictions and the fantasies contained therein have dynamically informed, and, to some degree shaped various industries and spaces of cultural production in the Amazon, including Amazonian ecotourism, Amazonian-based indigenous activist movements, and so on. All of those are spaces where the terms of local and global claims to the Amazon are articulated and negotiated through the frameworks of control, access, entitlement, and compensation.

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There is a well-established genre of fictional works by Western authors, wherein the Amazon is a place of “otherness” and a locus of fears and desires of alterity. These narratives include Victorian offerings by writers who had never visited the Amazon but fantasized it into sensationalist existence on the page, like Jules Verne’s *The Giant Raft: Eight Hundred Leagues on the Amazon* and Arthur Conan Doyle’s *The Lost World*; 20th century works of fiction based on the narratives of European explorers, like Evelyn Waugh’s *Handful of Dust* and A.S. Byatt’s *Morpho Eugenia*; and contemporary thrillers like James Rollin’s *Amazonia*. These books are filled both with fears of monsters and the thrill of discovery and engagement with the fantastical Amazonian nature, reflecting its cultural status as both a “green hell” (Nugent, 2007) and a geographical as well as an existential frontier (Brightman et al., 2010). Other types of frontier imaginaries are commonly projected onto the Amazon as well, in global and national imaginaries – the region is frequently envisioned as a national resource frontier (de Theije and Heemskerk, 2009) and a “global resource frontier” (Walker et al., 2009).

This article takes as its starting point several fictional narratives rich in analytical possibilities – two American fiction novels and a Hollywood film – that have based their pivotal plot twists around imagined, fictional magical-pharmaceutical substances accessed in the depths of the Amazon rainforest. This fictional Amazon is abundant with cures unheard of in the West – hence the pharmacopia¹ of the title. The researcher in the film *Medicine Man* discovers the cure for cancer in the depths of Brazilian Amazon, the only place in the world (within the universe of that film) where the ant species that enable the cure exist. In Ann Patchett’s best-selling *State of Wonder*, which the New York Times book review called her “Amazon wonder drug novel,” a pharmaceutical researcher uncovers the secret of an indigenous tribe, whose women, due to chewing the bark of a tree unique to the region, are able to continue bearing children until old age. The protagonist of Benjamin Kunkel’s *Indecision* (2005) undergoes a transformative experience when he encounters a magical fruit that has the power to render visible the entirety of a commodity chain for any object touched after ingesting the fruit.

Using these three narratives as starting points, in this article I explore how the Western imaginary of the Amazon as a pharmacopia is a discursive variation on the environmentalist imaginary of the Amazon as the “lungs of world” – a vulnerable entity of high import, and in need of protection. Both the lungs of the world and the pharmacopia imaginaries construct the Amazon as a globalized and, consequently, de-nationalized space, which serves as the repository of symbolic and material substances that are “unique” and “authentic” and crucially important for the world at large. But I argue that while the lungs of the world narrative is conceptually anti-extractivist, as within it the Amazon’s value is attributed to its containment and intactness, which needs to be salvaged, the pharmacopia narrative constructs the Amazon as open for certain legitimated, contemporary forms of extraction such as bioprospecting, that do not conflict with the lungs of the world narrative in the way that oil and mineral extraction and logging do. Finally, I analyze the dislocations of indigenous ethnobotanical knowledge

practices within these representational geographies, and connect my analysis to the experiences of an indigenous Kichwa community in the Ecuadorian Amazon.

The lungs of the world, or the environmentalist narrative of the Amazon that I invoke, emerges out of the Amazon's symbolic and cultural existence as a spatial production. Here I borrow Paige West's term (2006) – a spatial production is a hybrid synthesis of multiple imaginaries from around the world, projected onto the rainforest. In the environmentalist variation of this imaginary, the fantasy Amazon is disappearing, fragile, threatened by resource extraction, and populated by indigenous communities that are represented “with the same vulnerable and big-eyed endearment with which conservationists portray endangered animals” (Tsing, 2003: 30). Thus, the Amazon and its denizens, in this discourse, need rescue and patronage through both top-down global governance and global grassroots mobilizations. In this environmentalist imaginary, despite not being portrayed as fully competent social actors with complex and non-homogenous agencies, Amazonian indigenous communities, cast as ecologically noble savages (Redford, 1991) are, nevertheless, bestowed with the limited legitimacy when it comes to ethnoecologies – forms of knowledge and expertise that are conditionally recognized as IEK or TEK (indigenous ecological knowledge, or traditional ecological knowledge). In the symbolic universe of the imagined Amazon, this category of traditional ecological knowledge is an epistemic and discursive space where the environmentalist and the pharmacopic imaginaries intersect. In indigenous rights discourses, “traditional ecological knowledge” technically pertains both to the knowledge of traditional environmental management² and to the knowledge of the curative properties of flora and fauna, but in popular culture these types of knowledge are commonly linked to the primitivist conception of indigenous peoples as intuitive stewards of their natural habitat and natural conservationists organically enmeshed with their ecosystems (Barnard, 1999; Conklin and Graham, 1995). Furthermore, indigenous natives are commonly imagined as wise bearers of ancient cultures, who are either too “primitive” or too “pure” for capitalist concepts like intellectual property, and would like nothing more than to share their organic wisdom with the misled, industrialized West. For that reason, bioprospecting and biopiracy – practices where indigenous knowledge of nature is used by others for profit and/or without permission from or compensation to the indigenous peoples (for instance, drawing on indigenous knowledge of medical plants then patenting them by medical companies, depriving the communities of recognition or profit in the process), although attended to in institutional debates about intellectual property rights and benefit sharing (Brush, 1999; Moran et al., 2001; Nagan et al., 2010) – do not enjoy the same sort of popular epistemic spotlight and mobilizations of global public protests as oil extraction or logging.

