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Cassava Spirit and the Seed of History: On Garden Cosmology in Northern Amazonia

Lewis Daly 

Department of Anthropology, University College London, London, UK

ABSTRACT

This article concerns the practice of cassava gardening among the indigenous Makushi people of Amazonian Guyana. By focusing on the cassava garden (*mii*) as a primary site of multispecies engagement, I explore some of the heterogeneous modes that people–plant relationships take in everyday life and ritual practice. Plants, for the Makushi, are typically thought of as ‘persons’ (*pemon*), and gardening is predicated upon maintaining relationships of interspecies care via regular human–plant communication. In the idiom of human kinship, cassava plants are spoken of as being ‘children’ (*more yami*), both of human gardeners and Cassava Mama, the tutelary spirit of cultivated plants. Human–plant communication is both verbal, in the form of poetic language (*taren*) and songs (*eremu*), and embodied, in the form of tactile engagement and substance-based transfers. It is in the cultivation of communicative relationships with plants and their spirits, I argue, that Makushi gardeners create and nourish human persons and, ultimately, reproduce society. I go on to address the anthropological problem of plant animism in Amazonia, arguing that a more embodied, sensorial and, following Strathern, ‘immanentist’ notion of spirit is required to better account for the complex entanglement of bodies and souls that undergirds human–plant interpenetration in indigenous Amazonia. In dialogue with literature from the multispecies turn, I suggest that an anthropology beyond the human, much like Makushi gardening, might usefully be thought of as a process of more-than-human ontogenesis.

KEYWORDS

Makushi; Amazonia; plants; gardening; animism; cosmology

Introduction

One morning during the rainy season, while I was learning to plait *mukuru* baskets with Uncle Abraham under the shelter of his palm-thatched roof, I asked him about the Cassava Mama spirit.¹ The poetry of his response struck me:

Cassava is a person, man. When you see the leaves waving in the farm, that’s them waving at you, calling in your spirit. The plants have a master, an unseen spirit – that is the Cassava Mama. She listens; that is why people talk to their cassava plants.

CONTACT Lewis Daly  l.daly@ucl.ac.uk

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Crops, Abraham explained, are the children of Cassava Mama, the tutelary master of farms and gardens. ‘Our belief is that when the breeze is waving the leaves around, that is she’. She is present in the wind, in the rain, in the soil, in the roots. This is why people do not visit their farms when ill, since it is in times of sickness (*paran*) that the vital soul or essence (*ekaton*) becomes loosened from the body (*esak*). If disrespected or angered, Cassava Mama can easily co-opt a human spirit, leaving only the human body to return home, where, soulless, it will eventually succumb to sickness and even death (*emo’ka*). Although her presence can be sensed, like the breeze (*a’situn*), Cassava Mama is an ‘unseen spirit’; only the shaman (*pia’san*) can see the spirit as a visual image or entity – and only under ritual conditions, in visions or dreams. By entering a state of trance, he or she, the specialist in cross-species mediation, can commune with Cassava Mama in order to cure those afflicted by her ambiguous intentionality.

In the labyrinthine world of the rainforest, human–plant interactions are at the very forefront of life. In Amazonian ‘phyto-worlds’ (Zent 2009), plant-life is typically considered to be agentive in broad terms, with certain, if not all, plants being conceived as ‘subjects’ (Viveiros de Castro 1998) or ‘selves’ (Kohn 2013) capable of enhancing the capacities of, communicating with, even exercising power over, human beings. This raises the central question with which this article is concerned: how might horticulture be conceptualised in life-worlds where plants, too, can be intelligent, volitional persons? As I intend to show, for the indigenous Makushi people of Amazonian Guyana, plants can be, variously, food crops, children, teachers, master spirits, mythological snakes, even shamans. Of course, many plants, quite often, are ‘just plants’, in a more or less unelaborated sense.

In order to unravel some of these heterogeneous and multidimensional modes of relating to plants, I will focus on the cassava garden as a living landscape of human–plant engagement. Gardens and gardening provide a unique lens for thinking about personhood and cosmology precisely because they are dynamic sites of regeneration and interpenetration. An ethnographic exploration of gardening brings vital processes – or ‘the multiplicity of phenomena linked to life’ (Pitrou 2017, 360) – into analytical perspective. Human–vegetal engagements have a distinctly ontological character in that they can shed light on fundamental existential categories and notions, including those relating to the very constitution of life itself (Daly et al. 2016). I use the example of bitter cassava gardening both for its inherent ethnographic value and as a conceptual vehicle to make some more general comments about the often rather elusive notions of plant personhood and vitality in Amazonian cosmologies. This is underscored by the idea that we must pay serious attention to vernacular concepts and philosophies in unsettling and critiquing the dominant axioms and postulates of mainstream anthropology.

I begin by exploring the cultivation of the staple crop bitter cassava (*kíse*) by Makushi gardeners, in relation to the plant’s social, ecological and cosmological roles and associations. The cassava garden is a primary locus for sociality – both between humans and with other kinds of beings. Human–vegetal interactions in this context are thought of as fundamentally and irreducibly communicative. People–plant communication tends to take two forms: verbal discourse in the form of poetic language (*taren*) and embodied communication via substance-based transfers mediated by the senses. It follows that in indigenous sensory ecologies the most salient plants – and certainly, those with powerful spirits – tend to be those with potent sensory properties (Daly and Shepard 2019; Shepard and Daly, *forthcoming*). These ethnobotanical relations are at once semiotic (Kohn 2013)

and sensory (Shepard 2004), their potency being taken as an indexical sign of their spirit. Bitter cassava, at one and the same time a life-sustaining food crop and a deadly poison, stands as the archetype in this regard.

