

The Lives of Machines and Screens: Modern Technical Artefacts among the Yagua People in Northwestern Amazonia

Thesis submitted in partial fulfilment of the requirements for the Degree of Doctor of Philosophy

by

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Trinity Term 2025

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Abstract

This thesis explores how modern technical artefacts alter the wider relational ecology of the Yagua people in northwestern Amazonia. Based on ethnographic fieldwork conducted between 2021 and 2023 in different Yaguan communities along the Orosa and Atacuari Rivers in Peru, it provides a detailed examination of the provenance, meanings, and ramifications of modern technical artefacts among the Yagua people. The thesis highlights in particular how modern technical artefacts are creatively integrated into Yaguan mythologies, ontologies, and everyday lives and shows that machines and screens – like other beings – are among the Yagua animated by plural, complex, and potentially ubiquitous life forces. It constitutes the first major anthropological study of the Yagua in the twenty-first century.

With modern technical artefacts proliferating at a rapid pace across Amazonia, it offers a pertinent contribution to the wider anthropological literature on the political economy and developmental trajectory of lowland South America. As the thesis shows, machines and screens self-perpetuate through the transformation of human needs, hopes, and desires, and their spread fosters structures of dependency, reinforces an exploitative capitalist system, and disrupts existing relational ecologies comprising human and non-human beings. The thesis concludes by suggesting that the Yaguan adoption of modern technical artefacts parallels their domestication of wild animals.



Acknowledgements

A great number of people – far more than I could name here – contributed in various ways to the completion of this thesis. I would like to thank all of them for their support.

I would like to express my gratitude in particular to the Yagua people who warmly welcomed me in their midst. I especially thank the family of Manuel Ramirez Santana and Sina Macahuachi Medrano in Comandancia and the family of Richa Mutyasurya and Edena Ramunurya in Tangarana, who for many months shared their homes and food with me and helped me to navigate their villages, rivers, and forests. My heartfelt thanks also go to all my research participants, who kindly entrusted me with their knowledge, stories, songs, and wisdom.

I also extend my deep gratitude to my supervisor Laura Rival, whose unwavering support was invaluable. I greatly appreciate that Laura encouraged me – an economist and political scientist by training – to enter and explore the field of anthropology and that her guidance throughout my doctoral journey was both expert and compassionate.

For detailed comments on previous chapter drafts, I am indebted to Julie Dayot, Andrés González Dinamarca, and Jessica Rahardjo. Valuable feedback was also received from Sabina Alkire, Morgan Clarke, Elizabeth Ewart, and Tom Scott-Smith during my doctoral rites of passage at Oxford, and I gratefully acknowledge their help. I further wish to thank Jean-Pierre Chaumeil for insightful discussions about Yaguan ethnography and Alexandre Surrallés for his mentorship at the *Laboratoire d'Anthropologie Sociale* in Paris.

In addition, I greatly benefited from discussions with Alice Beriot, Bonnie Chaumeil, Ana Carolina Dall'Agnol, Vyoma Dhar Sharma, Philippe Erikson, Clara Fortes Brandão, Malvika Gupta, Idjahure Kadiwel, Larissa Longano de Barcellos, Amy Penfield, Nehemías Pino, Emmanuelle Ricaud-Oneto, and Michael Uzendoski. I wish particularly to mention Luise Jürcke, whose visit to Tangarana not only

provided emotional support but also deepened my understanding of Yaguan lives.

For their support in linguistic matters, I am grateful to Eduardo Benítez-Inglott y Ballesteros, Masha Cheremisinova, Luis (Lucho) Hildebrandt Belmont, and Toby Hudson, and for their help in the creation of maps, I am indebted to Sophie Borrmann and Sebastian Borrmann. Moreover, I thank the entire staff of *Project Amazonas*, a non-governmental organisation in Loreto, which gave me a home in Iquitos and introduced me to life in the Peruvian rainforest. I thank in particular Devon Graham for his thoughtful support throughout my fieldwork and for sharing his encyclopaedic knowledge of tropical biology with me.

I am also thankful for the generous financial support I received from the *Studienstiftung des deutschen Volkes* as well as from *Wolfson College*, the *Oxford Department of International Development*, and the *Malcolm Deas Fund*. Further thanks go to the *Archives of Traditional Music* for providing access to archival audio recordings, to the *Instituto del Bien Común* for sharing their geospatial data on Yaguan territories, and to the *Organización Regional de los Pueblos Indígenas del Oriente* for bringing me into contact with the Yagua and embracing my research project.

I would also like to thank all my wonderful friends who accompanied me on my doctoral journey, for joining me in games of chess, go, and foosball, for punting with me on the Cherwell River, and for contributing, through their presence and laughter, to my well-being. Of those not yet mentioned, I wish to thank in particular Paul Birth, Juliana da Cunha Mota, Oana Diaconescu, Frederik Florenz, Tejo Jehart, Raghav Malhotra, Estelle Paulus, Anna Ren, Sarah Scripps, Anshumaan Tuteja, Madhu Vankadari, Olivia Ramble, Jarla Thiesbrummel, François Vandame, Samuel Wiese, and Sebastian Winkler.

Lastly, I wish to warmly thank my parents, sisters, nephews, nieces, and late grandparents, whose encouragement and steadfast support have sustained me throughout my life. Without my family, I would have been unable to end – or even begin – this thesis.



Notes on Yaguan Orthography

Throughout this thesis, the spelling of Yaguan words relies whenever possible on orthographic recommendations by the Yaguan teachers Manuel Ramirez Santana and Francoly López Vásquez. Roughly speaking, Yaguan letters can be read like Spanish ones, with the exception of the nasal vowels a̲, e̲, ï, o̲, and u̲, the assimilated consonants *b* and *d*, and the glottal fricative *j*.

a	as in 'l*u*ck' or 'f*a*ther'	*a̲*	nasal *a*, as in French '*a*ns'
b	as in '*b*uild' or 'e*mb*ark'	*ch*	as in '*ch*ore'
d	as in '*d*are' or 'e*nd*'	*e*	as in 'p*e*t' or 'c*a*t'
e̲	nasal *e*, as in Portuguese 'b*e*m'	*i*	as in 'f*i*t' or 'm*ee*t'
ï	nasal *i*, as in Portuguese 'f*i*m'	*j*	as in '*h*ouse'
k	as in '*c*are'	*m*	as in '*m*ake'
n	as in '*n*ourish'	*ñ*	as in Spanish 'le*ñ*a'
o	as in 'r*o*ck' or 'f*ou*r'	*o̲*	nasal *o*, as in French 'm*o*nde'
p	as in '*p*lace'	*r*	as in Spanish '*r*ojo'
s	as in '*s*ee'	*t*	as in '*t*ake'
u	as in 'p*u*t' or 'bl*ue*'	*u̲*	nasal *u*, as in French '*u*n'
w	as in 'hea*v*y'	*y*	as in '*y*es'; silent at word-final position

Following the preferred orthography of my research collaborators, my writing does not normally indicate vowel length, tone, or palatalization. The Yaguan word for dog is for instance transcribed as *nibi*, rather than as *nibyíí*. The latter spelling derives from the dictionary by missionary linguist Paul Powlison (1995, p. 385). While it carries more information, Yaguan teachers reject it as unwieldy and foreign, and I respect the authority of Yaguan teachers to choose the most appropriate spelling. As Manuel once explained in this context: 'Earlier, we did not write ourselves, because we did not have writers, we did not have professionals, we did not have anyone who could write. Earlier, *other* people wrote … Now, in this era, we write ourselves.'

Chapter 1



Introduction:

The Ubiquity of Machines and Screens



Overview



This chapter introduces the entanglement of human beings and artefacts within Yaguan relational ecologies. Drawing on theories by Ian Hodder and Philippe Descola, it shows how the Yagua people live in the society of modern technical artefacts such as boat motors, chainsaws, and tablets. The chapter then raises the central question of how such artefacts are integrated into Yaguan relational ecologies.

The discussion then expands to questions of international development, identifying a tension between techno-developmentalist and techno-critical perspectives that runs through the remainder of my thesis. The former, exemplified by Daniel Miller, stresses how machines and screens can be creatively used and integrated into everyday life. The latter, represented by authors such as Steven Rubenstein and Alf Hornborg, emphasises how modern technical artefacts can have detrimental consequences.



Imaginaries of Freedom



In the opening paragraph of his award-winning short story *El indomable curaca* (Spanish 'The indomitable chief'), the Peruvian author Julio Oliveira Valles describes how '[t]he Yagua lived on riverbanks in close contact with nature, in a rich territory of sylvan flora and fauna, hunting, fishing, and gathering forest

products' (2009, p. 15, own translation). In the story, however, the increasing contact with the nation state and the capitalist market system threatened the idyll, and the story's protagonist – a charismatic *curaca* – withdrew into the forest with a group of exasperated Yagua. 'I search for a place where we can live in freedom', he explained to a forest spirit. 'We wish to live like before, free and in accordance with our customs, practising the ancient wisdom that our grandparents taught us' (Oliveira Valles 2009, p. 46, own translation).

When I read Oliveira Valles' story during a visit to Iquitos, I was immediately reminded of an older travel account by the French explorer Bertrand Flornoy, published in 1953 under the title of *Yawa: le peuple libre*. Flornoy characterises the Yagua as 'the free people' in his title because they allegedly did not follow the rules of 'other men' but only the rules of their forest surroundings (Flornoy 1953, p. 116, own translation). However, Flornoy also dismissed all other Yagua who were not as 'pure' as he had expected them to be (Flornoy 1953, p. 13, own translation). When a missionary priest asked Flornoy right at the beginning of his adventure what he felt about the other 'Indians', that is, about those who were already working for a patron, Flornoy simply replied that '[t]hese are no longer Indians' (Flornoy 1953, pp. 17–8, own translation). It was the priest who objected to Flornoy's primitivist understanding: 'These are still Indians and you know that well. It's only that they wear trousers and speak twenty words of Spanish' (Flornoy 1953, p. 18, own translation).

In his search for the 'free' Yagua, Flornoy relied on a group of 'domesticated' Yagua, whom a local patron had inebriated with sugar cane liquor and then persuaded to accompany Flornoy as porters, guides, and interpreters on his upriver journey (Flornoy 1953, pp. 51–4, own translation). When the workers became tired mid-way through the journey and decided to return home, Flornoy was furious but dumbfounded: 'They simply left us … What to tell them? How to explain to them that, if they stop, our effort doesn't make sense any longer and that the expedition risks to collapse like a tree cut at its roots?' (Flornoy 1953, p. 76, own translation). How indeed to explain the importance of exploring an 'unexplored' region (Flornoy 1953, p. 58, own translation) to people who know its ins and outs!

Flornoy finally found 'the free people' on a small creek of the Atacuari River: 'A group of Yagua is before us: a dozen men of red colour, all of them wearing the skirt and the traditional hairstyle, with bracelets of [*chambira*] fibre around the wrists and ankles. They are *almost* like our porters … The difference is mainly in their calm attitude and in their countenance' (1953, p. 83, own translation, original emphasis).[1]

Both Oliveira Valles and Flornoy sought to recreate a romanticised image of the Yagua that presented

[1] Possibly, this group of 'free' Yagua later founded the community of Tangarana, where I undertook a significant portion of my fieldwork. While Flornoy's description of the group's location is imprecise, a map with his overall travel itinerary suggests that he may have crossed paths with the group of Evarista, the father of my host in Tangarana (compare the maps in Flornoy 1953, p. 49, and Chaumeil 1981, p. 155). Flornoy also mentions a person called 'Richiat' (Flornoy 1953, p. 117), who might have been the namesake of my host 'Richa'.

them as living in a state of primordial freedom in the forest, without any contacts and ties to the surrounding capitalist system. But this image quickly flew in the face of reality. In Oliveira Valles' short story, the secluded group discovered that they could no longer live without salt, soap, and shotgun cartridges, among other things, and they reinitiated contact with other people. '[W]e're going to open a pathway ... which connects our community with the nearest river to exchange goods with the merchants', it was decided (Oliveira Valles 2009, p. 64, own translation). In Flornoy's travel account, the author observed that the 'free' Yagua possessed 'old machetes, without handles' (1953, p. 84, own translation) when they cut lianas in order to carry his luggage. 'Is there a single group of Indians nowadays, and be it the most hidden one, that does not possess ... one of these tools?', Flornoy muses afterwards. 'I'm persuaded that the age of stone, at least as far as the use of that essential instrument is concerned, has ended throughout the Amazonian forest' (Flornoy 1953, p. 84, own translation; see also Ferguson 1998 for a critical discussion of 'the age of stone' in the Amazonian context).