Although I envision this article as being in dialogue with case study-oriented research on bioprospecting and biopiracy regimes on indigenous territories (Greene, 2004; Hayden, 2003; Sillitoe, 2006), and I do draw on material from my on fieldwork in the Amazon, is not my intention to offer another case study. Rather, working in the tradition of scholars who have penned “cultural

biographies” of the Amazon (such as Nugent, 2007; Raffles, 2002; Slater, 2002), in this article I endeavor to explore how the pervasive cultural fantasies of the Amazon as a pharmacopia function as narratives that legitimize a form of “acceptable” use and extraction of Amazonian resources in a cultural milieu where the Amazon is publicly constructed and imagined as an inalienable space to be protected and conserved. In this exploration I am particularly inspired by the aforementioned Candace Slater’s 2002 volume *Entangled Edens*, wherein she approaches the Amazon as a “series of both conscious and unconscious collaborations” between the natives of the region, and the outsiders who visited the Amazon, and then went home to write about it – such collaborations form one layer of what Nugent (2007: 30) describes as an “intense interaction between Amazonians and the world system over the last five hundred years.”

More foundationally, my inspiration for this analysis as my research in Chichico Rumi, an indigenous Kichwa village in the Ecuadorian Amazon, where ecotourism had served as a gateway and a Trojan horse of sorts for pharmaceutical research. In this village, the residents tried to negotiate balance between those two fantasy-driven industries, one (ecotourism) that they perceived as lucrative and desirable, the other (pharmaceutical research) as anxiety-provoking and exploitative. This is not a primarily ethnographic article, but rather one that syncretically draws both on discourse analysis and ethnographic analysis to show how fantasies and ethnographic realities are entangled in a space of cultural production that is ethnomedicine and the cultural and political practices which constitute it.

The Amazon as pharmacopia

Medicine Man is a 1992 American film directed by John McTiernan. Its protagonist, the tough-talking Dr Crane, a biochemist played by Lorraine Bracco, is sent by her employer, a pharmaceutical company, to the Brazilian Amazon, to locate the gruff Scottish researcher, Robert Campbell, played by Sean Connery, who has been conducting research there for years, funded by said pharmaceutical company. Robert Campbell has found a cure for cancer, but is having difficulties re-synthesizing the compound. The cure, he believes (as does the audience) can be synthesized only from a unique flower species that does not grow anywhere else in the world. In the end, it turns out that it is not the flower that contains the cure for cancer, but rather a unique species of ants also indigenous to the Amazonian rainforest. In either case, both the flowers and the ants are threatened by the construction of the logging road nearby that will devastate the ecosystem and render the precious species extinct. The resulting altercation between Dr Campbell and the loggers results in a fire that destroys both the logging equipment and the indigenous village adjoining Dr Campbell’s research station. However, the ending of the film indicates that Dr Campbell and Dr Crane will recreate the cancer cure now that they have identified the compound and now that the loggers have been (temporarily) stopped.

State of Wonder, the 2011 novel by Ann Patchett, is set in the Brazilian Amazon. Its protagonist, Dr Marina Singh, travels to the rainforest on a reconnaissance mission for her employer, a Minnesota-based pharmaceutical company named Vogel. Dr Singh is instructed to find out about the activities of a non-communicative, renegade Dr Swenson, whose research in the Amazon is funded by Vogel. Dr Swenson turns out to have discovered the secret of endless fertility for women. In the story, the women of the fictional Lakashi tribe, indigenous to the region, never stop reproducing, and sexagenarian and septuagenarian mothers who never entered menopause, are common. This is due to the magical-medicinal properties of a tree species, the bark of which is routinely chewed by the Lakashi women (or, more precisely, of the unique to the region mushrooms, which exist in a symbiotic relationship with the trees). In addition to its magical reproductive qualities, the bark serves as an anti-malarial inoculant, and Dr Swenson's secret agenda is the production of a malaria vaccine, not the fertility drug – a feat she knows her employers will not sponsor. In the end, Marina and Dr Swenson reach a compromise – Marina will return to the company headquarters, the effects of chewing the magical bark evident and testable within her own body, as her ovulation window has increased dramatically from 3 to 13 days even from her short time ingesting the bark. There, she will facilitate the development of the drug, without revealing its anti-malarial properties to her employers, who, Dr Singh believes, would not want to the financial troubles that come along with developing a malaria vaccine.

Benjamin Kunkels's *Indecision*, set largely in Ecuadorian Amazon, follows 28-year-old New Yorker Dwight Wilmerding, who, as a result of a quarter-life crisis and post-9/11 ennui and alienation, and an experimental (Western) drug designed to cure him of his indecisiveness (the drug turns out to have been a placebo in the end), takes off on an adventure in the Amazon. There, in the climax of the book, he discovers a magical fruit/drug that, essentially, has the power to illuminate the obfuscated process by which a commodity chain is formed. As his companion, a Belgian-Argentinian lapsed anthropologist named Brigid, whose erstwhile fieldsite the fruit grows in, explains to him:

“When you eat from this fruit then whenever you put your hand on a product, a commodity, an article, then, at the moment of your touch, how this commodity came into your hands becomes plainly evident to you. Now there is no more mystification of labor, no more of a world in which the object arrives by magic – scrubbed, clean, no past, all of its history washed away. Do you see? Once we eat this fruit or drug . . . now whenever we touch something that was grown or made we will sense how it was grown or made. . . . We will feel it,” she was saying of the drug which we could perhaps dump into America's water supply, “like a shock from the door handle. And of course if there was pain involved in the making of the product, the provision of service, we will feel this. Of course it would be difficult to bear with this drug. And so then – changes.”