Next, I move on to broach the topic of plant animism in Amazonian cosmologies. In her Foerster Lecture at the University of California, Berkeley delivered in 2018, Marilyn Strathern made some characteristically cogent and insightful comments on animism and the concept of the soul in Melanesia (2018; see also Strathern 2017). Reflecting on the notion of plant souls among the people of Mount Hagen in highland Papua New Guinea, Strathern argues that spirit, soul or life-force, in Melanesia, should be understood as an immanent rather than transcendent entity. The concept of ‘immanentist life’ here is ‘understood as a mode of existence that resides within or permeates being in the world’ (2018). Notwithstanding the well-established ethnographic differences between Melanesia and Amazonia, I think there is traction in the notion of ‘immanentist’ life as applied to the world of the Makushi cassava garden. Taking inspiration from Strathern, then, I argue that a more embodied, sensorial and immanentist notion of life-force is required to better account for the complex entanglement of bodies and souls that undergirds human–plant interpenetration in indigenous Amazonia. Gardening, in this sense, might usefully be thought of as a process of more-than-human ontogenesis (Ingold 2013), in which humans, plants, spirits and the world at large are continually reproduced and regenerated.

In concluding, I will suggest that ‘plant animism’ might be employed as a novel conceptual framework for rethinking multispecies anthropology in a distinctively Amazonian fashion. In order to better understand the relational and vibrant character of multispecies life-worlds, we, as more-than-human anthropologists, should certainly think more like ‘animists’ (following Ingold 2006), and, as I will playfully suggest, we might also begin to think a little more like gardens.²

The World of the Garden

The Carib-speaking Makushi people live in the North Rupununi region of southern Guyana, an ecologically diverse landscape of savannahs, rainforests and seasonal wetlands located on the most northerly fringes of the Amazon watershed. Today numbering around 12,000 people in Guyana, with a further 30,000 across the border in Roraima, Brazil (Santilli 1994), the Makushi have endured a long and often tumultuous history of contact with various colonial and postcolonial forces stretching back to at least the 1730s (Farabee 1924, 13; Williams 1932, 13–14; Santilli 1997, 102). These outsiders included early Spanish and Portuguese traders, Dutch and British colonists, Christian missionaries of various denominations, Brazilian cattle ranchers and, more recently, Euro-American scientists and conservationists. However, despite a significant degree of cultural, linguistic and religious transformation, the indigenous conceptual system centred on shamanism and the proliferation of ‘nature spirits’, collectively known as *imawari* (Butt Colson and de Armellada 1990, 13), in the living environment continues to frame processes of cultural change and resistance today. The research presented in this article was primarily conducted in two villages, Yupukari and Rewa, situated on opposite sides of Makushi territory.

Like many indigenous peoples of lowland South America, the Makushi are expert gardeners, and this article concerns their horticultural practices and relationships. The

subsistence economy is based on the complementary interaction of swidden agriculture, fishing and hunting with a supplementary reliance on the gathering of wild plants from the forest and savannah. Makushi gardeners, both women and men, have a sophisticated and intimate understanding of the living logics and growth cycles of plants, as well as of their worldly entanglements with other kinds of beings (Daly 2015). Makushi ethnecology is thus predicated on a relational understanding of the diverse living beings, forces and elements that populate the forest-savannah biome, conceived as a single, integrated field of socio-ecological relationships.

As Anna Tsing (2014, 223) has written, ‘in multispecies landscapes, social persons of many species interact, variously shaping each others’ lives.’ In Amazonia, this socio-ecological landscape transformation happens through deep time and on a biospheric scale (Shepard and Daly, [forthcoming](#)). In this frame, Makushi gardens are prime sites for multispecies world-making. Gardens are dynamic places of interspecies sociality in which humans, plants, animals and spirits come together in symbiotic relationships of nurture, care and management. Cast in the light of innumerable shades of green and adorned with ornamental shrubs and flower beds, gardens are verdant places of botanical abundance and vitality in which cross-species relations are forged in the creative processes of shared selfhood. An array of birds (*toron*) passes through these forest clearings to feed on fruit trees. Mammals, too, such as agoutis (*akuri*), peccaries (*pinkî*) and tapirs (*waira*) are attracted to the garden space by the abundant source of food to be found there. As people say, a beautiful garden is a diverse garden, and with diversity comes health and well-being. Beauty is thus understood in multispecies terms, emerging from and generated in the ebb and flow of everyday encounters with a menagerie of cohabitants in the poly-ontological life-world of the garden.

Makushi horticulture happens in multiple places. Most Makushi families cultivate a kitchen garden and one or two forest farms. The kitchen garden (*umi*), a living space dedicated to the cultivation of certain types of fruits, vegetables and medicinal plants, is usually located adjacent to the house (*witti*). However, the majority of the vegetable component of the Makushi diet is produced in forest farms (*mîi*). Forest farms may be situated at varying distances from the village, but are usually a few miles away and accessed via waterways. Some remote farms, however, are located as much as two days paddling away in the forested foothills of the Kanuku Mountains to the south. Families often visit their farms for weeks or months at a time, living in situ while attending to their crops, before returning to the village with their harvest. Horticulturally and symbolically, forest farms are dominated by the staple crop bitter cassava (*kîse*); however, gardeners cultivate many other crops including sweet cassava (*kana*), maize (*a’nai*), bananas (*paruru ye*), cotton (*katoka*), sugarcane (*kaiwaraku*), fish poison plants (*hayari*), tobacco (*kawai*), medicinal herbs (*epik*) and plant-charms (*muran*) in forest farms.