The Yagua live in an age of machines and screens today, as they are in close contact with chainsaws, boat motors, grass trimmers, televisions, smartphones, and tablets. The question that I seek to answer in my thesis is how these modern technical artefacts are integrated into their relational ecology.

In the Society of Artefacts

'It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing in the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent upon each other in so complex a manner, have all been produced by laws acting around us.' Thus concludes Charles Darwin's *On the Origin of Species* (1859, p. 489). For Darwin, the bushes, birds, and worms of the riverbank form part of an intricate ecology with marvellous and awe-inspiring complexities and dynamics. My thesis shows that similar ecologies are brought to life by human beings and artefacts. In what follows, I reflect on the entanglement of human beings, things, and nature, beginning with a brief history of evolutionism in anthropology.

The Evolution of Things

Like the animals and plants studied by Darwin (1859), human beings and artefacts undergo evolutionary processes. Karl Marx already observes this shortly after the publication of Darwin's *magnum opus*. 'Darwin has interested us in the history of Nature's Technology, i.e., in the formation of the organs of plants and animals, which ... serve as instruments of production for sustaining life. Does not the history

of the productive organs of man, of organs that are the material basis of all social organisation, deserve equal attention?', he notes in a footnote to *The Capital* (Marx 1906, p. 406).

In line with ideas of linear evolution, early anthropologists saw artefacts as a primary condition for progress and as a measure of civilisation. Machines were regarded as materialisations of science and reason in this context. The British anthropologist Edward Burnett Tylor argues for instance that 'tribes' and nations can be classified along a continuum ranging from 'savage tribes' to the 'educated world of Europe and America' (1871, p. 26). As he outlines, 'the principal criteria of classification are the absence or presence, high or low development, of the industrial arts, especially metal-working, manufacture of implements and vessels, [and so forth]' (Tylor 1871, pp. 26–7). At around the same time, just on the other side of the Atlantic, Lewis Henry Morgan espouses the following idea: 'The production of iron was the event of events in human experience, without a parallel, and without an equal ... The want of iron tools arrested the progress of mankind in barbarism. There they would have remained to the present hour, had they failed to bridge the chasm' (Morgan 1907 [1877], p. 43).

In the early twentieth century, evolutionist thought was challenged by the diffusionist school around Franz Boas, for whom biological evolution was marked by the divergence of material between species while human development was characterised by the dissemination of material between social collectives (see Boas 1932). With the spread of diffusionism, evolutionism fell out of favour in anthropology, to the degree that one of Boas' students even proclaims that '[a]ll modern ethnology, with disappearingly few exceptions, builds upon the ruins of the classical evolutionary doctrine' (Goldenweiser 1925, p. 20). Such proclamation came too early, though, as evolutionist thought was later revived in the work of Leslie White, who claimed that diffusionist anthropologists had grossly misrepresented evolutionism (e.g. White 1945; cf. also Lowie 1946a, 1946b and White 1947).

Human evolution was to a large degree determined by technology for White (1959), as it had already been with Tylor and Morgan. 'If social institutions are shaped by the operation of technologies, then social change will tend to follow technological change', he argues (1959, p. 21). However, his technological determinism sits uncomfortably with anthropological findings from the Amazon region. Laura Rival shows for example that hunting technology among the Waorani people is 'the product of social choices' (1996, p. 159), illustrating this with the adoption of shotguns and blowguns in different contexts, where 'hunters do not perceive the shotgun as technical improvement over the spear or the blowpipe' (1996, p. 160). More recently, Carlos Emanuel Sautchuk (2019) makes a similar observation among Brazilian lake fishermen, as he demonstrates that technological choices between harpoons and fishing nets depend as much on the animated environment as on human agency and the political and economic contexts.

In light of this, I suggest reconceptualising 'evolution' as a series of interdependent random adaptation processes. Stephen Jay Gould (1996) likens evolution to a tree, where human beings are but a twig that

may or may not survive in the long run, and I consider his metaphor equally appropriate for technology. A television screen is not more advanced than a hammock, only because it developed more recently, and its usefulness depends entirely on its ecological context. My argument corresponds well with findings by Ian Hodder (2018), according to whom the evolution of things is a non-teleological but directional and path-dependent process. Hodder's core claims are that humans and things depend on each other and that the number of things increases over time as humans engage with the consequences of things.

Entangled Humans and Things

Since Hodder's so-called 'entanglement theory' dovetails with the ecological approach used in my thesis, it seems well worth exploring it in further detail. His theory is based on a long-term analysis that reveals the increasing proliferation of things. The wheel, for example, whose adoption depended on roads, rollers, and other things, turned over time into potter's wheels, waterwheels, cogs, spinning jennies, revolvers, typewriters, flywheels, computers, cars, and so on (see Hodder 2018, p. 14). All these things had further consequences. The refinement of pottery for example allowed the development of large-scale storage and central hearths, giving rise to sedentism (see Hodder 2018, p. 15), and the proliferation of fuel-based cars enhanced mobility but also led to an accumulation of greenhouse gases in the atmosphere (Hodder 2018, p. 93).

Hodder centrally argues that '[h]umans depend on things that depend on humans; humans are both dependent on things and drawn into caring for them' (Hodder 2018, p. 79). His argument draws on ecological niche construction theory, according to which organisms do not merely adapt to an ecological niche but rather actively create and transform their niches (see also Hodder 2018, p. 53). As such, human beings have transformed their homesteads to survive in colder climates, but they depend for that on things, such as clothes, houses, and heating systems, and these things in turn depend on other humans and other things, such as clothing factories and quarries, leading to a temporally and spatially unbounded web of dependencies. This clear focus on dependencies allows me in the Amazonian context to analyse how tensions between an 'ethics of autonomy' and a 'dependence on otherness' (see also González Gálvez, Di Giminiani, & Bacchiddu 2022, p. 4) play out in the case of humans and artefacts.

According to Hodder (2018), there are two forms of directionality in the entanglements of human beings and things. The first one, 'specific directionality', describes the path dependence that results from particular things. Hodder (2018, p. 124) exemplifies this with the way that the wheel led to different developments in Eurasia and the Americas and eventually gave rise to a colonial system marked by slavery and exploitation. The second form of directionality, 'general directionality', refers to the overall 'increase in the amount of human-made material stuff and in the scale of entanglement' (Hodder 2018,

p. 126), which is due to the above-described consequences of things, or, as Hodder puts it, to the fact that '[h]umans get drawn deeper and deeper into the lives of things' (2018, p. 104).

Hodder's entanglement theory is useful for making sense of modern technical artefacts among the Yagua people. His naturalist perspective, however, which lumps together all entities, including human beings, as 'things' (see Hodder 2018, pp. 58, 91), needs further qualification in the Yaguan context. For example, his claim that '[t]here are ultimately only flows of matter and energy and information' (Hodder 2018, p. 91) sits at odds with Yaguan hybrid ontologies.[2]

Society, Artefacts, and Nature

As Philippe Descola (1994) argues, most animist Amazonian peoples live 'in the society of nature', as they form meaningful relations with their surrounding non-human beings. Communication plays a central role in these relations. Among the Achuar people, Descola for example observes that women perform *anent* (Achuar 'magical songs'; see Descola 1994, p. 198) to communicate with plants and their mothers. He argues that the self-identification with plant mothers highlights their caring consanguineous relation with the plants (see Descola 1994, p. 201). With regard to Achuar men, on the other hand, Descola finds that they use *anent* to communicate with game animals and thus seek to cajole the animals into their proximity by positioning themselves as their affines (see Descola 1994, p. 262).

Regarding artefacts, Descola (1994, p. 6) notes that the 'techniques used in producing certain artefacts [may] represent a later stage in the socialization of nature'. He mentions in particular pottery-making and weaving in this context. Homemade pots and hammocks can then be considered highly domesticated parts of nature, not least since they also constitute everyday household items. A major question, however, remains how to characterise artefacts that are fabricated elsewhere, such as industrially produced pots, hammocks, chainsaws, boat motors, television sets, smartphones, and tablets. Within Amazonian anthropology, it has been suggested that modern artefacts are 'wild things' that need to be tamed like pets (Walker 2013; see also Erikson 2009). In my thesis, I follow this track of thought and argue in my conclusions that the Yagua people seek to domesticate artefacts.

My thesis aims to show how machines and screens are integrated into Yaguan society, rather than outside of it, as Oliveira Valles (2009) and Flornoy (1953) imagined it. One example of this integration would be how chainsaws are said to be fed with petrol; one man even specifically likened chainsaws to children, as both need constant care. Another example would be how modern technical artefacts feature in

[2] Used in the Descolian sense, 'naturalism' refers to an ontology that assumes that human and non-human beings share similar physicalities (e.g., 'matter and energy and information') but profoundly differ in their interiorities (e.g., 'agency'; see Hodder 2018, p. 145). In contrast to this, 'animism' posits that human and non-human beings share similar interiorities but differ in their physicalities, and that ontology is widely spread across the Amazon region (Descola 2013), including among the Yagua people (cf. my discussion on hybrid ontologies in Chapter 3).

shamanic worlds; planes and motorcars can even be found in the entourage of shamanic auxiliary spirits. These examples must be understood within wider efforts to domesticate modern technical artefacts, as my thesis shows. It should already be highlighted, however, that domestication efforts are not always successful.

Technological Developments and Their Consequences

It is hard to ignore the imposing presence of machines and screens in Yaguan communities. Boat propellers peek out from underneath stilt houses. Speakers blast out rip-roaring, ear-popping *cumbia* music. The Yagua use shotguns to hunt, motorised boats to fish, chainsaws to clear gardens, and phones to stay in touch with close and distant kin. Modern technical artefacts are ubiquitous, and over the course of my fieldwork, I observed in real time how they proliferated at a rapid pace. I saw how research participants upgraded their chainsaws and boat motors and how they bought new televisions and phones, and I also saw how they received solar panels, tablets, and internet antennas from the state and non-governmental organisations.

Technological change can be seen as a wonderful process, driven by human ingenuity and creativity, leading towards widespread prosperity, and demonstrating the untrammelled potential of human beings to follow and fulfil their dreams. From that vantage point, smartphones, televisions, and chainsaws ease the everyday lives of Yaguan people. And yet, technological change can also be disruptive. Machines and screens can bring new dependencies and challenges in their wake, and technological change can overwhelm and destroy existing relational ecologies. The tension between techno-developmentalist and techno-critical viewpoints runs through my thesis, as I present novel empirical data to provide a balanced and nuanced perspective on technological change among the Yagua.

In the following, I first provide a broad-brush account of Daniel Miller's work on creative consumption and subsequently challenge it by pointing to the complex context of the consumption and production of modern technical artefacts.

Creative Consumption

'[W]hy should we deprive Amazonian Indians of the delights of pop music?', Miller (2010, p. 6) rhetorically asks. By doing so, he seeks to critique the romanticisation of Indigenous peoples[3] and the demonisation

[3] I follow other anthropologists in using the term 'Indigenous' broadly to refer to 'someone who is in-born or native to a land or region which is under the control of outsiders' (Gray 1997, p. 8). In the regional Spanish, Indigenous leaders frequently employ the term *originario* instead of *indígena* for that purpose, but etymologically closer translations such as 'originary' or 'aboriginal' are less common in anthropological writings on the Amazon region and may diminish the readability of my text.

of science, technology, and the market system. In his work on the consumption of 'stuff', Miller and the contributors to his edited volumes find ample reason to be cautiously optimistic about the expansion of consumerism (e.g. Miller 1987, 1998b, 2010, 2012). In Trinidad, for instance, the mass consumption of soft drinks is presented as indicative of consumers' autonomy and creativity. Against widespread laments over the spread of soft drinks as the result of neoliberalism and globalisation, Miller hails them as an expression of local values, identities, and dreams. 'I do not believe that the idea that sweet drinks are considered a basic necessity to be the result of a successful company promotion that results in people "wasting" their money on what "ought" to be a superfluous luxury. Nor was it an invention by government that became accepted', he writes (Miller 1998a, p. 182). According to him, people consume 'black' and 'red' sweet drinks of their own accord.