In all three narratives the Amazon as a pharmacopia has the following characteristics: (1) it is a de-nationalized space; (2) it contains unique flora and fauna that is

imagined and claimed to be of global value; (3) the Western protagonists encounter secondary (to the narrative) indigenous actors who facilitate the acquisition of knowledge by said Western protagonists. With regard to de-nationalization, my argument is adapted from Brenner's proposition that "contemporary processes of globalization have significantly decentered the role of the national scale both as a self-enclosed container of socio-economic relations and as an organizational interface between sub- and supra-national scales...relativizing the significance of the national scale while simultaneously intensifying the role of both sub- and supra-national forms of territorial organization." (1999: 52). This proposition also resonates with Schittecatte's observations (1999) that the Amazon is constructed as a global public good through transnational coalitions of social movements. This perspective is common in media and activist narratives, as well as reproduced in academia by scholars like Schiff (2010) who argues that the Amazon's status as a "global commons" necessitates a reconciliation (and thus compromise) of state sovereignty with the "interconnectivity of the global environment" or O'Connor (2008), who uncritically positions spaces like biodiverse "tropical rainforests in developing countries" as global commons in need of global governance.

I contend that the pharmaceuticalization of the Amazon is a part of constructing it as global property, but with different implications for the accepted and desirable forms of nature governance and extractive practices than the ones emerging from its conceptualization of, in Slater's words, "an immense ecological machine of global importance" – although undoubtedly these processes of signification are intertwined. In fact, Slater includes pharmaceutical quests in her list of "familiar icons" populating the symbolic universe of the Amazon, as it is generally depicted in literature and films, as she lists "the snake, the jaguar, the dancing Indians in their embroidered costumes, the toucan, the big trees reflected in even bigger rivers...the native healer and the American scientist both trying to harness the forest's cures." (2002: 3). Slater's familiar tropes underline the transnational (or, perhaps, not conscious of national borders, and thus casually denationalized) geographical imaginary of the Amazon. The "familiar icons" remain the same, regardless of the national setting, although the actual Amazon basin, what we can understand as the geospatial Amazonia, is contiguous across eight different nation-states (Brazil, Peru, Colombia, Ecuador, Venezuela, Guyana, Suriname, and French Guiana) and is home to different indigenous groups with vastly different colonial and postcolonial histories. The Amazon as "lungs of the world" is imagined as a de-nationalized space largely because of the discursive stress on biomes and ecosystems (and consequently environmental problems) as transcending national boundaries and demanding "global" solutions that necessitate global governance. This imaginary both supports and parallels the de-nationalization of the Amazon as a pharmacopia, because the cures expected to originate from "mother nature's pharmacy" (Onaga, 2001: 263) are both part of the ecological system claimed as a global commons and are supposed to aid the equally supra-nationally framed cause of global health. Goldman (1998: 4) wrote, "in the 1980s,

when elite Northern scientists established that the Amazon is the ‘lungs of the world,’ they were directly challenging the rights of forest dwellers against the rights of metropolitan populations around the world who supposedly depend upon forest preservation for their daily dose of oxygen”. Analogously and increasingly, in the public imaginary troubled by environmental illnesses, fears around “the end of antibiotics,” and desires for naturopathic and herbal cures, the potential natural remedies contained by the Amazon are fantasized in fictional narratives and marketing gambits alike as “needed” by the same metropolitan populations. Anti-biopiracy regulations, within this discourse, are perceived as small-minded bureaucratic obstacles. As a writer for Reuters piece entitled “In Amazon, a frustrated search for cancer cures” explains, “About 70 percent of current cancer drugs are either natural products or derived from natural compounds, and the world’s largest rain forest is a great cauldron of biodiversity that has already produced medicine for diseases such as malaria.” He then comments with barely concealed disdain on the travails of a “high-profile” Brazilian pharmaceutical researcher, Dr Diego Varela: “But a move by his team in the 1990s to partner with the US National Cancer Institute produced a storm of accusations of ‘biopiracy’ [sic] and for years it has been blocked from the international cooperation and funding that could increase the chances of finding the Holy Grail of a cancer cure. Their work has also been regularly delayed by bureaucratic demands, once stopping their collections for two years.” (Grudgings, 2009³).

But there is a key difference. The “global commons” construction of the Amazon advanced by the environmentalist imaginary of the rainforest is grounded in notions of a sort of passive interdependence of a global-scale ecosystem, that requires an “untouched” Amazon to retain its balance and perform “ecosystem services” (Costanza et al., 1997). The pharmacopia fantasy, on the other hand, legitimates extractive bioprospecting by combining the “global claim” to the Amazon with the very literal iteration of the fantasy that the exotic Amazon (and its indigenous denizens) holds something inside it that the industrialized West has lost or lacked in the first instance – fantastic cures for illnesses that defy the capacities of the Western pharmaceutical industry. In fact, the imagined miracle drugs become folded into such ecosystem services – a re-scaling which casts pharmaceutical research as an exceptional extractive industry that is aligned with conservation, both mobilizing the fantasy of the global commons for the fantasy of the common good. Tellingly, as an article entitled “Amazon plant yields miracle cure for dental pain” on mongabay.com, an environmental science and conservation news site, states, “although the world’s tropical rainforests are under assault by logging, agriculture, monocultures, cattle, and fossil fuel industries, scientists believe the forests contain an untapped medicine cabinet that could provides cures for many of the world’s ailments. Currently less than 5 percent of the world’s tropical forest plants and less than 0.1 percent of its animals have been tested for medicinal properties” (Hence, 2012).