The Makushi practice shifting cultivation of the swidden variety, alternating between farm sites in a spatio-temporal sequence of soil exhaustion and regeneration. Swidden clearings are usually opened in high forest (*yu*), bush islands (*pa’wi’ta*) or gallery forest (*wontai*) along the banks of rivers and lakes. Farms can be cleared at any point during the dry season, but ideally this is done in late April, prior to the commencement of the long rainy season (May until September). Farm plots are typically one to two acres in size, and are cultivated for three to five years before being left to fallow. Unlike the geometric gardens of the Gê-speaking peoples of central Brazil (Ewart 2013), Makushi

gardens tend to be roughly rectangular or trapezoidal in shape and do not follow any prescribed spatial pattern relating to cosmogonic symbolism. The perimeter of the garden is referred to as *mîi ye'pi*, meaning 'farm lip'. Most farms contain an open-walled workhouse constructed from hardwood posts and a kokorite palm (*Attalea maripa*) roof, which is used for shade and shelter. It is common to see extended families gathered together under these temporary structures, processing cassava whilst telling jokes and stories (*panton*). Farms and gardens, in this regard, are important sites of building and reproducing social relationships.

As historical ecologists have convincingly demonstrated, a significant proportion of the Amazonian forest-scape is in fact anthropogenic or 'biocultural' in constitution (Posey 1985; Balée 1993; Rival 2007; Shepard and Daly, *forthcoming*). Large tracts of the tropical forest, previously considered to be undisturbed wilderness (Denevan 1992), have been shown to be extensively modified by sustained and widespread agricultural activity over vast periods of time. Furthermore, as William Balée (1994, 249) has argued, these anthropogenic forests may exhibit greater biodiversity than their uncultivated or 'virgin' counterparts. This fluid 'fashioning of the forest ecosystem' (Descola [2005] 2013, 42), by which human beings and other animals wittingly and unwittingly distribute seeds and other plant materials, has continued for millennia.

This human-forest mutualism is encoded in the Makushi vernacular system of forest classification. The Makushi recognise numerous forest ecozones, each understood as being the product of human-forest interaction over historical time. The understanding of the forest as a mosaic of past human activity can also be observed in livelihood practices. Makushi people often visit old farm sites (*mîi pi'ta*) to utilise their resources. For instance, people harvest fruit from established fruit trees, which stand as living relics of previous generations of cultivators. Cultural memory remains attached to these 'vegetational artefacts' (Rival 1998, 235) for generations, even as they become reclaimed by the voracity of the forest. These overgrown areas of secondary forest also constitute important sites for hunting (*wo'na'pi*) and gathering fruits and medicinal herbs. The fact that fallows continue to be utilised for productive ends long after their cessation as active gardens 'eliminates clear distinctions between field and fallow' (Denevan 1992, 374).

The Cultivation of Diversity

Like most indigenous peoples of lowland South America, the Makushi are expert horticulturalists, yet, even by Amazonian standards, they have a particularly pronounced agroecological complex. Makushi gardeners cultivate over 120 species of crop plants, including hundreds, probably thousands, of landraces of the staple crop, bitter cassava. During ethnobotanical surveys, we recorded over 120 folk-varieties of cassava in three villages alone. Makushi gardeners have, to borrow a phrase from Manuela Carneiro da Cunha (2017, 257), 'a passion for diversity'. Perhaps reflecting this diversity, there is no single word for 'plant' in the Makushi language, nor is there a single word for 'animal'. Rather, there are many words for different categories of plant, such as trees, palms, grasses, lianas and so on, as well as for what Darrell Posey (1985, 140) called 'ecozones', or locally-defined ecological habitats: bush island, high forest, old farm, palm swamp and so on. Diversity is actively encouraged in the garden space. When clearing a new farm in the forest (*mîi ya'ti*), it is common practice to leave some established

trees standing, for instance, those which bear edible fruits such as the awara palm (*Astrocaryum vulgare*), those which birds or monkeys visit to feed on, or large canopy giants such as the mora (*Mora excelsa*) tree.

Without doubt, the most important plant in Makushi horticulture is cassava. Botanically speaking, cassava (*Manihot esculenta* Crantz) is a perennial herbaceous shrub of the Euphorbia family.³ Native to Amazonia, cassava is cultivated as an annual crop in farms and gardens. Clonally propagated from stem cuttings, the mature plant is harvested for its tuberous roots, whereupon the stem is chopped into cuttings and replanted in soil banks. Characterised by varietal ‘hyper-diversity’ (Heckler and Zent 2008), there are thousands of known landraces cultivated in lowland South America (Wilson and Dufour 2002, 50), and hundreds in Makushi farms (this study; Forte 1996; Elias 2000; Rival 2001). Genetic analyses have revealed that the crop was domesticated from a wild ancestor in western Brazil around 10,000 years ago (Rival and McKey 2008). Well-adapted to the low fertility, highly acidic soils of lowland South America (Dufour 1993, 576), this hardy shrub is now the fifth most important food crop in the world, constituting the primary carbohydrate source for over 800 million people across the tropics (Mühlen, Alves-Pereira, and Losada Valle 2013, 66). The crop was introduced to Africa by Portuguese traders in the sixteenth century (Rival and McKey 2008, 1119), and, in the seventeenth, to Southeast Asia (Ellen and Soselisa 2012, 18).

Known as *kísera* in Makushi, the cassava plant has a distinctive appearance: its large finger-like leaves adorn wiry boughs that spiral out from a central stem. Cassava plants display a great deal of phenotypic diversity. The palmate leaves (*kísera yare*), like giant hands, can be up to a foot in breadth, and can have between three and nine fingers depending on cultivar. The small flowers (*yari’ku*) are usually white or yellow in colour. Roughly the size of acorns, the spherical green fruits (*kísera eperu*) are sexpartite in structure. Once ripe, they dehisce, splitting along each of the six sutures to release the tiny seeds contained inside (*kísera ena’pí*). The shrub itself is primarily cultivated for its starchy tuberous roots (*imun*). As well as roots, the term *imun* also means ‘children’, an association characteristic of the parallels that Makushi people draw between human bodies and cassava plants. Like the above-ground elements of the plant, the morphology of the roots is variable: the bark-like outer skin (*pipu*) can be tough or flaky; the dermal under-layer can be yellow, red, even magenta in hue; the interior varies from white to yellow, and from soft to hard. According to gardeners, these are qualities which contribute to the beauty, vitality and individuality of cassava plants.