Among the Yagua people, soft drinks have become a mainstay in children's lives. When parents return from town, children generally hope to receive a 'black', 'orange', or 'yellow' soft drink. While the sugars in these drinks contribute to obesity and caries and the plastic bottles end up polluting the river, Miller (1998a) might encourage us to think beyond this and be more attuned to the perspectives of people on the ground. After all, parents make their children happy by buying soft drinks, and for all we know, and as cynical as it might sound, it might well be that relations of kindness and care are more important than a full set of teeth.

Miller (1998a) reminds us that change is often driven and desired by people on the ground, a phenomenon we can also observe in the case of soft drinks as well as in the case of *peke-peke* motors. Composed of a single-cylinder horizontal shaft engine and a two-metre-long tail, *peke-peke* motors are common throughout the region and exist in different versions. Classic types are the *cinco-cinco* (Spanish 'five-five'), the *nueve* (Spanish 'nine'), and the *trece* (Spanish 'thirteen'), whose names refer to their respective horsepower. In comparison to outboard motors, *peke-peke* motors are cheaper, and they come with the advantage that their tails can be lifted out of the water to prevent propeller collisions with submerged logs. That the Yagua generally go out of their way to save money and buy a *peke-peke* motor gives support to Miller's argument, as the motors hardly seem to be forced upon Yaguan people by an evil capitalist system.

That the Yagua live alongside their *peke-peke* motors becomes most apparent when the motors break down, since Yaguan boatmen are brilliant bricoleurs. Generally, they take a set of pliers, screwdrivers, and hex wrenches on a journey to do repairs when needed, and I have seen much fiddling when it came to broken flying wheels (for starting the motor), acceleration latches (for determining the speed), and helix propellers (for thrusting the boat forward). Returning from a longer hunting trip, we for example once lost this last item. At that time, we were about ten hours away from our destination (or at least what would have been ten hours if only we had not lost our propeller). Without an ersatz propeller, we were

forced to paddle downstream. As we passed a deserted house, we checked whether there might be an old propeller lying around, but we only found an aluminium sieve. To my astonishment, our driver took the sieve, fashioned it into a propeller, and attached it to the motor's tail, demonstrating his resourcefulness and ingenuity.[4]

Machines and Music

The creativity of consumption is also reflected in the integration of machines and screens into Yaguan songs, which are generally variegated in their meanings and uses (see Weich-Shahak 1986). With Mariano Ramunurya, a skilled singer from Tangarana with a large repertoire, I recorded a range of songs. Most of the songs revolve around animals and plants. They are about jaguars who eat agoutis and about monkeys who forage together. Some are also about human interactions with animals and plants, taking for instance inspiration in how agoutis can be reared as pets or in how *piripiri* plants can be used as a luck charm. I have also encountered two songs that centre on machines.

The song of the *peke-peke* motor draws attention to the most characteristic feature of that artefact, namely its elongated tail:

Muturonu peke peke, muturonu peke peke.	The *peke-peke* motor, the *peke-peke* motor.
Amaka adusakanu.	Its tail is large.

(Performed by Mariano Ramunurya in Tangarana; abridged version)

The above lines are in fact repeated in various combinations. However, the given ones suffice to illustrate that machines are worthy of songs, on par with animals and plants. Among the Yagua people, boat motors and other machines are not relegated to an imaginary 'modern' realm that is separate from Yaguan 'traditional' culture (see also Halbmayer 2018; Sahlins 2000). Rather, modern artefacts are artfully integrated into songs.

The song of the chainsaw is about a lumber-cutting chainsaw man, at least ostensibly. The catch is that the chainsaw man is actually a small, xylophagous beetle. That beetle believes itself to be a Colombian, a chainsaw man, yes, even the chainsaw itself. The song thus provides an instance of how the animal world is technomorphised:

[4] Unfortunately, his solution failed. The aluminium sieve, it turned out, had too many holes, and its material was too weak. A few hours later, though, we came upon another house, where we – surprisingly enough – did find an old propeller, stuck in the mud of the riverbank.

Motosierrista s̲u̲tïya̲da.	The chainsaw man is cutting.
Jitada.	It [animate] itself.
Motosierrista, motosierra.	The chainsaw man, the chainsaw.
Sara̲stï jïpudara.	It cuts the timber.
Kurubianu s̲u̲tadayo.	It believes itself to be Colombian.
Motosierrista s̲u̲tadayo.	It believes itself to be a chainsaw man.
Motosierra s̲u̲tadayo.	It believes itself to be a chainsaw.

(Performed by Mariano Ramunurya in Tangarana; abridged version)

It may be tempting to interpret the song as an instance of Amerindian perspectivism (see Lima 1999; Viveiros de Castro 1998), in which the beetle-protagonist sees itself variously as a human or as a machine. After all, the Yagua partly exhibit perspectivist traits. I for instance learnt that monkeys drink manioc beer from waterholes and that shamans vomit their food as 'raw meat' after having transformed into jaguars.[5] However, the song does not provide any indication that the beetle would see the lumber differently than a chainsaw man. For all we know, they both see lumber as lumber. And more importantly, none of my research participants claimed that the beetle literally believes itself to be a chainsaw, and they for that reason laughed whenever they heard the song. As such, in this case, the technomorphisation merely serves as a jocular analogy, not as an ontological statement.

The songs of the *peke-peke* motor and the chainsaw illustrate how Yaguan people creatively integrate modern technical artefacts into their lives. Yet, analysing them also brings attention to one of the flip sides of introducing machines and screens, since the rich Yaguan song culture is currently at a critical juncture. The performance of war and feast songs, which Susana Weich-Shahak (1986) still describes in her musicological doctoral thesis, ended several decades ago, and the performance of drinking songs has become rare. The basis of village parties are large loudspeakers nowadays, often owned by schoolteachers or political candidates, which make non-amplified singing and music redundant. These speakers also introduce songs, feelings, and ideas from non-Yaguan contexts. In 2023, a party favourite was for example *La motosierra vieja* (Spanish 'The old chainsaw'; see Jeferson Pérez 2023), a song that superficially seems to be about a chainsaw and tree trunks but then turns out to be about a woman obsessed with male genitalia. There is thus a strong semiotic contrast with Mariano's song, where the chainsaw had been a wood-eating beetle.

When asked about the past, my Yaguan research participants would often fondly remember the feasts of the past, during which they consumed copious amounts of meat and manioc beer. An Augustinian missionary once joined what he considered a large and lavish debauchery and was shocked to find out

[5] When I asked my research participant whether the water was '*like* manioc beer' for the monkey, he corrected me: 'It *is* manioc beer for the monkey.' However, when I asked whether monkeys see each other as humans, he rejected that idea. According to him, monkeys see each other as monkeys.

that it was called a *chichada pequeña* (Spanish 'small drinking party'). 'If this is the small drinking party, I don't know how they will celebrate the large one!', he exclaimed (Father Pulgar in Sierra de la Calle 1993, p. 12, own translation). Parties were in the past organised months ahead, with hunters smoking and storing an adequate amount of meat and women preparing the drinking vessels. Only experienced elders were able to organise the beer production in such a way that the beer was neither too mild nor too strong nor too little. The whole family was involved in the preparations, and once ready, the drums would invite Yaguan compatriots from afar. They would come with all their kin for a week-long debauchery, and there were various activities, including strength contests, storytelling, singing, and games. My informants insisted that today's parties are small in comparison to the parties back then, even though they agreed with me that today's parties are still big – after all, a village with 25 households can easily produce more than 1,500 litres of manioc beer. While there might have been more manioc beer in the past, I hazard that at least the music is louder today. The first time that I joined a Yaguan party, I lost my hearing at midnight, and it was not restored until three days later.

Towards the end of my fieldwork in Tangarana, I went to a party which I might also have shown a glimpse of the future, as the music suddenly stopped and the light went out. The gasoline was out, and the dance floor was covered in darkness. The dancers returned to their seats, and torches illuminated thirty people sitting on small wooden benches alongside the walls, with a few children fast-asleep in their hammocks hung between the posts. Nobody was willing to provide more gasoline, but people were not yet quite ready to leave. 'Oy, *curaca*, get the drums!', someone called half in jest.

A strong headlight was placed in the centre of the house, and the high tone of a flute then indicated the beginning of the music and the *bujurqui* dance, in which the musicians advance and recede just like *bujurqui* fish. Younger people took their smartphones to film the scene. I still wonder whether I saw a relict of the past or a glimpse of the future that night. Caused by the absence of gasoline, this had been the only time for me in Tangarana that I saw people dancing to their drums and flutes, accompanied as they were by torches and filming smartphones of their children and grandchildren.

By highlighting the demise of Yaguan songs and music, I of course do not wish to 'deprive Amazonian Indians of the delights of pop music', as Miller (2010, p. 6) had put it. I merely wish to draw attention to the fact that introducing pop music may also result in ending non-pop music. Things have consequences. Industrial speakers may drown out human singing, and Spanish songs stored on smartphones and tablets may replace Yaguan songs. These consequences of things need to be given fair consideration in my view, and people should be given a fair choice. My host in Comandancia hoped to record Yaguan pop songs in the future, which to me expressed his desire to delight in both pop music and his native language. Unfortunately, there seem to be more projects geared towards spreading digital artefacts than towards revitalising the Yaguan language, and the increasing spread of non-Yaguan pop music alongside small

video clips and movies makes the preservation of the Yaguan language increasingly difficult.

In his work, Miller stresses the creativity, autonomy, and beauty of consumption, and most of my research participants would concur with his optimistic outlook on the world of things. I feel a certain unease, though, and I am worried where Miller's path might eventually lead us. He himself explains that he strives for a 'much more tightly regulated capitalist commerce, an egalitarian and humanistic social welfare system, and an ethical concern for the future of the planet and a sustainable environment' (Miller 2012, p. viii), but I am concerned that we could not reach any of these goals without facing key facets of capitalist production and consumption processes, which Miller tends to ignore in his work.

Insatiable Needs

There is a question of how much autonomy consumers actually have. If people decide to consume pop music and colourful soft drinks, is this truly their own choice, and if so, what would that mean? After all, consumption choices are to a large degree influenced by neighbours, patrons, and trading partners, by stories and movies, and by unfulfillable dreams and desires emerging from capitalist structures. In her autobiography, the Waorani warrior Nemonte Nenquimo (2024) vividly describes the attraction that the displayed riches of the missionaries had on her as a child. At one point, she even feigned a toothache and had her molars removed, just because she hoped to receive the shiny white teeth of the missionaries (Nenquimo & Anderson 2024, p. 113).

Steven Rubenstein (2004) demonstrates in the Amazonian context that consumption choices are driven by the larger political ecology. As he outlines, the spread of the patron system created a spiralling debt economy (see also Taussig 1987) that led to an 'inflation of needs' (Rubenstein 2004, p. 157). 'The constant inflation of debt created a cosmography in which the desire for commodities is insatiable', Rubenstein writes (2004, p. 136). According to him, then, the spread of capital goes hand in hand with the spread of capitalist ideologies, according to which needs and desires are without bounds. It can thus be observed how 'agents of the state or capital ... seek to colonize not only indigenous land and labor but indigenous desires as well' (Rubenstein 2004, p. 158). After all, needs, dreams, and desires do not originate *ex nihilo*.

The ongoing changes in needs and desires are apparent with machines and screens, but also with regard to food and clothes. While the elderly generation for instance still enjoys manioc and plantains for food, the younger generation has a strong preference for rice, and they also need more clothes, ideally with superheroes or princesses imprinted. We could celebrate these new consumption patterns as examples for new-found wealth and well-being, as Miller might wish to do, but I believe that it is important to keep in mind the origin and ramifications of such changes, and to retain the ability to critique them, if necessary.