The three fictional narratives examined in this article all pivot on different but resonant imaginaries of a magical pharmaceutical compound, its potential benefit

for the world, and thus its legitimation of the “opening” of the Amazon. By opening I mean a legitimation of extracting a circulation of a material, substance, or information simultaneously acknowledged to be uniquely Amazonian and “needed” by the global community beyond the borders of the rainforest. Such opening is related to the history of collection of biological resources and associated indigenous knowledge—specifically the fact that, as Brush points out, these resources were originally⁴ collected by non-indigenous researchers under the principle of common heritage, “a notion derived from western concepts of property, including intellectual property...[defining] products of nature, scientific theory, and folk knowledge to be public goods...[and] meaningful only in the epistemology of capitalism.” (1999: 539–540).

Such opening and symbolic re-scaling of Amazonian pharmaceutical “riches” also holds significance for fictional portrayals of the indigenous residents of “mother nature’s pharmacy” and their positionality vis-a-vis Western visitors in such stories. In *Medicine Man*, “Westerners” as a class of people are initially identified with disease and miasma (a secondary plot reveals that in the past Western incursions have exposed the indigenous natives to illnesses, and upon her arrival, Dr Crane has to undergo a physical exam and don a mask), while the rainforest turns out to contain a cure for cancer. The pharmaceutical imaginary here takes on the structural role of the environmental protection imaginary, present in films like *The Emerald Forest* (1985) and the recent Amazon-on-another-planet film, *Avatar* (2009), since the secondary drama of the same film centers around protecting the ecological habitat which contains the cure from profit-driven loggers. At the same time, the knowledge attributed to the indigenous characters is virtually nonexistent – they do not even enjoy the limited “green expertise” generally afforded to indigenous actors in straightforward environmentalist narratives. In this film, there is an indigenous medicine man, but his eventual contribution to the knowledge about the cure is apophatic – by telling Dr Campbell that a particular flower has no healing properties, he points him in the right direction. This narrative detail allows Dr Campbell to claim credit for the “discovery” of the cancer cure, narratively marginalizing even the question of indigenous ecological knowledge and legitimating the Amazon as a site and source of Western scientists’ intellectual property.

The *State of Wonder* narrative is seemingly more complex, but ultimately reproduces the same fantasy construction of the Amazon. The complexity initially seems to stem from the fact that there are two magical drugs that are inexorably entwined in a unique Amazonian micro-ecosystem, composed of the symbiotically connected trees called the Martins, moths called the Martinets and mushrooms called the Rapps (all named after a Harvard mycologist Martin Rapp, who had “discovered” the ecosystem in the book – “is there anything he didn’t name for himself?” wonders the main protagonist at one point). There is the magical fertility drug, which, as explicated by Dr Swenson, is destined for privileged Western women who want to keep childbearing options open

as long as possible, and who will enrich the pharmaceutical company. But, as Dr Swenson explains,

“when we’ve got one drug, we will have the other, and I don’t see the harm in making an American pharmaceutical company pay for a vaccination that will have enormous benefits to world health and no financial benefits for company shareholders . . . The people who need a malarial vaccine will never have the means to pay for it. At the same time I will give them a drug that will, if anything, undermine the health of women and make them a truly obscene fortune. Isn’t that a reasonable exchange? Eight hundred thousand children die every year of malaria. Imagine an extra eight hundred thousand children running around the planet once this vaccine is in place. Perhaps instead of trying to reproduce themselves, these postmenopausal women who want to be mothers, could adopt up some of the excess that will surely be available.”

The role of the fictional indigenous Lakashi tribe in these plans is largely devoid of agency – their knowledge of the location and the effects of the tree is constructed as intuitive and unreflexive, rather than scientific and intentional. They are instrumental to the discovery of the magical compound, but, much like in *Medicine Man* they are never imagined as having any property or legal claim to it. The Lakashi are portrayed as if possessing solely a “bare life” (Agamben, 1998) – in the state of nature, they exist as bodies concerned primarily with subsistence and reproduction, outside of any legal and political structures that would govern or mediate their human-nature relations within the framework of rights, entitlements, or disenfranchisements. As the chemicals contained in the magical tree bark circulate beyond indigenous bodies, in the world of the novel they are imagined to pass into the realm of “qualified life” (Agamben, 1998), and they themselves acquire the characteristics of having been incorporated into the global political body – first and foremost, a legally regulated existence. In fiction and beyond it, processes of pharmaceuticalization draw on such “bare life” imaginary to justify expropriation of “life-saving” plant materials from the Amazon. The “opening” of the fictional Amazon of *State of Wonder* to harnessing and extraction is justified by a vision of global distributive justice, wherein a vaccine for malaria is imagined as a general compensation for what the character and the author refer to as the third world. This mediates the ethical issues of biopiracy, as indigenous ecological knowledge seems poised to be harnessed, extracted, and circulated without compensation, all because the drug that will further enhance the privilege of “first-world women” comes with a rider that will solve a problem of “the global poor,” shifting what would be a story of colonialist exploitation into a “noble” story about redistribution, the global commons and the common good.