The tendency toward hyper-diversity in Makushi horticulture is shared among many of the indigenous peoples of northern and northwest Amazonia (Cabral de Oliveira 2008; Heckler and Zent 2008; Mentore 2012; Carneiro da Cunha 2017). Cassava varietal diversity is generated via the incorporation of volunteer seedlings into the stock of clonally propagated plants (Rival 2001; Rival and McKey 2008) and maintained via the social exchange of cultivars both within and between communities. Stem cuttings, known locally as ‘sticks’, are regularly exchanged between family members and neighbours, with gardeners always looking to acquire and experiment with new varieties. The vernacular names of folk-varieties tend to encode their socio-ecological histories of exchange and movement, with the namesake often being its place of origin or the individual who transported the stick to the village from elsewhere. Thus, they may reveal the names of people (‘Mavis stick’; ‘Dickie stick’), places (‘Brazil stick’; ‘Georgetown stick’), ecological

events ('drought stick'; 'flood stick'), even colonial power relations ('white-man stick'; 'police-man stick'), and can thus be read as vegetal prisms of condensed historical meaning. In this sense, the spatio-temporal exchange of cassava cuttings might be thought of as a socio-political strategy for navigating cultural change and transformation. The genealogies of exchange encoded in varietal names can reveal much about the political and economic history of a place. These place-based histories – the symbiotic products of human–plant interactions through time – are materialised today in the living form of cassava crops.

The Toxic Paradox

Like most indigenous Amazonian peoples, the Makushi distinguish between two ethno-species of cassava, 'bitter' (*kise*) and 'sweet' (*ka'na*), which form distinct overt categories in the indigenous classification. Biologically speaking, all varieties of cassava are of the same species – *Manihot esculenta* Crantz – and form a sweet-to-bitter spectrum based on their toxicity (Rivière 1987, 179; Dufour 1993, 576). Cassava roots contain the cyanogenic glucosides linamarin and lotaustralin, which are hydrolysed to the poisonous compound hydrogen cyanide (HCN), or prussic acid, when the plant tissue is damaged (Wilson and Dufour 2002, 50). Bitter varieties are extremely toxic in their raw state and require laborious processing to be made edible; sweet varieties are less toxic and can be cooked like other root vegetables. Curiously, then, bitter cassava is valued more highly by Makushi gardeners, with sweet cassava playing only a minor role as a food crop. Bitter varieties are actively selected for and held in higher regard horticulturally, aesthetically and socially. The subsidiary role of sweet cassava is reflected in selection practices and classification: indeed, it is not even considered to be 'real' cassava (Elias 2000; Rival 2001).

Cassava gardening is physically demanding and time-consuming work, and the hard work does not stop once the roots have been harvested. Cassava work extends from the garden into the homestead, whereupon the crop must be heavily processed in order to be made edible (Rivière 1987). Although hard work, however, cassava processing is highly valued by the Makushi, being seen as an important means of expressing creativity and prestige (Heckler 2004). Transforming the toxic roots into the various staple foodstuffs of Makushi cuisine requires the mastery of a set of specialised techniques which are acquired from a young age, particularly by girls under the tutelage of their mothers and grandmothers. Several iconic items of material culture are utilised in this multi-staged sociotechnical process, including the basketry cassava squeezer (*matapi*), grater (*samari*) and sifter (*manari*). The starchy roots are processed into a range of foods and drinks, including cassava bread (*ikei*), farine (*u'wi*), fermented cassava beverages (*parakari*, *kassiri* and *wo'* – see Daly 2019), tapioca starch (*imu*) and a savoury condiment called *casareep*. These nourishing food products are of inestimable importance in Makushi cuisine. They are eaten as the carbohydrate component of every meal, which is ideally constituted of three elements: (1) cassava bread or farine; (2) meat (*kamo*) or fish (*moro'*) and (3) a liquid broth, usually containing hot peppers (*pimi*).

Makushi people speak with pride about the indigenous wisdom required to transform a bitter poison (*mai'*) into food. As the village chief (*toshao*) told me on a visit to Yupukari in 2017:

We are the real scientists! Did you know that? No other people can make the poison cassava to eat. We turn the poison into food – that is Amerindian science, man!

Bitter cassava, as both a living plant and a staple foodstuff, is characterised by two inherent paradoxes. First, cassava shares a dual identity as both a life-giving staple and a potentially lethal poison. This, I refer to as the toxic paradox. As we shall see, this life/death ambiguity pervades cassava, both as a food crop and a mythological entity. Second, cassava is at once clonally propagated via asexual reproduction whilst also being the source and symbol of the hyper-diversity that characterises Makushi horticulture. On the one hand, all cassava plants might be considered extensions of the same individual, cloned across generations from one ancestral parent plant. On the other hand, cassava plants exhibit extraordinary phenotypic diversity, generated by the incorporation of volunteer seedlings into the stock of clonally propagated plants and maintained by the varietal exchange networks which undergird the Makushi ethic of horticultural diversity (for an extended discussion on this, see Rival 2001). A deadly poison and a staple foodstuff; a clone and a source of immense diversity. Taken together, I suggest, these two ethnobotanical paradoxes invoke a series of profound cosmological and mythological connotations which may go some way to explaining why cassava is such a pervasive yet ambiguous entity in Makushi culture and cosmology. As we shall see, cassava is imbued with cosmological associations which have direct ramifications for human health and well-being.

What Kind of People are Plants?