In Marxian literature, there is often a distinction between real and false desires. Herbert Marcuse, a member of the Frankfurt School, writes for instance that '[t]he spontaneous reproduction of superimposed needs by the individual does not establish autonomy; it only testifies to the efficacy of the control' (1967, p. 28, own translation), and further that 'products permeate and manipulate the humans; they nourish a false consciousness, which is immune against its own falsity' (1967, p. 32, own translation; see also p. 25). It is noteworthy how he attributes the creation of desires not only to human beings but also to 'the products' themselves, highlighting that machines, screens, and other artefacts may cast a spell over us, so that we see the world in a different way (see also Gell 1992).

Global Magic

In contrast to Miller, the eco-Marxist anthropologist Alf Hornborg clearly stresses that the production of machines and screens is anchored in the exploitation of human labour and planetary resources. Chainsaws, boat motors, and tablets connect the Yagua to an opaque global network of workers, investors, and materials in this reading, and Hornborg (2022) highlights the hidden and hideous aspects of that network. As he notes, '[modern technology] is not the politically neutral revelation of natural principles that we tend to think, but largely a means of accumulating, through asymmetric exchange, means of harnessing natural forces to reinforce social relations of power' (Hornborg 2022, p. 9). Modern technical artefacts, according to him, extend the logic of slavery into the twenty-first century (e.g. Hornborg 2022, p. 11).

And yet, global relations of production and exchange often recede into the background when using machines and screens (see also Hornborg 2022, p. 10). In Marxist terms, the obfuscation of social relations is a form of fetishism. Commodities are classic examples in this regard. In predominantly capitalist societies, we often treat commodities as if they have an inherent value, which can be exchanged for money, even though in theory (or at least in Marxist theory) the value of commodities and money always depends on underlying social relations. As Marx explains: 'A commodity is ... a mysterious thing, simply because in it the social character of men's labour appears to them as an objective character stamped upon the product of that labour; because the relation of the producers to the sum total of their own labour is presented to them as a social relation, existing not between themselves, but between the products of their labour' (1906, p. 83).

If we were to further follow classic Marxist theory, we would find that Marx saw 'machinery in itself' as a boon. '[I]n itself it increases the wealth of the producers, but in the hands of capital it makes them paupers', he explicitly writes (Marx 1906, p. 482). But Hornborg disagrees here. He argues instead that technology is also a fetishism, just like commodities and money. Rather than serving the communist agenda, as Marx would have it, technology counteracts it in nefarious ways, since technology

– everywhere and always – does not act by itself, but depends on inputs of energy and labour. The idea that 'machinery in itself' produces wealth is thus as wrong-headed as the idea that money in itself creates wealth. Technological production depends on the exploitation of human labour and planetary resources, and obfuscating these relations is akin to making someone believe that chainsaws and computers can be pulled out of a hat. It is nothing but 'global magic' (Hornborg 2015).

Hornborg's analysis fits in well with Gell's theory of 'enchantment' (see also Hornborg 2015, p. 49). Gell introduces the latter term to describe the way that human beings are enthralled by artefacts. 'The enchantment of technology is the power that technical processes have of casting a spell over us so that we see the real world in an enchanted form', he writes (Gell 1992, p. 44). For him, any artwork is a technology of enchantment that is predicated on the enchantment of technology. As a technology of enchantment, it can be used for holding sway over the thoughts and behaviours of other people. Gell mentions in this context the decorated canoe-prows from the Trobriand Islands, which are employed as a means of psychological warfare. As Gell argues, the technical difficulty of building and carving these canoe-prows leads to the canoes being perceived by their enemies as 'enchanted vessels of magical power' (Gell 1992, p. 46). According to Gell, the hidden production process of artworks imbues them with value, since they resist our comprehension. He holds that the enchantment and value of an artwork is due to 'the difficulty I have in mentally encompassing their coming-into-being as objects in the world accessible to me by a technical process which, since it transcends my understanding, I am forced to construe as magical' (Gell 1992, p. 49). Modern artefacts carry the same opaqueness, create the same enchantment. For a lay person, for instance, it is difficult to understand the workings of microprocessors, cables, and chips in a computer or smartphone. For Hornborg, of course, machines and screens hide more than the technical difficulties of their production process.

Plants and Grasscutters

In an earlier work, Hornborg (1992) likens 'technomass' to a parasitic life-form that feeds on fossil fuel and human labour, drives economic expansionism and imperialism, and diminishes the finite resources of our planet in its wake. He notes that '[v]iewed as in some respects analogous to living biomass, the suprahuman "technomass" of industrial society must be fed specific kinds of substances in order to grow' (Hornborg 1992, p. 6). He goes on to argue that this consumption means that machines destroy more order than they produce, thermodynamically speaking, and that '[i]ndustry itself, then, is the predator to which humans fall prey' (Hornborg 1992, 13). And given that human-made mass already overtook global biomass in 2020 – that year, there were more buildings and infrastructures on our planet than plants and double as much plastic as animals in terms of mass (Elhacham, Ben-Uri, Grozovski, Bar-On,

& Milo 2020, p. 444) – it seems that technomass grows at a rapid speed.

In the Amazon region, the machine economy flourishes, as international companies supply and sell an ever-greater quantity of chainsaws, grasscutters, and outboards. During my time of fieldwork, the town of Iquitos was filled with large-scale advertisements, plastered on houses and placarded next to the roads. A particularly illuminating poster shows a field with a man and a menacing plant monster (Fig. D.24). The monster raises its head high into the sky, towering over the man, but not attacking. In fact, the monster's mouth forms a painful grin, and its hands are held up in defence. The reason for that behaviour is the brand-new grasscutter that the poster's hero wields, which 'wins in all fields', as the poster's slogan announces. The poster thus depicts verdant vegetation as a monster. With nature being presented as an enemy that should be fought and subjugated, I wonder who will prevail in Plants vs. Grasscutters.

Hornborg's thermodynamic analysis of industrial growth and ecological destruction suggests that grasscutters will prevail, and this also brings up the question of who the human species fights against: Is it the unrestrained monstrous biomass or the proliferating parasitic technomass? While a binary opposition of technomass and biomass may be reductionist, it creates an interesting frame for analysing machine economies. If we follow Hornborg's argument, the demand for chainsaws, grasscutters, and outboards is not only driven by the interests of international companies, but also by the powerful machines themselves (cf. also Hornborg 2017 on agency). Hornborg's eco-Marxist framework can thus help to contextualise Amazonian economies and to understand their long-term impact on human beings and the wider biosphere.

Summary

Modern technical artefacts are ubiquitous among the Yagua people and they form an indispensable part of everyday life, be it by propelling the boat forward or by connecting people with their loved ones. This chapter highlighted the entanglements of humans and modern technical artefacts in the Yaguan context, which underpin my guiding question of how modern technical artefacts are integrated into the Yaguan relational ecology.

I showed that different positions can be taken vis-à-vis the proliferation of machines and screens. The techno-developmentalist position regards the consumption of modern technical artefacts as an autonomous and creative practice, as exemplified by the successful adaptation of *peke-peke* motors to Yaguan needs and lives. The techno-critical position, by contrast, emphasises the darker undersides of these artefacts, such as their production resting on the exploitation of human labour and non-human resources, and their consumption fostering an inflation of needs, desires, and dependencies.

Thesis Outline

The remainder of my thesis is composed of seven chapters. The next chapter provides the theoretical background to my study. It develops an ecological perspective on modern technical artefacts that focuses on relational changes within an open, dynamic, and complex local system, which I at times refer to as 'relational ecology'. I then provide an overview on the history of the philosophy of life, moving from early Greek philosophers up to new materialist approaches of the present and the challenges that arise in their wake. I subsequently define artefacts and discuss how they are imbued with life, drawing in particular on scholarship of Amazonian anthropology.

Chapter 3 begins with an exposition on my methodology, detailing fieldsite selection, participants, methods, and the ethical challenges that came with my fieldwork. In the same chapter, I give a broad-based introduction to the Yagua people, including to their history, geography, and demography. I further highlight the importance that Yagua place on retaining selfhood in the face of alterity and describe Yaguan ontologies and the role of shamanism.

In Chapter 4, I delve into the political-economic situation of the Yagua and discuss the ongoing tension between autonomy and dependence. I use the chapter to describe Yaguan subsistence activities, revisiting and updating Jean-Pierre Chaumeil's observations on the topic. I further provide the reader with an overview of the Yaguan integration into the capitalist market system and into development projects of the Peruvian state. The chapter thus lays the foundation of the remainder of the thesis by explaining how modern technical artefacts can be acquired and what their acquisition means in terms of autonomy and dependence.

Chapter 5 gives an ethnopoetic analysis of the Story of Sisuro, in which we encounter a horse that descends from the sky in the middle of the night and provides the story's protagonist with a mighty piece of metal. The story is ambiguous insofar as the mighty metal could either be interpreted as a saviour that provides food and protects the protagonist or as an invader that drastically transforms and ruptures Yaguan relations.

Chapter 6 presents the core of my empirical findings regarding the life of machines and screens. I study in particular the sense in which artefacts can be said to be alive, and on which epistemological and ontological foundations such claim is built. A central argument of the chapter is that artefacts are alive insofar as they may harm, or 'cutipate', newborn babies.

Chapter 7 addresses the wider ramifications of modern technical artefacts. It shows that artefacts can be convenient and useful for communication and work, but that they can also disrupt relations between human and non-human beings. Chapters 6 and 7 thus show how modern technical artefacts 'live' among

the Yagua people in both material and metaphorical manners.

My conclusions take stock of all these chapters to give a succinct summary of the lives and domestication of machines and screens among the Yagua people. It also discusses the inflation of desires, needs, and dependencies among the Yagua and advocates acknowledging planetary boundaries and taking a post-growth perspective. In addition, my conclusions look ahead and indicate future research trajectories. Finally, they redirect readers to reflect on their own entanglements with machines and screens.

Chapter 2



Lively Worlds



Overview



This chapter presents the theoretical background of my thesis. In the first part, I outline the ecological approach that provides my analytical scaffolding. In the second part, I trace materialist philosophies from Pre-Socratic thinkers through to the new materialisms currently en vogue. Regarding the matter of life, I argue in favour of ontological agnosticism, which I contend is key to a respectful anthropological analysis. In the third and final part, I define tools, machines, and screens and discuss in what senses these can be considered to be alive. The chapter closes with a discussion of the role of modern artefacts in the Amazon region.



An Ecological Framework



The neotropical rainforest paradigmatically illustrates Alexander von Humboldt's prescient assertion that 'in the great chain of causes and effects, no matter [and] no activity can be studied in isolation' (Humboldt & Bonpland 1807, p. 39, own translation). A vast 'web of life' (Wulf 2015) wonderfully connects plants, ants, and caterpillars (see Kricher 1997, pp. 130–2), sloths, moths, and algae (see Kricher 1997, pp. 126–7), machines, screens, and forest masters. 'The better one understands the essence of natural forces, the more one recognises the interconnectedness of phenomena', Humboldt writes (1845, p. 30, own translation). For him, nature is a 'living whole' (Humboldt 1845, p. 6, own translation). Taking this observation as a starting point, my investigations follow a holistic approach: Rooted in an ecological framework, I examine relational shifts and rifts within an open, dynamic, and complex local system. Only

an ecological framework, I contend, allows me to adequately trace the meanings and impacts of modern technical artefacts on human and non-human relations.

The Meaning of 'Ecology'

The term 'ecology' goes back to Ernst Haeckel, a German zoologist who was deeply moved by the writings of Humboldt and Charles Darwin (Wulf 2015). In his *General Morphology of Organisms*, Haeckel defined 'Oecologie' as 'the entire science of the relations of the organism to the surrounding outside world' (Haeckel 1866, p. 286, own translation). As he outlined, such science concerns itself with a wide array of 'conditions of existence', including the availability of nutrients, water, and warmth, and the organism's interplay with surrounding predators and prey. At the turn of the twentieth century, the accrued insights into the 'web of life' gave rise to the idea that ecological communities constitute complex living organisms, so-called 'superorganisms' (e.g. Clements & Shelford 1939, p. 20). Studying plant communities in North America, the botanist Frederick E. Clements found for instance striking similarities between the reproduction and development process of singular organisms on the one hand and the succession of plant communities on the other hand (Clements 1916). As he wrote later in his life, a plant community is 'a unified mechanism in which the whole is greater than the sum of its parts', thus constituting 'a new kind of organic being with novel properties' (Clements 1935, p. 1). Against such conceptualisation, ecologists such as Arthur Tansley argued that radical differences between organisms and communities remain, and that unnecessarily stretching the term 'organism' waters down biological terminology (Tansley 1939, p. 518). As an alternative concept with a slightly wider meaning, Tansley suggested speaking of an 'ecosystem' (Tansley 1939, p. 514).