Indecision comes closest to a metanarrative commentary on the pharmacopia fantasy and trope of finding answers to Western malaise within the “authentic” space of the rainforest. The rainforest in this book is acknowledged as a colonized space (and its indigenous guide is introduced as having grown up on a Christian

mission, and currently practicing a self-conscious, intentional “indigenous absolutism” – the novel’s take on hyper-traditionalism that has emerged in the Amazon indigenous communities as one of the responses to forces of “modernity” and “development” (Bacigalupo, 2005; Whitehead, 2002). The magical fruit/drug that the protagonists encounter deep in indigenous territory is literally a cure for alienation – not merely alienation in a general existential sense, but the concrete Western philosophical notion of alienation, as written about by Karl Marx. The drug renders the invisible commodity chain of alienated labor visible again; that revelation coming as the climax of his experiences in the Amazon, finally cures the main character of his perpetual indecision, after the American drug he has given for his indecisiveness turns out to have been a placebo. The plot of *Indecision* recapitulates the fantasy of the primitive rainforest containing something that the capitalist, industrialized West has lost in a way that so didactic that it can be read as a critique—but still, the political values informing the novel position the magical fruit as self-evidently globally necessary, and the Amazon as the unexpected potential global commons for radical consciousness-raising.

An ethnographic perspective

As promised in the introduction, this section of the article shifts from works of fiction to the decidedly non-fictional village of Chichico Rumi in the Upper Napo, a part of the Ecuadorian Amazon basin that is informally known as the gateway to the Amazon. This is not an ethnography of the village per se, but rather a contrapuntal perspective of how the fantasy of the Amazon as a pharmacopia translates into reality in a typical Amazonian indigenous village that both cultivates medicinal plants and incorporates ethnomedical knowledge into their self-presentation in engagements with Western visitors (primarily tourists). By bringing together the analysis of the media portrayals of the Amazon with this ethnographic material I endeavor to show that from the perspective of Amazonian residents, extraction of biological and pharmacological materials is conceptualized as categorically more akin to “typical” extractive industries than to conservation or public health initiatives such practices are commonly linked with in Western-centered narratives.

Chichico Rumi is a Napo Kichwa village located approximately 30 min by bus from Tena, the capital of the Napo Province of Ecuador. The villagers of Chichico Rumi, as is the case for all the villages in the area, farm *chagras* – small plots cleared in the remnants of the rainforest; there they grow yucca, plantains, and maize, both for food and to sell at the market in Tena. They also raise chickens, pigs, and fish and have begun a construction of a community fish farm. In the last decade, they have also initiated an ecotourism business, and they have the distinction of being the first village in the region to have an ethnographic museum about Kichwa culture right in the village. Like many communities in the area, they have complex histories with and feelings about the petroleum industry, that has been operating in their immediate vicinity since the 1990s (in fact, the local road that

ecotourists use to get to the village was built as an oil road – a not-uncommon convergence in the region).

Part of their ecotourism project has involved setting up a small zoo and a large medicinal garden which features the common plants that are part of the ethnomedicinal practice in virtually any Kichwa village, but also includes the cultivation of “revived” medicinal plants, many originally gathered some distance away, on the land the community owns deeper in the primary rainforest. Additionally, there is a small natural pharmacy section that is merged with the village souvenir shop, where a number of tinctures, packages of nightshade leaves indicated for diabetes, *frutipan* for the management of cholesterol the herbal antibiotic *chugriyuyu*, herbal mosquito repellent, and plastic bottles filled with Sangre de Drago are sold by one of the elder women in the village, Rebecca, who also prepares the medicines. They are purchased primarily, as she explains, by Ecuadorian, rather than foreign tourists, as foreign tourists are generally only interested in the entheogenic *ayahuasca*.

While researching ecotourism in the region, I conducted participant-observation and interviews with Chichico Rumi “cultural brokers” about various aspects of their ecotourism project, including the medicinal garden. It was these interviews that inspired me to write this article, as they clarified that far from agreeing with the conceptualization of their region as a global medicine cabinet, bioprospecting was perceived by the Napo Kichwa to be in the same category as oil extraction or logging – that category being “exploitative practices” – despite the different status accorded to those activities in the constructions of the Amazon as the global commons imaginaries which simultaneously stresses local conservation of ecosystems and *global circulation* of ethnobotanical medicinal components. Although I discussed the issue of the medicinal garden and bioprospecting with other villagers as well, this section of the article primarily utilizes data from interviews with Hector, Santi, and Rebecca – three villagers who are the key figures in managing and curating the medicinal plant garden, and the production and the sale of medicines from the plants grown in the garden.

Hector is in his mid-20s, and is involved in all the aspects of the village’s ecotourism project – he tends to the garden, curates the museum, serves as a guide on forest walks. He is proud of two tattoos he has, one on each arm – of a bat that he calls a *supay* (a spirit in Kichwa), that he says signifies his connection to that spirit, and that of Jesus Christ, which he explains protects him from any risky aspects of engaging with the spirits. Santi is older, in his late 30s, and has traveled a fair amount both within Ecuador and internationally. When not tending to the village garden, or to the village zoo, or to the tourists, Hector and Santi play in a band called *Allin Kawsay*⁵, both performing for tourists with the traditional instruments displayed at the museum, and playing gigs in the nearby Tena with electric guitars.