In Makushi ‘eco-cosmology’ (Århem 1996), the world is composed of eminently social beings. The plethora of nonhuman actors with whom humans share the garden space are themselves understood to be sentient, volitional ‘selves’ (sensu Kohn 2013) with the capacity for interspecies communication. Cassava crops, certainly, are spoken of – and spoken to – in subjective terms, and are said to have both individual spirits and the aforementioned master spirit Cassava Mama, who governs the fertility of the farm. Gardeners speak to their plants whilst planting and weeding around their crops, and sometimes sing charm songs (*eremu*) or recite spells (*taren*). Gardeners may also cultivate plant-charms (*muran*) in between the crops, which are said to ‘bring music to the plants’, making them ‘happy’ and thus encouraging their growth (more on this below). The plants, too, speak back – through tactile and sensorial engagement, or via the medium of dreams (*we’ne*), in which their spirits appear as human-like persons with the capacity for verbal speech.

There is an important embodied dimension to people–plant engagements. Gardeners and their crops come into close physical contact through the tactile acts of planting, weeding and harvesting. Over time, these intimate embodied exchanges create a kind of human–plant consubstantiality or shared substance (Shepard and Daly, forthcoming). These corporeal transactions and flows occur along sensory channels, and tend to be made sense of in multisensory terms.

Gardeners draw parallels between the bodily movements and worldly sensitivities of cassava plants and the kinetic movements of human bodies: for instance, the swaying of leaves in the wind (*a’situn*) is described as the plants ‘waving’. Similarly, the rustle of leaves is likened to whispering. As Aunty Esther told me one day as we approached

her garden along a descending forest path, ‘*shhh-shhh-shhhh* – see, you can hear the cassava plants talking’. Crops thus exhibit phenomenal awareness and multisensory perceptual capacities: they perceive and interact with their immediate environments. Like human gardeners, plants can sense their surroundings, and it is via these shared multisensory pathways that plant and human beings communicate and intermingle.

Makushi gardeners often say that plants are ‘people’ or *pemon*. This kind of statement challenges anthropocentric notions of personhood and raises the intriguing question, what kind of people are plants in Amazonia? Like humans and animals, plants are said to have souls (*ekaton*), a kind of vital essence which, as people say, ‘brings life to you’. Rather than being a transcendent soul, *ekaton* is a multiple and immanent entity, an ‘image’ composed of shimmering light energy (*a’ka*) which infuses the subject’s body in complex and uncertain ways. For instance, breath, seated in the chest, forms one of many ancillary souls (*ewan*) which together aggregate to constitute the true soul or essence, the *ekaton* (for a detailed discussion, see Daly 2015, 76–79). Souls are thus embodied, and bodies ensouled. Plants, like humans and other animals, possess souls, both true and ancillary, and are thus understood to be sentient, animate beings: as we have seen, cassava plants exhibit worldly sensitivities and phenomenal awareness of their local surroundings. In short, they are subjective persons.

Through the intimate and nurturing acts of tending to their crops, gardeners form enduring relations with them, relations which are described as consanguineal bonds akin to those between parent and child. Cassava crops, certainly, are spoken of – and spoken to – in subjective terms. Gardeners refer to their plants as ‘children’ (*more yami*), and speak to them in familiar tones while planting and weeding in order to keep them ‘happy’ and ‘healthy’. Like children, the young plants must be cared for and nurtured by their human mothers. Growth and vibrancy are evidence of the well-being of the crops, values which are made sense of in the language of kinship. Crops are ‘plant kin’ (Miller 2019), in a literal sense, situated within a broader ‘kincentric ecology’ (Salmón 2000) which encompasses human and nonhuman subjects into a relational community akin to a family. Consider the following quote from Auntie Bernadette, an elderly woman from Yupukari village:

Cassava is people. When you weed your farm, between the banks, the plants are happy now, waving. The weeds are like head lice for the cassava. I be like the mother of those plants; I keep them happy. They all wave now, and say ‘mummy coming’!

As other-than-human persons, plants are undeniably communicative beings. ‘Plant-people’ exhibit the capacity for speech – both verbally, in the schema of human language and in a more sensorial and embodied sense. Humans and plants can converse directly, for instance in dreams or shamanic visions. Take the following statement, as recounted to me by Samuel, a research collaborator from Yupukari, upon a recent visit to the community in 2019:

Do you believe people can communicate with plants? I do – we communicate with plants. They come to you in your dreams (*we’ne*). They look just like you or me, like a human being. They speak a human language, just like Makushi. That is the spirit of the plant.

As Samuel went on to explain, ‘plants will come to you in your dreams, that’s how they will tell you if they is happy’. Plant-spirits appear in dreams like ‘little people made of

light' in order to engage in dialogue with their human associates.⁴ For instance, if a plant-charm (*bina*) has been planted in a spot with insufficient sunlight, the plant's spirit may appear to the gardener in a dream, instructing them to move it into a sunnier spot. This is cross-species communication on the spirit-plane, akin to what Philippe Descola ([1986] 1994, 99) has called 'soul speech', the metalanguage by which humans and nonhumans can overcome 'the material constraints of speech'. Soul-speech is a skill mastered by the shaman, the specialist in interspecific mediation (Rivière 1999; Kopenawa and Albert 2013).