The term 'ecosystem' gained widespread popularity to describe closed and self-regulating systems that tend towards equilibrium states (see Tansley 1939, pp. 514–5). In his influential textbook *Fundamentals of Ecology* (1953), Eugene Odum summarised the concept in the following way:

> Living organisms and their nonliving (abiotic) environment are inseparably interrelated and interact upon each other. Any entity or natural unit that includes living and nonliving parts interacting to produce a stable system in which the exchange of materials between the living and nonliving parts follows circular paths is an ecological system or ecosystem.
>
> (Odum 1953, p. 9)

Clements, Tansley, and Odum considered stability and circularity as key features of a mature ecological system. As it happened, this so-called equilibrium paradigm engendered a wide gamut of research in ecology and beyond.

An early advocate of applying ecological methods to anthropology is Julian Steward. Well-known as the pioneer of cultural ecology, Steward (1972 [1955]) argues that environmental factors condition evolutionary adaptation processes and lead to the emergence of different technologies and cultural areas. His method consists of three procedures, namely: of studying how exploitation and production technologies are intertwined with the environment; of analysing how the exploitation of a particular environment with a particular technology necessitates particular behavioural patterns, such as collaboration or competition; and of determining the extent to which such particular behavioural patterns affect wider cultural features, such as the size of families and communities (Steward 1972, pp. 40–2). While his approach has been frequently critiqued as being overly functionalist and environmentally deterministic, it should be noted that Steward was well aware that humankind both 'affects and is affected by the total web of life' (Steward 1972, p. 31), and that he laid the groundwork for historical ecology, a field that studies how human beings mend and transform their environment (see also Rival 2006).

Gregory Bateson merges ecology and anthropology in a radically different manner. His 'ecology of mind' hinges on conceptualising 'mind as synonymous with cybernetic system' (Bateson 2000 [1972], p. 466). Put differently, 'mind' essentially constitutes a closed circuit that engages with meaningful information, that is, with 'a difference which makes a difference' (Bateson 2000, p. 459). The 'mind' does not merely exist in brains, as conventional wisdom would have it; indeed, brains do not possess but operate a mind, and so do animals, thermostats, cities, and forests (see Kodalak 2024, p. 95). The world consists of a staggered system of cybernetic subsystems, of cells, bodies, societies, and ecosystems, to name but a few, each dependent on feedback loops to correct and organise itself. For Bateson, 'mind' permeates the body as well as the 'pathways and messages outside the body' (Bateson 2000, p. 467), and a supreme, if not divine 'Mind' is 'immanent in the total interconnected social system and planetary ecology' (Bateson 2000, p. 467). Consequently, and in contrast to Steward, Bateson stressed the importance of studying relationships between things, rather than things themselves (Bateson 1979, 61), and put greater emphasis on the ecological 'web of life' – the Mind – that covers our planet.

Yet another avenue of merging anthropology and ecology is presented by the Descolian project of developing 'a genuine symbolic ecology' (1992, p. 124), which has found great resonance in Amazonian anthropology and beyond. Philippe Descola, whose work I have already mentioned in the previous chapter, suggests focusing on 'localized systems of interrelations' (1992, p. 123). These are marked by communication, which among the Achuar takes place for example via the *anent* songs. Descola's project is reflected, for example, in the ecosemiotic studies of Alf Hornborg (1996, 2001b), who frames our ecological crisis as a 'problem of communication' (2001b, p. 143), as well as more recently by Eduardo Kohn's (2013) focus on an 'ecology of selves', which as a term also describes pensive forests.

Ecological approaches also blossomed in the fields of economics and sociology, leading to path-breaking

shifts in our understanding of the interplay between human beings and the Earth (see also Røpke 2004, 2005). Scholars like Kenneth Boulding (1966), Nicholas Georgescu-Roegen (1971), Howard Odum (1971), Donella Meadows and colleagues (1972), Herman Daly (1973), and William Catton (1982) all pointed to the contradiction of pushing for infinite growth on a finite planet. Boulding argues for instance persuasively that we ought to replace our exploitation-driven 'cowboy' economy with a 'spaceman' economy, 'in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy' (1966, p. 9). In a similar fashion, the sociologist William Catton (1982) highlights that the carrying capacity of our planet has been 'overshot' and exhorts his readers to realign themselves to the planet's boundaries by radically changing their lives.

At the same time that ecological approaches were taken up by anthropologists, economists, and sociologists, an increasing number of scholars began to challenge the hitherto dominant equilibrium paradigm within ecology, and to slowly but steadily undermine the mythical notion of the 'balance of nature' (see Kricher 2009). Rather than tending towards equilibrium states, they found, ecosystems exist in non-equilibrium states and are complex open systems marked by the 'flux of nature' (Pickett, Parker, & Fiedler 1992). According to the new paradigm, disturbances and changes, including anthropogenic ones, form an essential part of any ecosystem. In the tropical rainforests of the Amazon basin, for instance, the fall of trees is paramount for creating gaps in the canopy and for allowing a greater diversity of plants to thrive and survive (Kricher 1997). The non-equilibrium paradigm brought in fresh winds into ecology, conservation biology, and their applications in other fields.

The Change of 'Culture'

It is interesting to observe cross-disciplinary parallels between the reconceptualisation of 'ecosystem' in ecology and of 'culture' in anthropology. As with 'ecosystem', the concept of 'culture' initially referred to a stable and relatively closed system. Edward Burnett Tylor famously defined culture as 'that complex whole which includes knowledge, belief, art, morals, law, customs, and any other capabilities and habits acquired by man as a member of society' (1871, p. 1), and subsequent ethnographies meticulously document characteristic features of such 'cultures'. The *Handbook of South American Indians*, edited by Julian Steward, provides an excellent case study in this regard. Among the numerous 'tribes' and 'cultures' described, the *Handbook* also contains information about the Yagua:

> The *Yagua* practise slash-and-burn farming with sweet manioc the staple, fish only with barbasco poison, hunt only with blowguns and poisoned spears, make rafts but no canoes,

> dress in simple clothes of fiber, and manufacture unelaborated pots, chambira-fiber bags and hammocks, simple baskets and mats.
>
> (Steward & Métraux 1948, p. 727, original emphasis)

This small snippet may suffice to show how Steward and Alfred Métraux, in line with their zeitgeist, depict the 'Yaguan culture' as a stable and clearly bounded system, undisturbed by unethnographic pasts and futures. Such interpretation is further bolstered by their subsequent observation that the Yaguan culture has been 'preserved ... against change, despite the mission influence and many subsequent White contacts' (Steward & Métraux 1948, p. 727).

Alfred Kroeber and Clyde Kluckhohn (1952) devote an entire book to the history and semantic range of the term 'culture'. 'Anthropologists, like biologists somewhat earlier, were presented with a great array of structures and forms to describe', they write. 'In the attempt to avoid simple determinisms, anthropologists have fairly consistently groped for a concept that would avoid commitment to any single dynamism for interpreting sociocultural life and would yet be broad and flexible enough to encompass all of the significant aspects in the "superorganic" life of human groups' (Kroeber & Kluckhohn 1952, pp. 355–6). However, the term 'culture' has since come under further scrutiny, not least by the interpretive, phenomenological, and ontological turns in anthropology, which have put serious dents into its conceptualisation.

Clifford Geertz writes in his seminal essay *Thick description: Toward an interpretive theory of culture* that 'man is an animal suspended in webs of significance he himself has spun' (1973, p. 5). Understanding culture to be those webs, he argues that the anthropologist's task is to gain a deep understanding of the meaning of human relationships, going well beyond the comparative exercises undertaken by Tylor or Steward. The interpretive turn thus transforms 'culture' into an inherently open, complex, and dynamic entity.

Anthropologists writing within the phenomenological turn are even more vocal in their opposition to 'culture'. Tim Ingold decries the idea of an 'isolated culture' as a 'figment of the Western anthropological imagination' and emphatically denies the existence of 'neatly bounded and mutually exclusive bodies of thought and custom' (1994, p. 330). His proposed alternative is to think of the 'web of life' as a meshwork of interwoven lines (Ingold 2011, p. 63). In such conceptualisation, and contra Haeckel, the organism ceases to be a 'bounded entity surrounded by an environment' and instead becomes 'an unbounded entanglement of lines in fluid space' (Ingold 2011, p. 64). Indeed, organisms and other beings completely dissolve in the meshwork: 'Things *are* their relations', Ingold stresses (2011, p. 70). His view is clearly opposed to the 'balance of nature' view of Tansley and Odum, as he considers the world to be 'always in flux', constantly regenerating, animating, and changing itself (Ingold 2011, p. 68).

The ontological turn in anthropology challenges in particular the juxtaposition of 'culture' and 'nature' (Descola 1994, 2013; Lima 1999; Strathern 1980; Viveiros de Castro 1998). Descola (1994) observes that personhood can be assigned to both human and non-human beings, enabling for instance communication between Achuar women and plant mothers, and thus putting into question the distinction between nature and culture. Going even further, Eduardo Viveiros de Castro (1998) and Tania Stolze Lima (1999), in developing their concept of Amerindian perspectivism, argue that human and non-human beings may share one and the same 'culture', an idea that would have dazzled Tylor. In their reading, or at least in the reading of their interlocutors, humans, tapirs, peccary, and jaguars have the same human perspective, even though their worlds differ: tapirs see ceremonial houses where we see muddy waterholes (Viveiros de Castro 1998, p. 478); peccary hear the music of flutes where we hear the sound of nuzzled coconuts (Lima 1999, p. 117); and jaguars enjoy the taste of manioc beer in what we consider blood (Viveiros de Castro 1998, p. 470).

Following the tracks of the ontological turn, Eduardo Kohn aims to open Tylor's 'culture' to the lives, thoughts, and meanings beyond the human (Kohn 2013, pp. 15, 39–40). In a wonderful melange of ecological and anthropological perspectives, he describes a 'web of living thoughts in and around the forests' (Kohn 2013, p. 78), the above-mentioned 'ecology of selves', which is populated by beings who engage in and emerge through semiotic processes. Like Bateson's and Ingold's focus on relations in the web of life, Kohn's 'ecology of selves' inspires me to look at technological change through an ecological lens. Such a lens entails focusing on the relational changes within an open, dynamic, and complex local system. To unpack this further, let me herein elucidate in particular the concepts of 'relations' and 'change', which form the cornerstones of my theoretical framework.

The Taming of Relations

An ecological analysis is driven by the insight that all beings are interconnected. As John Muir once pithily remarked: 'When we try to pick out anything by itself, we find it hitched to everything else in the Universe' (Muir 1911, p. 211). In the face of pervasive entanglements, scholars like Bateson and Ingold convincingly argue that entities cannot be separated from their environment. 'One cannot not relate', Bateson famously states (see Bateson in Strathern 2018). As a consequence, entities do not have clear-cut boundaries. Bateson invites us for instance to imagine him as a blind man with a stick, going 'tap, tap, tap' on the ground. 'Where do *I* start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? Does it start halfway up the stick? Does it start at the tip of the stick?', he asks (Bateson 2000, p. 465, original emphasis). It would be erroneous to assume his 'self' and 'mind' to be bounded by his bodily skin, since the stick serves him to perceive meaningful differences

of the world. Ingold argues in a similar manner that the 'organism' cannot be distinguished from its 'environment', since it is constituted within a meshwork of interwoven lines (Ingold 2011, pp. 69–70), and Viveiros de Castro highlights that "'human" is a relation, not a substance' (2014, p. 59).