The first thing Hector wants outsiders (including tourists) to know about the medicinal garden is that currently approximately 40 different species of plants are being cultivated there – it is a point of pride for him and for Chichico Rumi, as that constitutes an extensive collection. “But,” Hector adds, “Our ancestors used a hundred and twenty plants, so our goal is to get back to that point.” In that

sense, the medicinal garden is an ethnobotanical cultural revival project. The plants grown in the garden include the Ishpingo – the flower of the native Ecuadorian cinnamon tree (*Ocotea quixos*); it is the central ingredient in a special brew prepared for the Day of the Dead. Achiote⁶ (*Bixa Orellana*) is a plant that produces red coloring “or the crafts, costumes, food, and body for dancing.” The Kichwa also makes eye drops from the stem to treat conjunctivitis. Anise is “for stomach problems. You make a tea with the leaves and take out the bad energies of a person.” Plants that help with rheumatism follow ones that cure varicose veins. Further down in the garden are inconspicuous-looking but powerful hallucinogens, including plants that, Santi says, are “stolen from the jungle” and subsequently processed, and used in cities like Quito and Cuenca to help in drugging and robbing bank customers. Cuica panga (*Fittonia vershaffeltii*) is something “many dentists would like to have in their office” says Hector – the infusion made from its leaves “helps with toothaches.” Misapu panga (*Fittonia albivensis*) is an analgesic for headaches or muscle pain. A decoction made from the stem bark of Ajus Huasca (*mansoa alliacea*) is used intranasally for influenza or colds. Sacha Cebolla (*Eucharis grandiflora*) is used for its sap and crushed roots, which are applied to skin areas affected by skin rashes, as well as to insect and snake bites. Far from exotic cures and magical cancer or fertility treatments, most of the plants are remedies for mundane ailments (hallucinogenic plants notwithstanding). Guayusa (*Ilex guayasa Loesener*) can be taken for depression, and is also considered to be an aphrodisiac. Nearby grows Tiatina Panga (*Scoparia dulcis* L), which Santi describes as both a contraceptive and an abortifacient.

Chichico Rumi’s medicinal garden is more diverse than many medicinal gardens I have observed in the regions, but overall they are a common sight. Many villages have a medicinal garden or plot of some kind or another for personal use (so, 11 villages I visited during when doing during my first research trip to Ecuador when I collected data for my dissertation, had some variation of one), and once a community becomes involved with ecotourism, that becomes a part of the ecotourism “package.” Ecotourists enjoy seeing visually interesting plants, or plants with the most “exotic” uses – for example, the “shampoo plant” that foams in the hands of the delighted tourists, the famous hallucinogenic *ayahuasca*, and *sangre de drago* (a tree that yields sap, which looks like blood, and is a powerful topical medicine for cuts and abrasions; additionally it functions as an anesthetic for tooth extractions and gum infections). It is that latter tree that brings us to the topic of the unwelcome incursion of pharmaceutical researchers. As Hector says, putting his hand on the spot on the trunk of the tree where the bark has been punctured, and red sap is seeping through, “this is one of the most famous trees which cure a lot of diseases. A lot of scientists come and take it to their laboratories for searching its properties.”

Although biomedical research does not figure as prominently as oil extraction and mining activities in the broad environmentalist discourses about Amazonian indigenous peoples and the external threats to their cultural survival, the pharmaceutical industry fits comfortably into the “Goliath” of “toxic” modernity role

required by these narratives – but the locally grounded way in which these activities are experienced by communities like Chichico Rumi challenges the indigenous people are commonly cast in such scripts as the “David” figures standing for “tradition” and in need of rescue. “It is wrong of them to patent plants,” Hector says, but the specific way in which the injustice of this issue is played out in Chichico Rumi has less to do with the a rejection of Western notions of intellectual property on cultural grounds, and more to do with the very immediate and concrete ways that the villagers feel exploited. When I ask him to explain why the villagers think patenting is wrong, Hector explains: “Well, there are big organizations from Quito which come lately . . . we just refer to them as ‘the doctors’.” The problem is, Hector continues, that they do not introduce themselves as researchers – they come as national tourists, which means that “when they come to visit here, they pay two dollars for forty-five minutes of explanations, then they make money off the patents.” Hector’s apprehensions are not unsubstantiated paranoia—although Ecuador is one of the countries that has developed ABS (access and benefit-sharing) measures pertaining to bioprospecting,⁷ the framework particularly benefits the state, which, in accordance to the 1996 law for protection of biodiversity, owns the species that constitute Ecuador’s biological diversity. All projects involving biological and genetic research have to obtain proper permits, and have Environmental Management Plans approved by the Ecuadorian Ministry of the Environment; at the same time, bioprospecting has been and continues to be an anxiety-provoking issue for indigenous communities in Ecuador. Dorsey (2004) provides an excellent overview of a range of bioprospecting (or biopiracy) activities in Ecuador, from the case of an American who successfully obtained a patent for *ayahuasca*, and held it for over 15 years before an international coalition initiated a revocation process; to the supposedly ethically managed American company Shaman Pharmaceuticals that, despite their revenue-sharing protocols, is perceived with a high degree of ambivalence and antagonism in Ecuadorian indigenous communities; to ethically suspect practices of a bioprospecting-venture capitalist project in the rainforest around Loja in Southern Ecuador. The last example from Dorsey’s overview is particularly interesting, as the ethically suspect practices in question involve non-disclosure and concealment of bioprospecting actors from a Spanish-language version of a research project overview. Such a scenario (secret researchers) features in the anxieties of the Napo Kichwa as well. And the political economy of pharmaceutical research supports such anxieties. Ethnobotanical medicine is not freely strewn about in the Amazon; it is produced according to established knowledge protocols. As Elisabetsky (1991: 10) explains, “To transform a plant into a medicine, one has to know the correct species, its location, the proper time of collection (some plants are poisonous in certain seasons), the solvent to use (cold, warm or boiling water; alcohol, addition of salt, etc.), the way to prepare it (time and conditions to be left on the solvent), and finally, posology (route of administration, dosage).” And as Moran et al. (2001) suggest, information about how indigenous communities use specific plants can render more the process of drug discovery and synthesizing more efficient and less expensive.