In everyday life, most human–plant communication takes the form of what Donna Haraway (2008, 27) terms 'non-linguistic embodied communication': it works through bodies (*esak*), via tactile engagement and the transfer of substances and essences as mediated by the senses. Plants are integral to the fabrication of bodies and the production of human and nonhuman persons. This notion ties into the classical Amazonian theme of substance-sharing in person-making practices (Overing and Passes 2000; Vilaça 2002). Certainly, for the Makushi, the transfer of substances between human and plant bodies is an important ritual act, seen most clearly in the use of a category of plant-charms known in Creolese as *bina* (Van Andel et al. 2015). *Bina* charms (*muran* in Makushi) are typically rubbed into lacerations made on the skin, inducing a stinging or irritating sensation upon application (Daly and Shepard 2019). The archetypical 'plant-persons,' *bina* plants are said to be shamans of the botanical realm – and, as such, they constitute key interlocutors of the human shaman (*pia'san*) during rituals. Humans can acquire the capacities and knowledge of these plants via bodily assimilation; as such, *bina* plants are sometimes referred to as 'teachers'.⁵ Their powerful spirits are condensed in fleshy storage organs such as bulbs, tubers and roots, and the bitter, toxic or irritating substances they contain. Their efficacy as charms is evidenced by the extreme sensory reactions they elicit upon application to the human body. It is in the transfer of substances and capacities between human and plant bodies, as mediated through sensory engagement, that real persons (*pemon*) are constituted through time. Similar substance-based transfers have been described among the Yanéscha people of Peru by Fernando Santos-Granero, who writes that 'person-making', for the Yanéscha, is achieved via the 'the assimilation of bodily and subjectival substances from human and nonhuman Others' (2012, 184). These kinds of substantial transactions and flows can be usefully understood as an embodied form of human–plant communication.

The social relation between cultivator and crop is not simply bi-directional; it is complicated by virtue of a third relation with the garden-dwelling spirit Cassava Mama, as outlined in the introduction. The agency of Cassava Mama pervades all aspects of cassava cultivation and garden work. The tutelary spirit of cassava plants, she nurtures the crops, facilitating their well-being and promoting their growth. As a guardian spirit (*potori*), she protects cultivated plants whilst embodying them as an owner (*esak*, a word also meaning 'body'). The relation of ownership between the spirit and the crops is understood as a consanguineal one, akin to a parent–child bond. Cassava Mama lives among the plants, looking after them like her own children, a bond inscribed in her Makushi name, *kisera yun* (cassava 'mother' or 'parent'). The relationship between human gardeners and Cassava Mama, on the other hand, is rooted in a more complex relationship, one fraught with the potentiality for danger and the requirement for constant reciprocation. Gardeners speak to Cassava Mama whilst planting cuttings and

weeding around their crops, and sometimes recite spells (*taren*) or sing charm songs (*eremu*) to her. Offerings of tobacco (*kawai*) or cassava beer (*parakari*) may be left out in the garden as gifts for her.

It is warned that people should not visit their cassava gardens when sick (*paran*), menstruating, or excessively hungry, understood as physiological states of weakness or vulnerability (i.e. a lack of 'strength', *merunti*). If this prohibition is contravened, Cassava Mama will 'lash' the unfortunate human recipient, imparting a whip-like blow which leaves no obvious physical trace but induces a spiritual malaise. This tends to manifest as a malaria-like fever (*ekomi'ma*). An elderly woman from Rewa village once described to me how, as a young girl, her grandmother would tell her, 'don't go to the farm when you are sick'. One day, however, she went to plant cassava with a bad toothache. After returning home, she developed an abscess in her mouth and suffered agonising pain for a week. 'That is because Cassava Mama had lashed me', she concluded. In particularly severe cases, the cassava mother may co-opt the human soul (*ekaton*) entirely, which in times of illness is only tentatively attached to the corporeal element of the person, the 'body' or 'flesh' (*pun*). Once soulless, the human body, incomplete, will wither and die (*emo'ka*).⁶

Although potentially harmful to human beings, Cassava Mama also facilitates the growth of the most fundamental life-sustaining plant. Cassava Mama, then, is an ambiguous presence, giving life by encouraging the growth of cultivated plants whilst all the time harbouring the potential to take it away. More broadly, we might say that the garden, much like the forest, is a precarious space in which dangerous alterities pass through and linger. These 'unseen spirits' (*imawari*) must be treated carefully or altogether avoided by human gardeners, or else require familiarisation via shamanic intervention (Fausto 2000). Following Strathern (2017, 2018), then, we might say that Makushi phyto-worlds are defiantly 'immanentist', being characterised by the worldly interaction of a menagerie of human and nonhuman beings, including, importantly, those powerful spirits which, under normal conditions, remain unseen to human beings. The cassava garden as an ensouled domain, like the world at large, must be continually regenerated via the agentive work of humans, plants and spirits.

The Mutilated Snake

The historical entanglements of people and plants are poetically recounted in mythological creation stories (*panton*). The crop features in myth perhaps more than any other plant, and can even be considered coeval with and integral to the origins of humanity in mythical time. Like a seed of history, cassava was present at the beginning of the world, sustaining the first human beings to emerge from the primordial chaos at the birth of the world (*pia'ton*) – the culture heroes Inskiron and Anike. These mythological brothers, often described as being the first shamans, constitute key characters in cultivation spells or 'blessings' (*taren*). Cosmological categories and figures rooted in mythic history thus continue to frame horticultural praxis in the present day.

The origin of the Cassava Mama spirit is recounted in a number of stories, which describe how, during the beginning times (*pia'ton*), a mother and her baby girl went to the farm. Unhappy with her neglectful mother who was busy working in the farm, the baby started crying. She cried and cried, but was ignored by her mother. She

continued to cry until eventually she transformed into a bird – a swallow-tailed kite (*kumariya*, a black and white bird of prey which is often seen spiralling on air currents above the farm). In bird form, the girl ascended to the celestial plane of the spirits, spiralling upwards while her mother called out for her in vain. It was she who became the Cassava Spirit, the guardian of cultivated plants. Today, as people say, the call of the bird sounds like the crying of a baby.