Alfred Radcliffe-Brown's influential suggestion to focus the analysis of social phenomena on the 'relations of association between individual organisms' (Radcliffe-Brown 1952, p. 189) must in this context be critically scrutinised. Following Bateson and Ingold, it seems questionable that 'relations' merely connect or associate pre-existing 'individual organisms'. At the same time, there is a danger of throwing the baby out with the bathwater, and of losing analytical rigour and clarity in the effort to represent the complexity of our world. Even though our human body may extend to canes (Bateson 2000), it still appears useful to speak of a human 'self', and the same holds true for other entities, be they howler monkeys, smartphones, or forest masters.

I define 'relations' as the affective, cognitive, and physical interactions and interdependencies between two or more entities; a 'relational ecology' is understood to be an open, dynamic, and complex local system of such relations. My framework encompasses all human and non-human entities, including human-made artefacts. These entities are relationally constituted, in the sense that their meaning only derives from within their relational webs. This is particularly pronounced in cases of Amerindian perspectivism, where nouns serve as 'relational pointers' (Viveiros de Castro 2004, p. 472) and where, as Eduardo Viveiros de Castro explains, 'something is a "fish" only by virtue of someone else whose fish it is' (2004, p. 473), similar to the way that a person is only a 'parent' by virtue of their children.

Ecological relations present patterns of competition, predation, and symbiosis. In Amazonian anthropology, there is a long-standing tradition of characterising peoples as marked by predatory patterns. In particular the Brazilian school around Viveiros de Castro, Tania Stolze Lima, Carlos Fausto, and Aparecida Vilaça pays attention to the way that Indigenous peoples of Amazonia constantly and constitutionally incorporate their enemies into their own societies. Laura Rival (2012b, p. 136) critiques this narrative by highlighting how the perspective of the prey can be as important as the perspective of the predator. An additional complexity arises with regard to relations of care in kinship structures (e.g. Overing & Passes 2000, Overing 2003; Rival 2002, 2016, 2020; Walker 2012b), which parallel symbiotic patterns of mutualism rather than predation. Indeed, although anthropologists may perceive a single relational pattern to be preponderant in a given society (see also Descola 2013 for a typology of schemes of relation), such patterns always depend on the context. Even apex predators like jaguars form part of competitive and symbiotic relations. They may host parasitic screwworm flies and mutualistic gut microbiota, and they may protect palm groves and forest patches for their non-human masters.

Marcelo González Gálvez, Piergiorgio Di Giminiani, and Giovanna Bacchiddu (2022) characterise relations in Indigenous South America by a tension between autonomy and dependence, bringing into focus

how connections between entities may span a continuum from predation to mutualism. 'In approaching local understandings of how relations constitute – and are constituted by – different entities, we propose that in indigenous South America the generative power of relations lies at the intersection between a particular ontological configuration of alterity, which we call "dependence on otherness", and a set of norms and practices, which we refer to as an "ethics of autonomy"', they write (González Gálvez et al. 2022, p. 4). The 'dependence on otherness' and the 'ethics of autonomy', widely prevalent in the Amazon region, flare up throughout my thesis. Strikingly, the double aspiration for alterity and autonomy gives rise to relational conflicts whenever Otherness threatens to undermine self-determination and prevailing identity structures. In these cases, individual entities may lose control over their relations. To prevent this from happening, entities engage in what González Gálvez and co-authors name the 'taming of relations' (2022, p. 9), that is, in actions and strategies that serve to protect one's self in the face of alterity. As the authors explain: 'The taming of relations is ultimately necessary in order to avoid the obliteration of the singularity of each being, given the potential of relations to constantly constitute and reconstitute beings beyond their intentions' (González Gálvez et al. 2022, p. 9). This is not only true with regards to jaguars, forest masters, and colonisers, but also with regards to modern technical artefacts. Unless relations between human beings and artefacts are carefully managed and 'tamed', there is a risk of falling prey to artefactual allures, as we will see, and of losing oneself in the luxury of fuel-powered machines, the attraction and addiction of tablet games, and the convenience of capitalist consumerism.

Within Amazonian anthropology, the taming of relations can be linked to the concept of 'familiarising predation', which according to Carlos Fausto denotes 'the process through which alien subjects are consumed and controlled in order to produce new subjects on the inside of the group' (Fausto 1999, p. 949). Such 'alien subjects' can range from animals, adoptive children, war captives, and women to auxiliary spirits and ritual artefacts and body ornaments (Fausto 1999, 2007). Control and ownership (*sensu* Fausto 2008) are frequently established through feeding relations, which I show in my conclusions to also extend to modern technical artefacts.

The taming of relations is a complex challenge, not least since each relational change causes unintended ripple effects throughout the wider ecology, as forcefully illustrated by trophic cascades (e.g. see Terborgh & Feeley 2010a, 2010b). In Chapter 7, I seek to trace and appraise some of these ripple effects, which emerge from an intricate interplay of innumerable entities and which are key for gaining a holistic understanding of technological change.

The Ubiquity of Change

Taking an ecological perspective does not only mean embracing the all-presence of relations but also acknowledging the ubiquity of change. Ecosystems are in flux. Cultures are in flux. The whole world is in flux. *Panta rhei*. Our complex relational webs create constant movement and change, which crystallise on a continuous spectrum going from processes of reproduction and adaptation to processes of transformation (Dwyer & Minnegal 2010; Robbins 2004; Sahlins 1985; Vilaça 2016). Crucially, even radical transformations rely on, reproduce, and reaffirm existing relational systems and structures, meaning that change always goes hand in hand with no change.

Paul Watzlawick, John Weakland, and Richard Fisch (1974) grapple with the Janus-faced character of change from a psychological perspective, wondering how they can induce lasting transformations in their patients. Building on the theoretical work of Bateson (2000; see also Watzlawick et al. 1974, pp. xiv, 2–12, 63), they distinguish two types of changes, which roughly correspond to the difference between reproductive and transformative change. First-order or reproductive change creates novel combinations within a given system. Like in mathematical group theory, entities can be blended, mixed, and inverted, without changing the basic parameters of the group, however. Second-order or transformative change requires a change of perspective, an outside-the-box thinking. Like in mathematical type theory, second-order change can solve impasses and paradoxes by creating novel contexts and frameworks. It corresponds to a shift in gear, rather than to a mere deceleration or acceleration.

For beings who are caught up in the complex webs of life, it is notoriously difficult to register and perceive change. In a famous case study, Marshall Sahlins argues that the Hawaiian population seamlessly integrated Captain James Cook into their local cosmology by deifying him as Lono, the god of fertility, peace, and music, thus reproducing and reaffirming pre-existing knowledges (cf. also Obeyesekere 1997 for a decolonial critique of Sahlins' interpretation). Sahlins maintains that 'the transformation of a culture is a mode of its reproduction' (Sahlins 1985, p. 138), and elucidates how the colonial encounter, which had begun with Cook, led to the reproduction as well as to the revaluation and transformation of Hawaiian structures, cosmologies, and knowledges. He thus summarises: 'In the upshot, the more things remained the same the more they changed, since every such reproduction of the categories [e.g. of the 'chief' or of the 'taboo'] is not the same. Every reproduction of culture is an alteration, insofar as in action, the categories by which a present world is orchestrated pick up some novel empirical content' (Sahlins 1985, p. 144).

The imperceptibility of change poses problems for maintaining difference and diversity in the face of homogenising forces. The marine biologist Daniel Pauly introduces the 'shifting baselines syndrome' to explain this imperceptibility and to elucidate why some conservation efforts fail: 'Essentially, [the shifting

baseline] syndrome has arisen because each generation of fisheries scientists accepts as a baseline the stock size and species composition that occurred at the beginning of their careers, and uses this to evaluate changes. When the next generation starts its career, the stocks have further declined, but it is the stocks at that time that serve as a new baseline.' (Pauly 1995, p. 430) The earlier knowledge is forgotten and becomes a mere anecdote of the past; the shifted baseline becomes the normal framework for evaluations and analyses. 'Nothing has changed, but everything has changed', Daniel Pauly quips (2010), paralleling Sahlins' elaborations on the stability and change of Hawaiian culture. Transformative changes that result from the arrival and use of modern technical artefacts similarly proceed largely unnoticed.

This is also related to Ian Hodder's observation that 'change tends to build on what is already there rather than start over' (2018, p. 119), which he uses to stress the cumulative nature of change and the (non-teleological) path dependency in the evolution of humans and things.

The Matter of Life

A recurrent question in my thesis is whether modern technical artefacts are alive; and a corollary question is what the attribution of life means for their role and impact in ecologies. Such a research query may strike some readers as odd, since artefacts appear to be a *locus classicus* within the realm of non-living beings. And yet, boundaries quickly blur.

Soul Atoms

The distinction between living and non-living beings constitutes an age-old conundrum. To illustrate the complexity of the matter, we can begin with the widely popular definition of 'living beings' as systems capable of response, movement, metabolism, growth, and reproduction, a definition I still learnt in school, and we can note that modern technical artefacts are not ruled out by the definition. 'An automobile, for example, can be said to eat, metabolize, excrete, breathe, move, and be responsive to external stimuli', Carl Sagan argues in an influential encyclopedic entry, adding that 'a visitor from another planet, judging from the enormous numbers of automobiles on the Earth and the way in which cities and landscapes have been designed for the special benefit of motorcars, might well believe that automobiles are not only alive, but are the dominant life form on the planet' (Sagan 2010 [1970], p. 303). There are of course other definitions of 'life', which assign it to cats but not to cars, for instance by including cellular organisation as a necessary feature of living beings, but these definitions will not be further explored herein (but cf. e.g. Ruiz-Mirazo, Peretó, & Moreno 2010; Sagan 2010). Rather than delimiting 'life', I wish to show its exuberance, after all. By providing a walkthrough to different philosophical and anthropological

understandings of 'life', moving from the Aristotelian concept of the soul to the post-humanist vibrancy of rubber gloves, and by advocating for an agnostic stance on life, I hope to create ontological openings (*sensu* De la Cadena 2014) that allow a diversity of knowledges to thrive and flourish.

Aristotle writes that '[t]he soul is the cause or source of the living body' (1931, 415b). For him, body and soul constitute one entity, the body as matter, the soul as form, intricately entwined with each other. While matter contains the potentiality of substance, it only actualises through form, or 'entelechy'. If the eye were an animal, Aristotle invites us to imagine, the sight would be its soul, and 'when seeing is removed the eye is no longer an eye, except in name – it is no more a real eye than the eye of a statue or of a painted figure' (Aristotle 1931, 412b). Like the matter without form, like the eye without sight, the body without soul is no longer alive. Matter and form, body and soul, are interdependent. Importantly, the soul is the 'cause and principle' of life not only because it is the substance and the source of motion, but also because it provides the ultimate purpose: 'It is manifest that the soul is also the final cause of its body', Aristotle notes (1931, 415b).

For him, any entity that features one of the following characteristics is alive: 'thinking or perception or local movement and rest, or movement in the sense of nutrition, decay and growth' (Aristotle 1931, 413a). Plants are alive because they are animated by vegetative souls, which permit them to grow into the soil and air, and to nourish and reproduce themselves. Animals are enlivened by sensitive souls alongside vegetative ones, allowing them to feel pain, pleasure, and desire. They are 'sensitive vegetables', as Lucas John Mix (2018, p. 55) sums up Aristotle's thought. In comparison to human beings, however, they lack the faculty of reason, since only human beings are animated by vegetative, sensitive, *and* intellective souls (cf. also Bridle 2022 for a wonderful counterpoint to Aristotle's speciesism).

In his work, Aristotle attacks Pre-Socratic philosophers like Thales, Leucippus, and Democritus, and because their differences in approach foreshadow the front lines of later debates, it is worth mentioning them at this point. Thales of Miletus, one of the seven sages of Greece, holds that 'the world is animate and full of divinities', which leads him to attribute 'a soul or life even to inanimate objects', as Diogenes Laertius (1925b, p. 27) chronicles. He for instance claims that 'the magnet has a soul in it because it moves the iron' (Aristotle 1931, 405a). Indeed, he does not seem to distinguish between living and non-living realms at all, suggesting a hylozoist or pan-vitalist ontology. "'Why then ... do you not die?", Thales was once asked. And he answered: "Because ... there is no difference"' (Laertius 1925b, p. 37).