Hector says that he can tell when someone evinces more than a typical curiosity about the plants' properties, saying "I don't explain much then, I don't like to give much information about the plants, many others in Ecuador have told me about what these people do." Santi echoes him, saying that, for instance, particular interest in the aforementioned aphrodisiac guayusa raises his suspicions about the intentions of the visitor – outside attempts to patent indigenous aphrodisiacs and sexual stimulants have received international publicity. In the past, a Japanese company tried to patent an extract from a root of the plant *muirapuama*, known as "Amazon Viagra" (Rohter, 2001) and US-based Pure World Botanicals successfully patented an ingredient of the plant *maca* as testosterone production stimulant, marketing it as "natural Viagra"), and locals involved with medicinal gardens in villages that practice ecotourism are aware of it.

Rumors of this sort prevail on a regional level, and the complexities of distinguishing between tourists and "the doctors" was mentioned to me by several other shamans and ecotourism guides in the Napo region, in villages around the towns of Tena and Misawalli. These are specific anxieties about specific practices that map onto more general anxieties about the "openness" of the region in general where oil and mining companies have been operating for years, and the loss of control in the Kichwa face both due to extractive or exploitative activities in the area, but also because of the legal framework that makes all natural resources the property of the state, because it marginalizes them – the state that has the right to grant oil and mining concessions and bioprospecting permits alike. In response, the Kichwa organize in defense of their environmental sovereignty and economic entitlements through adopting various, and flexible political positionalities. The villagers' preoccupation is not with distinguishing "good" industries from "bad" ones – rather, they are attuned to the possibilities of dispossession and marginalization that all extractive industries are fraught with. In the past, they advocated for themselves successfully with the oil company that operated in the vicinity (French-owned Perenco) and effectively negotiated compensations like a community clinic and an internet center, while simultaneously developing an ecotourism project. Villages like Chichico Rumi have for some time practiced such mixed livelihoods strategy that might seem paradoxical to Western imaginaries, but it is common in the region. In fact, it is much less paradoxical when one considers indigenous interests in control over and compensation for their environments as the central organizing principle behind their choices and actions, and not Western taxonomies of "green" and "extractive" industries. When negotiations with the oil industry were not on the table (as it has increasingly been the case since Perenco left the area in 2009, and the national giant Petroecuador came in its stead), the emphasis on ecotourism increased, fitting well into local actors' participation in pan-indigenous politics on the national scale, but also through local actions, like the 2011 "Rukullakta resolution"⁸ passed by 17 Napo Kichwa communities, declaring "the space of Rukullakta" to be a "space of exclusion of oil exploitation, mining, lumber, and bio-prospecting" (also see Smith, 2013 on the fluid interplay of local engagements with the petroleum and the ecotourism industries in the region). As another kind of

response, specific to the concerns about bioprospecting, Hector openly tells tourists (including presumed researchers-camouflaged-as-tourists or any tourists suspected of working for the pharmaceutical industry) that such subterfuge and illicit patenting, as well as any sharing of information without the consent of the Kichwa is a concern. In doing so, he discursively disrupts the fantasy explicit or implicit in the western fictions discussed in this article – that of indigenous communities and territories are inherently open to any Westerners interested in learning “traditional wisdom” and “natural ecology” – as if the only potential obstacle to knowledge transfer is Western unwillingness or reluctance to be taught. “We want to have control over how we share knowledge about the plants, and it is difficult.” explains Hector. He and his neighbors believe that they should be compensated for sharing their knowledge and expertise – a perspective that is challenged both by profit-motivated pharmaceutical enterprises and by well-meaning outsider initiatives to put indigenous knowledge into the public domain.⁹ His response also challenges the aforementioned narrative that extraction of knowledge about plants is somehow more legitimate and harmonious with foundations of indigenous ecological knowledge than “conventional” resource extraction, because indigenous peoples are imagined to want to share that knowledge freely, while extraction of raw materials is seen as fundamentally incompatible with indigenous human-nature relations. Of course, neither of those assumptions is correct. The Kichwa do not view their flora or their expertise in it as “common heritage”; at the same time, the actual (not fantasized) ethnohistory of indigenous Amazonian groups like the Kichwa includes a long history of syncretic and flexible forms of subsistence – hunting and gathering, forest-based horticulture, growing cash crops, panning for gold, working for oil companies, and setting up ecotourism projects.

The fantasy nexus around Amazonian medicines looks very different from the narrative perspective of the indigenous villagers in the region. There is no Western protagonist who both seeks and becomes a conduit for indigenous ecological knowledge, no global medical drama that can be resolved by a magical substance from the rainforest. There are villagers who for decades have been trying to negotiate their entanglement with forces of capitalist modernity to their advantage, most recently through ecotourism, with the medicinal garden and the ethnobotanical pharmacy being a part of their ecotourism project design. For them, pharmaceutical researchers are a part of a cast of characters who are anxiety-provoking and who may come disguised, or try to trick them (the same apprehension circulate about new oil and mining companies appearing in the area, and geologists or engineers are also regarded with the same suspicion). If a fictionalized, dramatized version that privileged the Kichwa villagers’ agency and perspective in the situation existed, it would focus on the villagers defending their plants and their knowledge from exploitative pharmaceutical researchers. To put it another way: if a film like *Avatar* was made with the issue of bioprospecting, rather than mineral extraction as the centerpiece the avaricious corporate team from Earth would be looking to profiteer not from the fictional mineral called unobtainium located under the root of the Na’vi’s

sacred tree, but to covertly synthesize the genetic information from the sacred tree in order to patent the Na'vi regenerative technologies.