Another well-known story, as recounted to me by the Makushi elder Auntie Evelyn, describes how the many varieties of cassava emerged from the mutilated corpse of a monstrous serpent. The giant and fearsome snake (*kii*) lived in the top of a ginip fruit tree (*maku ye*). One day, a human girl from a nearby village visited the tree to collect the ripe ginip fruit. Whilst collecting the fruit, the snake descended from the branches and seduced her, entering her vagina and impregnating her. Months later, the girl fled the village to live with the snake, whereupon she gave birth to a snake-baby. Angered, the girl's brothers plotted to kill the devious snake in retribution, which they achieved by chopping it into pieces with their machetes. They buried the mutilated corpse in a soil grave in a clearing in the forest. Like stem cuttings, the dismembered segments sprouted from the soil into the various land-races of cassava that exist today.

As Evelyn described to me, the story explains a series of physical homologies between cassava and snakes. Firstly, cassava cuttings exude a poisonous milky sap when lacerated, like snake venom. Both snakes and cassava are venomous or poisonous with (*mai*, 'bitter'), snake venom being likened to the toxic effluent of cassava roots (*kata*). Secondly, cuttings resemble the mutilated pieces of the snake: the stem of the harvested plant is chopped up into shorter cylindrical pieces for replanting, just as the snake's cylindrical body was chopped up by the brothers-in-law. Third, the snake was buried in a soil grave, identical in form to the ploughed banks in which cassava sticks are planted today. Finally, as described earlier, cassava sticks and the resulting plants exhibit a wide variety of colours depending on cultivar, like the variegated coloured patterns of snakeskin. The creation story of cassava can thus be read as a narrative about the practical and symbolic transformation of bitter cassava from a deadly poison into a vital, life-sustaining alimentary foodstuff.

The Ensouled Body and the Embodied Soul

Animism is a category that must be treated with particular care. In the Tylorian tradition, early anthropologists of then-British Guiana referred to the religion of the indigenous peoples as 'animistic', couched, of course, in evolutionist terms (Roth 1915). More recently, the concept has been revived and reinvented as a dominant paradigm in contemporary Amazonian anthropology (see Costa and Fausto 2010). In this frame, nonhumans – most often, animals and spirits – are understood as being persons or subjects, in a generalised sense (Descola 1992), or human beings, in a species-specific and perspectively situated sense (Viveiros de Castro 1998).⁷ These theoretical developments have had significant implications not just for anthropological understandings of the soul, but also of the body.

Since Seeger, Da Matta, and Viveiros de Castro's (1979) seminal article on corporeality in Amazonia, the relationally constituted and socially fabricated nature of the human

body has been extensively reported and theorised (Turner 1980; Conklin 1996; McCallum 1996; Overing and Passes 2000; Vilaça 2002; Santos-Granero 2012). As these anthropologists have shown, Amazonian notions of person-making are inexorably bound up with the central theme of consubstantiality. This must be understood in relation to the well-known Amazonian theme of the dependence on otherness for the reproduction of society (Rosengren 2006, 812): affines are transformed into consanguines via the intimate processes of shared living, itself resulting in the gradual attainment of consubstantiality, conceived of as a literal rather than figurative notion of shared substance (Vilaça 2002). The Amazonian body, as commonly understood, is a permeable and ‘chronically unstable’ entity (Vilaça 2005), constituted of substances and essences that circulate inside and outside of human and nonhuman selves (Santos-Granero 2012). Persons and their constituent bodies are pervious and continually in the process of being made through shared acts of living together with a heterogeneous society of human and nonhuman beings – the latter including, importantly, plants.

In plants, then, we see an enigmatic and often rather hard-to-grasp instantiation of a broader theme, namely, the complex entanglement of bodies and souls in lowland South America. Put simply, a Cartesian body/soul dichotomy makes little sense in indigenous Amazonia (Taylor 1996; Rival 2005). Here, bodies are ensouled and souls are embodied to the extent that it makes little sense to draw any such distinction in the first place. Corporeality and spirituality are inextricably entangled; the physical and the spiritual infuse one another in complex and uncertain ways.

Following this line of thinking, we might suggest that plant souls be thought of as fractal (sensu Wagner 1991) manifestations of a generic soul or ‘life-force’ (*a’ka* in Makushi). This vital life-force, itself the very condition for life, permeates and runs through the cosmos at large, conceived here as an integrated domain of sociality, and is personified in the form of the Cassava Mama spirit and other metapersons. Here, we may revisit Strathern (2018), for whom immanentist life equates to ‘a force of growth or regeneration made visible in the health and brightness of enduring vitality’. Cassava Mama might be thought of as a personification of the immanent life-force which permeates the life-world of the garden. A similar argument has been made by Laura Mentore (2012) in relation to the Waiwai, the southern neighbours of the Makushi. As Mentore convincingly argues, in Waiwai gardening, ‘womanhood and cassava can be seen as fractal images and divergent embodied forms of a common intersubjective being, one that is holistically represented in the mythic figure of Cassava Mother’ (2012, 147).

For the Makushi, this life-force or vital essence is conceived of as ‘shimmering light energy’ that permeates the cosmos and runs through all living things, ‘bringing life to them’. This vital energy (*a’ka*) – a vernacular notion that we may translate rather clumsily as ‘soul’ or ‘spirit’ – is condensed in particular nodes such as the bodily cavities and breath of living beings, each being infused with an ancillary spirit (*ewan*) (on similar spirit concepts among the Akawaio, see Butt Colson 1989; Butt Colson and de Armellada 1990). Cassava Mama, like individual persons and their vital and ancillary souls, is but one manifestation of the generic life-force which animates the shamanic multiverse. The cultivation of ‘transdimensional relations’ (Rosengren 2006) across the planes of the shamanic multiverse is predicated precisely upon controlling and harnessing this cosmic energy, an ability which constitutes the very essence of shamanism. The

shaman is, precisely, the ritual specialist who has mastered a set of bodily and spiritual ‘techniques of knowing’ (Townsend 1993) which allow him or her to perceive and interact with the unseen world of spirit-beings (Rivière 1999; Kopenawa and Albert 2013).