Leucippus and his student Democritus were prominent proponents of an atomist ontology. 'The first principles of the universe are atoms and empty space; everything else is merely thought to exist', Democritus claims (see Laertius 1925a, p. 453). For him, our universe consists of unchanging particles in empty space, whose inert movements and collisions change the appearance of the world in a pre-determined manner. Living entities move due to the tiny soul atoms they exhale and inhale, but they

do not otherwise differ from their non-living surroundings (see Augustin & Pellò 2022). Epicurus later refines Democritus' deterministic theory and builds a hedonist ethical framework on top of it. A key teaching of his is that we should not be afraid of death, since our soul atoms disperse at that point and all sensation ends (see Epicurus 1926, pp. 39, 53, 85). Leucippus, Democritus, and Epicurus consider the soul only as material cause for movement and life, not as their ultimate cause. In sharp contrast to Aristotle, the *telos*, 'the final cause', is missing, in the same way that it is later absent from mechanist and new materialist accounts of life.

The Clockwork Paradigm

As the scientific revolution unfolded in the 16th and 17th centuries, the marvellous mysteries of life and death were gradually reduced to pure mechanics. Influential scholars such as René Descartes, Thomas Hobbes, and Gottfried Leibniz compared living human bodies with clockworks (see also Dolnick 2011); they considered them machines designed by a divine power. '[A]n organism is formally nothing other than a mechanism, even if it is more subtle and more divine, because, in nature, everything must happen mechanically', states Leibniz (Carvallo 2004, p. 105, in Riskin 2020, p. 110). And a generation earlier, Descartes already described the body as 'nothing but a statue or machine' (2010, p. 15), whose imagination, memory, and passion depend on its organs just as a clockwork's functioning depends on its 'counter-weights and wheels' (2010, p. 20). The break with Aristotle is explicit when he rejects the existence of immanent vital forces: 'it is *not* necessary to conceive of this machine as having any vegetative or sensitive soul or other principle of movement and life', he asserts (Descartes 2010, p. 20; added emphasis).

Immanuel Kant grapples with the spread of mechanism and critiques in particular its lacking teleology: 'An organized product of nature is that in which everything is an end and reciprocally a means as well. Nothing in it is in vain, purposeless, or to be ascribed to a blind mechanism of nature' (2010, p. 27). Kant draws on Johann Friedrich Blumenbach's *Bildungstrieb*, the organisms' drive towards self-realisation, to argue that the development of organisms depends on an innate force and principle, an idea that also influences a range of romantic philosophers, scientists, and poets. Friedrich Wilhelm Joseph Schelling argues for instance that the distinction between mechanism and organism dissolves once we acknowledge the *Bildungstrieb* and the all-pervasive *Weltseele*, the world soul. He contends that life does not evolve from matter; quite the contrary, 'matter is the product of life' for him (Schelling 1806, p. 190, own translation).

Humboldt initially takes up Blumenbach's and Kant's idea of a *Bildungstrieb*. 'We call those bodies animated and organic that, though they tend constantly to change into new forms, are constrained by

some internal force, so that they do not relinquish that form originally introduced', he writes in his younger years (Humboldt 1793, pp. 133–5, as cited in Pecere 2023, p. 779). Later on, however, he switches to a more mechanist account, increasingly persuaded by physiological and chemical studies that show how the life of plants and animals can be described without reference to vital forces (see also Humboldt 1849, pp. 310–1). 'The myths of imponderable materials and of own life forces in every organism tangle up and obscure the view of Nature', he writes for example in the first volume of his *Cosmos* (Humboldt 1845, p. 67, own translation).

Darwin's theory of evolution provided further impetus for a mechanist explanation of life. '[Darwin's theory of dependency] shows that the entire morphology of organisms and also the physiology and abiology needs to rest on a mechanical-causal basis and that the causes of all natural appearances, including of the most compounded organic developmental phenomena, are merely mechanical, operating causes, never final, purposeful causes', Haeckel writes early in his life (1866, p. 150). And Thomas Huxley, who was dubbed Darwin's bulldog for vigorously defending evolutionist theory against its adversaries, finds that 'vitality' is as useless as the concept of 'aquosity' would be. 'We do not assume that a something called "aquosity" entered into and took possession of the oxide of hydrogen as soon as it was formed, and then guided the aqueous particles to their places in the facets of the crystal, or amongst the leaflets of the hoar-frost', he notes (Huxley 1869, p. 16). Similarly, processes of living cells should not be attributed to a nebulous 'vitality', but to their underlying molecular structures and properties.

The Birth of Organicism

With the advance of microscopy and cell biology in the latter half of the 19th century, a debate ensued between preformation and epigenetics, often fought in the trenches of mechanism and vitalism. Wilhelm Roux, a student of Haeckel, supported the former position. Advocating a mosaic theory of ontogenesis, he believed that embryonic cells fulfil distinct functions and that the removal of any such cell during mitosis led to deficiencies in the final organism. To prove the claim, he experimented with two-cell and four-cell frog eggs and demonstrated that destroying half the cell with a hot needle mutilates subsequently evolving cells. Hans Driesch, another student of Haeckel, set out to replicate these results with sea urchin eggs, slightly modifying the methodology in separating the blastomere cells through shaking, rather than through killing one half. To his own surprise, he found that each blastomere cell could develop into a full organism, which led him to refute the preformatist claims of Roux. Driesch hypothesised that a vital non-energetic principle, which in reference to Aristotle he called 'entelechy', permitted the realisation of pre-formed possibilities (Driesch 1914, p. 205).

'Darwinism ... explained how by throwing stones one could build houses of typical style', Driesch

(1914, p. 137) later lashes out against the Darwinism of the late 19th century. He elaborates that 'Darwinism claimed to show how something purposively constructed could arise by absolute chance', and he critiques that Darwinism had failed to explain the purposeful self-realisation and manifoldness of vital entities (Driesch 1914, pp. 138-9). According to him, the problem of Darwinism is that it ousts and ignores the 'vitalistic or autonomous factor *E*' (Driesch 1908a, p. 143), which Driesch over the course of his years variously calls 'soul' (1903, title, own translation), 'psychoid' (1908b, p. 82), or 'entelechy' (1908a, p. 143). The renowned biologist Ernst Mayr much later remarks that often 'perfectly sensible sentences emerge in Driesch's writing whenever his word "Entelechie" is replaced by the phrase "genetic program"' (Mayr 2010 [1997], p. 93).

Driesch was not alone in his attack on materialist Darwinism. Another famous opponent of Darwinist evolution was Henri Bergson, who emphatically contends that an *élan vital* pervades the living world. Similar to Driesch's entelechy, Bergson's *élan vital* is a disorderly force that resists the mechanist principles of the non-living world. Life does not evolve in an ordered manner, he observes, and evolution cannot be reduced to an automatic process. Unlike a solid cannon ball that follows a calculable trajectory to its target, evolution is rather 'like a shell, which suddenly bursts into fragments, which fragments, being themselves shells, burst in their turn into fragments destined to burst again, and so on for a time incommensurably long' (Bergson 1911, p. 98). Life splits and divides, creatively evolving along a path that is influenced by inert matter as well as by vital forces.

Neither the *élan vital* nor the concept of entelechy fared well in scientific circles. Mirroring his grandfather's argument about aquosity, Julian Huxley nonchalantly observes that Bergson's *élan vital* is no more useful in explaining life than an *élan locomotif* is in explaining the workings of a steam train. And in another sweeping and scathing critique on vitalism, Hugh Elliot exhorts his readers to at long last exorcise the 'spectre of vitalism' from the realm of explanations, writing that vitalists 'believe in ghosts' (1913, p. 438). However, it turned out that the 'ghost stories' of Driesch, Bergson, and other vitalists revealed major ontological shortcomings in the 'cogs-and-wheels stories' of mechanists. Adherents of the latter stories were increasingly plagued by a headache, since they lacked an explanation for the organisation of living beings. The headache's remedy, however, was not the vitalist concoction of metaphysical forces, but the organicist infusion of 'organising relations' (e.g. Needham 1933, p. 212).

In the early twentieth century, the paradigm of organicism nothing less than revolutionised the sciences (*sensu* Kuhn 1962; see Haraway 1976). In one fell swoop, organicism expunged mechanist reductionism and vitalist metaphysics from the discipline of biology, expounding in its stead a holistic approach that revolved around the need 'to look for organising relations at all levels, higher and lower, coarse and fine, of the living structure' (Needham 1936, p. 139). The paradigm was not only reflected in Clements' 'superorganism' and in Tansley's 'ecosystem', but via systems thinking and cybernetics also wove its way

into the work of Bateson, Ingold, and Donna Haraway.

The Post-Humanist Turn

In her *Cyborg Manifesto*, Haraway conjures a world where the boundaries between humans, animals, and machines crumble and fall, a world where stories of cyborgs bastardise and begrime dominant doctrines of the might of men, a world where 'people are not afraid of their joint kinship with animals and machines' (1991, p. 154). It is a spine-chilling and spooky world, but it is pregnant with the prospect of demolishing deep-seated dualities. By calling forth the cyborg, a 'cybernetic organism, a hybrid of machine and organism' (1991, p. 149), whose post-humanist path is paved by machines, Haraway turns the debate between mechanists and vitalists upside-down. 'Our machines are disturbingly lively, and we ourselves frighteningly inert', she evocatively remarks (Haraway 1991, p. 152).

Bruno Latour's 'door-closer' similarly blurs the boundaries between the living and the nonliving. In Latour's depiction, the door-closer is a 'thoroughly anthropomorphic creature' – shaped by humans, shaping humans, substituting humans. And yet, to Latour's chagrin, it is treated as if it was inferior to humans. Latour laments the door-closer's fate:

> [W]ho are you, you the sociologist, to decide forever the real and fine shape of humans . . . ? Are we not shaped by non-human grooms, although, I admit, only a very little bit? Are they not our brethren? Do they not deserve consideration? With your self-serving and self-righteous social problems, you always plead against machines and for deskilled workers; are you aware of *your* discriminatory biases? You discriminate between the human and the inhuman. I do not hold this bias but see only actors . . .
>
> (Johnson [Latour] 1988, p. 303; original emphasis).

By imbuing non-human beings with agency, Latour co-creates a post-humanist cyborg world that dissolves distinctions between human and non-human beings, and his mechanical door-groom opens the human realm to a grand deluge of non-human beings. Post-humanist research has since proliferated, with the emergence of pensive forests (Kohn 2013), politically active mountains (De la Cadena 2015), number-crunching matter (Kirby 2013), and living rubber gloves (Bennett 2010).

In the post-humanist field of new materialism, the non-human is not only imbued with agency, but also with animacy (see Coole & Frost 2010 and Gamble, Hanan, & Nail 2019 for overviews). For Jane Bennett, for example, the world is through and through animated by 'thing-power'. Even road debris – a rubber glove, a mat of pollen, a wooden stick, a dead rat, and a bottle cap, she describes – once 'issued a call' to her and thereby allowed her to catch 'a glimpse of an energetic vitality inside each

of these things' (Bennett 2010, pp. 4–5). Bennett's most illuminating example of the thing-power of matter is an electricity blackout. According to her, the blackout cannot be blamed on 'deregulation and corporate greed' alone, because it was caused by an assemblage of motley actants, including electricity, power plants, transmission wires, consumers, corporations, and regulatory commissions. As such, the blackout should be interpreted as giving a voice to electricity: 'Thus spoke the grid' (p. 36), she writes (cf. also Hornborg 2021, pp. 756–7, for a persuasive critique of her case study). In her understanding, 'an affective, speaking human body is not *radically* different from the affective, signalling non-humans with which it coexists, hosts, enjoys, serves, consumes, produces, and competes' (2010, p. 117, original emphasis).

Karen Barad comes to a similar conclusion when she finds that '"[h]uman" bodies are not inherently different from "nonhuman" ones' (Barad 2007, p. 153). Her 'agential realism', however, is based on physics rather than phenomenology: her framework takes the indeterminacy, openness, and dynamism of particles as its foundation. According to her, only 'intra-action', that is, the 'mutual constitution of entangled agencies' (Barad 2007, p. 33), gives rise to boundaries and entities. Agency and life are no longer seen as properties, but as 'the ongoing reconfigurings of the world' (Barad 2007, p. 141) – as a process. For Barad, '[t]he world is agential intra-activity in its becoming' (2007, p. 141).