Conclusion

The larger metanarrative in all three of these fictional stories discussed in the first half of this article is grounded in a semiotic associative chain, where the Amazon stands for “nature”, “nature” signifies a certain kind of “authenticity” and *sui generis* “authentic” objects and spaces like the Amazon emerge as simultaneously magical and objects of common heritage. This type of symbolic nexus is not limited to fiction – there are entire industries that rely on the sort of commodity fetishism generated by “authentic” objects and substances from the Amazon, including the experience and souvenir market of the ecotourism industry in the Amazon. But it is particularly transparent in intentional narratives that both reflect and reproduce a particular fantasy. In *Entangled Edens*, Slater describes the Amazon simultaneously as a giant and as a shape-shifter. The “giant” metaphor stands, she writes, is not about “particular gigantic entities [such as huge trees]” but, rather, about “a narrative process in which one part comes to stand in for a larger whole.” Amazonian pharmacopia functions as precisely that kind of metonymy, where recurrent narratives of indigenous Amazonian cures render the Amazon itself global, public, and accessible in a way that maps onto Slater’s aforementioned familiar tropes. The subtext of pharmaceutical and environmental fantasies alike mobilizes affective responses to issues that are presented as universal and morally transcending national boundaries. Thus intra-Amazonian national boundaries are rendered insignificant, while imaginaries of potential cures construct the Amazon as legitimately open to the global public.

At the same time, the pharmacopia imaginary constructs the Amazon as “accessible” in a different way than the aforementioned lungs of the world imaginary does. Where lungs of the world is a narrative of protecting and salvaging the imagined virgin rainforest on the brink of destruction, the pharmacopia narrative permits and even presupposes a kind of morally sanctioned extraction, a moral loophole in an era when extractive engagements with the rainforest are morally scrutinized (despite our global economy being oil-dependent, it is hard to imagine a sympathetic claim being made about the rights of the world to the Amazonian subsoil minerals). Slater’s other metaphor for the Amazon, the “shape-shifter,” speaks to its cultural existence as a kaleidoscope of sorts, with images varying depending on the identity and the positionality of the beholder. “The images and stories [of the Amazon]”, Slater writes, “are clues to our on thinking, and to others’ conception of a rainforest that is both place and icon, natural creation and ongoing human invention” (2002: 203). It is my hope that this article illuminates some of the images of the kaleidoscope of the Amazon, and that this examination of the popular culture construction and circulation of the pharmacopia narrative helps contextualize bioprospecting and biopiracy as “legitimate” practices, and, in a more general sense to show that postcolonial green moral economies and

ecologies of the Amazon still comfortably accommodate certain “globally acceptable” forms of exploitation and extraction.

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Conflict of interest

None declared.

Notes

1. To avoid confusion, I want to note that I use pharmacopia as an informal portmanteau, playing on the word cornucopia, referencing imagined plentitude through the Latin root copia for abundance. I note this to avoid the confusion with a similar term “pharmacopoeia” which combines pharmaco (drug, Greek) with the verb stem poi (to make).
2. I use “indigenous ecological knowledge” as a legal and political category in this article, not propose that indigenous knowledge is a homogenous and essentially differentiated knowledge category vis-a-vis “Western” knowledge (also see Agrawal (1995)).
3. <http://www.reuters.com/article/2009/11/17/us-amazon-medicine-idUSTRE5AG00V20091117> (accessed 1 December 2012).
4. This was the case until the convention on biological diversity established that plant genetic resources (biodiversity) are the property of nations.
5. A synonymous variation on the more widely known sumak kawsay, which means a good, balanced life in Kichwa. This concept was incorporated as an aspirational ideal into the 2008 Ecuadorian constitution, and its Spanish-language corollary, buen vivir is being widely used in Ecuador’s national branding today.
6. Hector uses the Spanish word “Achiote” for the plant, but it has a traditional Kichwa name as well – Manduru. In this section, I use the names of the plants that Hector and Santi used – sometimes they referred to plants with their Kichwa names; other times with Spanish names (which, when possible, I translate into English).
7. See Medaglia et al. (2012).
8. The full text of the resolution is available on the website of Amazon Watch.
9. For instance, the company Raintree Nutrition that markets itself as “the leading specialist in Rainforest botanical sources and products involved in the research, documentation, information publication, sustainable harvesting, importation, and product manufacturing of over 60 medicinal plants from the Amazon Rainforest” has a banner on its website that reads: “welcome to the wealth of the rainforest, pharmacy to the world” and has the following statement about “indigenous intellectual property rights”: “Raintree founder and Board Certified Naturopath Leslie Taylor spends extensive time with indigenous rainforest Indian tribes, shamans, local healers and rural herbal doctors throughout the Amazon learning and documenting their extensive medical plant knowledge. Her mission has been to publicize and publish this indigenous knowledge where it can be shared and used by all – even among the indigenous people themselves. Publishing this type of information legally puts this important knowledge into the public purview so that it cannot be patented or exploited by any single company.” Raintree Nutrition prides itself on helping deny US Plant use patents from being filed on Amazonian plants,

advocating “freely shared and accessible to all” indigenous knowledge as both a noble ideal and an engine of eventual job creation and profit for indigenous communities, but through its practices perpetuates the myth that indigenous knowledge and expertise is “free” for the world.

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