How Gardens Think

In the foregoing, I have presented an overview of garden cosmology among the Makushi people of Guyana, in relation to the fundamental and life-sustaining relationship that obtains between human beings and cassava plants in the multispecies world of the garden. Via an analysis of the cultivation and processing of this culturally pivotal plant, I have argued that vernacular concepts of growth, vitality and diversity are rooted in mythic narratives which articulate cosmogonic explanations centred around the ideas of life-giving poison and nonhuman personhood. Gardens are productive and creative sites of multispecies world-making. At the same time, as we have seen in relation to the Cassava Mama spirit, there is always a latent danger here: gardens, like the forest at large, harbour the potential for predation and cosmological violence on the part of spirit-intentionalities, itself a broader expression of the highly transformational and ambivalent character of the spirit-world (Rivière 1994).

This, in essence, is the ‘art of gardens’: for Makushi cultivators, there is no such thing as a static, utilitarian garden-landscape. Gardens are forged not solely by human action and intentionality, but rather, in the interaction between humans and other kinds of beings. As Tim Ingold (2000, 172) has poetically written, ‘the most fundamental thing about life is that it does not begin here or end there, but is always *going on*’. Cassava farms are dynamic, productive places of interspecies sociality and creativity in which humans, plants, animals and other others coalesce and become, together – and not always harmoniously, it might be added. Following Ingold (2013, 6), we might say that gardens are sites of human–vegetal ontogenesis, in which people, plants, animals and spirits continually produce and reproduce one another in the perpetual regeneration of life. Animism, in this schema, rather than being a religion or system of beliefs predicated upon the attribution of spirit to the inert, is ‘a way of being that is alive and open to a world in continuous birth’ (2013, 9).

In order to better understand the relational constitution of multispecies life-worlds, we, as anthropologists, should certainly think like ‘animists’, and, I playfully suggest, we might also begin to think a little more like gardens. We might begin to achieve this by moving along two intersecting planes: space and time, conceived together, as vegetal space–time – the former, referring to the drawn-out, often imperceptible time-frame of vegetal growth and maturation; the latter, to the entangled and contorted spatial movements of plants, both above and below the generative surface of the ground. The analytical project of a phyto-anthropology (Daly and Shepard 2019), then, is directed toward making sense of such people–plant contortions across socio-ecological space–time.

According to some plant scientists, the post-industrialised West is afflicted by a condition called ‘plant blindness’, the perceived tendency to ignore, overlook, or devalue the botanical elements of one’s environment (Gagliano 2013; Knapp 2019). Plant-life, in such modern ontologies, tends to constitute little more than a semi-inert backdrop for the active goings on of human and other animal life. This anthropocentric bias, it might be argued, has also coloured anthropology as a discipline for much of its history. As

we have seen, the Makushi, like many indigenous peoples across the world, are anything but plant-blind. In an age of rapidly expanding monocultural plantation ecologies, we, as anthropologists, might take inspiration from the sophisticated phyto-philosophies of indigenous Amazonian peoples predicated, as we have seen, on diversity and other-than-human relationality. Anna Tsing (2014, 223) has argued that, in the epoch of the Anthropocene, a more-than-human anthropology should primarily be concerned with ‘critical description’, that is, ‘arts of noticing the entwined relations of humans and other species across multiple non-nesting scales’. An anthropology beyond the human, I suggest – following this line of thinking – might reimagine itself in the image of gardening-as-ontogenesis as described in the foregoing. For gardening, much like anthropology, is rooted in ‘arts of noticing’ the diverse array of human and nonhuman entities in constant relational interaction, through time and across scales. As Makushi people tend to emphasise, a beautiful garden is a diverse garden. Diversity, in this regard, is the key to understanding.

Notes

1. All names are pseudonyms.
2. This proposal is situated relative to recent advances in multispecies studies in anthropology and cognate disciplines (e.g. Kirksey and Helmreich 2010; Ogden, Hall, and Tanita 2013; Van Dooren, Kirksey, and Münster 2016; Swanson 2017).
3. Also known as manioc in Portuguese and yuca in Spanish. Whereas the name manioc is employed in much Amazonianist literature (e.g. Rivière 1987; Rival 2001), I use the term cassava, since this is the word used by the Makushi people themselves and is the colloquial term used throughout Guyana and the Anglophone Caribbean. Etymologically, the names manioc and cassava are indigenous South American terms, manioc being derived from the Tupi word *maniot* and cassava stemming from the Arawak *cassavi*, meaning bread (Clement et al. 2010, 76).
4. On the luminous character of Amazonian spirits, see Viveiros de Castro’s (2007) discussion of Davi Kopenawa’s visions of the *xapiri* spirits in Yanomami shamanism. For an expanded discussion, see Kopenawa and Albert (2013).
5. On the concept of plants as teachers in Amazonian shamanism, see Luna (1984) and Shepard (2018).
6. During sickness the spirit becomes loosened from the body; at death it dissipates entirely. The souls of the dead are known as ‘shadow souls’ (*katon’pi* – the suffix *-pi* indicating past tense; thus, they are ex-souls). Sometimes referred to as ‘ghosts’, the ex-souls of humans become ‘unseen spirits’ which roam the cosmos after the physical body has ceased to exist.
7. Plants, it should be pointed out, have all-too-often been sidelined in conversations around nonhuman personhood and agency in lowland South America. There are, of course, exceptions to this trend: to name but a few, Rival (1993), Descola ([1986] 1994), Balée (1994), Chapuis (2001), Shepard (2004), Wright (2009), Zent (2009), Barbira-Freedman (2015), Cabral de Oliveira (2016) and Maizza (2017), and as well as the recent body of work on plants as social actors in the genre of multispecies ethnography (e.g. Kawa 2016; Daly 2015; Daly and Shepard 2019; Miller 2019).

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ORCID

Lewis Daly  <http://orcid.org/0000-0002-0542-9397>

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