An Ethical Quagmire

New materialism is a dangerous morass. The homogenisation of human and non-human beings literally liquidates humanity, and as a human, maybe all too human being, I refuse to accept a world where human beings and stones are weighed on the same scale. I hold it with Friedrich Nietzsche when he elliptically remarks: 'Nothing human is worth the great seriousness; nevertheless–' (Nietzsche 1894, p. 386, own translation).

New materialism undermines human responsibility, contaminates human compassion, erodes human solidarity, and blunts the critical edges of social analysis (Boysen & Rasmussen 2023; Hornborg 2017, 2021; Malm 2018). In the wake of new materialism, human morality breaks down like a Jenga tower, because if human beings matter no more than rubber gloves, they can conveniently reject their responsibility for the world's misfortunes. Indeed, by dissolving the very notion of 'life' into an undifferentiated ontological hodgepodge, new materialists create a deep ethical quagmire.

'I believe that encounters with lively matter can chasten our fantasies of human mastery, highlight the common materiality of all that is, expose a wider distribution of agency, and reshape the self and its interests', Bennett's new materialist credo states (2010, p. 122). But while she goes through great pains to show that 'our fantasies of human mastery' are *really* wrong, ontologically speaking, she begs

the question why such fantasies would be *morally* wrong. Her world of 'thing-power' lacks a *telos*. In Aristotle's words, it lacks 'the final cause' (1931, 415b). While 'our fantasies of human mastery' may destroy our planet, they are nevertheless the outgrowth of vibrant matter, one could counter Bennett's advances, and so are bucket-wheel excavators, chainsaws, car exhausts, smartphones, and nuclear bombs. If we were to take Bennett's proposal at face value, we may as well resign ourselves to our fate. Thus spoke the planet, after all.

Baradian ethics are likewise built on thin air. '[T]o say that there are consequences to our actions is to miss the full extent of the interconnectedness of being', Barad writes. 'Our (intra)actions matter – each one reconfigures the world in its becoming – and yet they never leave us; they are sedimented into our becoming, they become us' (Barad 2007, p. 394). According to her, agential realism increases our responsibility in the world. 'Meeting each moment, being alive to the possibilities of becoming, is an ethical call, an invitation that is written into the very matter of all being and becoming', she writes (Barad 2007, p. 396). However, she never articulates why we should follow that invitation, or, for that matter, why the universe would care. 'We need to meet the universe half-way, to take responsibility for the role that we play in the world's differential becoming', Barad insists (2007, p. 396). But dare I ask what happens to the universe if we do not answer its call?

The lack of ethical foundations is even more problematic when it shifts our focus from the plight of living creatures to the needs of machines and matter, as new materialism frequently does. Barad's reframing of Leela Fernandes' *Producing Workers: The Politics of Gender, Class, and Culture in the Calcutta Jute Mills* (1997) is telling in that regard. Whereas Fernandes focuses her analysis on the differential formation of class consciousness in the face of intersecting and overlapping social identities, Barad hones in on 'machinic agency' (2007, p. 231), highlighting how the spatial arrangement of machines on the shop floor allows workers to collude, and how the failure of machines leads to clashes between managers and workers. Barad finds that '[w]orkers, machines, managers are entangled phenomena, relational beings, that share more than the air around them; they help constitute one another', and she believes that such theoretical shift lays the ground 'for reworking unhealthy and unjust labor conditions' (2007, p. 239). More than anything else, however, her analysis creates a slippery slope, which leads from fighting the abuse of living, human beings to fighting the discrimination against matter, machines, and door-stoppers.

For Hornborg (2014, 2015, 2017), the new materialist attribution of life and agency to non-living beings is nothing but fetishism, aiding and abetting an exploitative capitalist system. He therefore vigorously defends the ontological divide between living and non-living beings. But while his approach at last provides some well-appreciated solid ground, it likewise leads us into trouble, as we will see, namely by bringing us full circle back to our starting point: What is life?

The Anthropology of Life

'All life is semiotic and all semiosis is alive', argues Kohn in *How forests think* (2013, p. 16). And for him, like for Hornborg (1996), semiotic processes are not limited to the human realm. All living beings permanently produce and process iconic and indexical signs, forming an 'enchanted' ecology of selves (e.g. Kohn 2013, p. 9). Importantly, however, and in my view unfortunately, 'things' are specifically excluded from this ecology of selves, since only '[s]elves, not things, qualify as agents' (Kohn 2013, p. 92).

Such categorical exclusion of things causes me to put a question mark behind his redefinition of life as a semiotic process. If modern sign-processing machines like computers are by definition unable to think because they are not alive, and if by the same token they are not alive because they are unable to think, Kohn's whole ontological journey proves circular and leads back to the distinction between living and non-living beings that we have already encountered with Aristotle. '[T]here is something unique to life: life thinks, stones don't', Kohn (2013, p. 100) writes, but such a supposition, in my perspective, results in the closure of heterodox ontological spaces. Among the Ávila Runa, for instance, to draw on Kohn's own ethnographic descriptions, the soul of deer is located in the indigestible 'bezoar stones' of their stomachs. Put differently, the deer's loci of awareness – their 'organs of consciousness' – are stones (see Kohn 2013, pp. 106–7). And yet, there is no space for thinking, living stones in Kohn's ontology: stones are banished from the realm of the living; and the knowledge of living stones is incuriously dismissed.

'[T]aking nonhumans seriously makes it impossible to confine our anthropological inquiries to an epistemological concern for how it is that humans, at some particular time or in some particular place, go about making sense of them', Kohn (2013, p. 10) argues. Ontological statements are therefore at the core of his anthropology beyond the human. '[I]f we limit our thinking to thinking through how other people think we will always end up circumscribing ontology by epistemology', he writes (Kohn 2013, p. 94). Ironically enough, it is precisely for this reason that his hopes of liberating ontology from the shackles of epistemology are in vain, because even if we limited our thinking to thinking through how Kohn thinks, our ontology would still be constrained by epistemology. The only difference would be that we would be left wondering about how Kohn knows that stones do not think, rather than about how the Runa know that they do think.

In his advocacy for a distinction between living and non-living beings, Hornborg (2021) draws on Kohn's ontology. And like Kohn, Hornborg (2021) does not fear potential conflicts between emic and etic ontologies. As he writes: 'It is one thing to conduct sensitive ethnography respectfully documenting one's informants' assertions about object agency, but it is something else to seriously internalize such claims as valid statements about reality' (Hornborg 2021, p. 754). On this point, however, I strongly disagree with him. For me, respectful anthropological research means opening ontological spaces, so that

emic realities may exist and thrive.

My proposition is to cultivate an agnostic attitude towards ontology, an attitude rooted in the belief that we can never be certain about the underlying fabric of our world or the matter of life. By accepting the potential validity of local knowledge systems, ontological agnosticism reduces the risk of perpetuating colonial epistemic violence. And by repudiating the universal validity of any particular knowledge system, it simultaneously avoids ontological contradictions. Stones and even computers may be alive in my framework, but they may also be dead, not unlike Schrödinger's cat.

The epistemological foundation for my ontological agnosticism is William James' pragmatist understanding of truth. Truth, James writes, is '[a]ny idea which we can ride, so to speak; any idea that will carry us prosperously from any one part of our experience to any other part, linking things satisfactorily, working securely, simplifying, saving labour' (1907, p. 58). In James' philosophical pragmatism, stones become truly alive whenever that knowledge helps us to successfully navigate our world. 'Truth h a p p e n s to an idea. It b e c o m e s true, is m a d e true by events', he highlights (James 1909, p. vi, original letter spacing). As a consequence, truth exists in all shapes and sizes, harmonically integrating with the ontological turn in anthropology (see Holbraad & Pedersen 2017).

Ontological agnosticism – or to be more precise: biological agnosticism – helps us to explore 'life' in all its complexity and diversity. To be sure, the grand ontological theories proposed by Kohn (2013), Bennett (2010), and Barad (2007) may serve as salubrious antidote against reductionist stubbornness, and they may inspire us to broaden our horizons and decolonise our minds (*sensu* Viveiros de Castro 2014). However, they may likewise incite us to bypass, ignore, or depreciate the living realities of our fellow human beings, and ontological agnosticism reduces that risk by accepting life as a multifaceted phenomenon.

The ethnographic record shows that life may be plural and that it defies any simple categorisation (Rival 1998b, 2012a, 2012b). Rival indicates for example that manioc plants among the Waorani and the Makushi may lead a 'double life'. '[T]wo distinct life forces may be at work, one characterising the intentionality of the master spirit or soul of the plant, the other relating to its biological condition', she writes (Rival 2012a, p. 79). And not only may life be plural, but it may also matter in different ways. As Rival observes, for example, 'the same tree may be admired and poetically commented upon for its brand new and shiny leaves one day, only to be feared the next day, when a tempestuous wind animates it with a different, much more dangerous, kind of energy' (2012b, p. 134).

Indeed, life is not a natural given (Pitrou 2014, 2015). Perig Pitrou, who advocates for an 'anthropology of life' that carefully compares different ethno-theories of life, writes that '[i]t would be unwise to assume that the term "life" or the Greek root *bios* on its own conveys a principle of unity' (2015, p. 88). Like nature, he argues with a nod to Descola (2013), life is a polysemic concept. He notes for example

that 'life' among the Mixe people in Mexico is better understood as 'a process of making', rather than merely 'as a material substance circulating in the world or between bodies' (2015, p. 87), showing the diversity of life's appearances. Following the tracks of Rival and Pitrou, my thesis explores the richness and uniqueness of life among the Yagua people, with a particular focus on the life of modern technical artefacts.



Artefactual Worlds



My ecological analysis of modern technical artefacts focuses on their meanings and ramifications in an open, dynamic, and complex relational system. 'As we "make things work", what kind of *world* are we making?', asks Langdon Winner (1986, p. 17, original emphasis), and I believe his question is as timely now as it was in the 1980s. Artefacts, after all, still alter our worlds in unfathomable ways.

'The map of the world shows no country called Technopolis, yet in many ways we are already its citizens', Winner observes (1986, p. ix), and he encourages us to critically reflect on why humankind so willingly subjects itself to the technological leviathan that threatens to overwhelm it. Artefacts engender brave new worlds, Winner warns, in which human beings are transformed into 'operating parts' of a technological system that they soon depend on (Winner 1986, p. 11). According to him, human beings are currently 'sleepwalking' through a radical transformation of their basic human condition to reach these worlds (Winner 1986, pp. 5–10). '[T]elephony, automobility, electric lighting, and computing are forms of life in the most powerful sense: life would scarcely be thinkable without them', Winner writes (1986, p. 11). Modern technical artefacts, now forming the bedrock of our languages, thoughts, actions, and passions, influence every inch of our lives. But I am going ahead of myself; before we discuss artefactual interpretations and impacts, let us delimit and define 'artefacts', 'tools', 'machines', 'screens', and 'modern technology', and let us explore the existing scholarship on artefactual beings and doings in the Amazon region.

Tools, Machines, and Screens

I define artefacts as things purposefully and skilfully produced (see also Jonas 1979). Within the scope of this thesis, I focus on human-made artefacts. Conceptually, I distinguish three kinds of technical artefacts, namely tools, machines, and screens. A 'tool' herein denotes any artificial apparatus that permits the functional application of energetic resources; a 'machine' is an artefact that relies on non-human energetic resources, such as fuel, electricity, or batteries; a 'screen' refers to a digital artefact and its display, be it a

phone, a tablet, a computer, or a television set. In general, machines are tools, and screens are machines, but not vice versa.

The term 'modern technical artefact' encompasses in particular machines and screens. The qualifier 'modern' is to be understood as an explicit reference to Hans Jonas (1979), who singles out four key characteristics of 'modern technology': Firstly, modern technology does not saturate consumers; it merely imbues them with new desires. Secondly, modern technological innovations spread rapidly through technological communities. Thirdly, modern technology conflates and reverses human means and ends. And fourthly, modern technology's inherent dynamics of self-proliferation push for ever-lasting growth. While my analysis is not premised on these characteristics, they are found to largely apply in the Yaguan context.

Jonas persuasively argues that machines 'had from the beginning their own impact on man's symbiosis with nature by being consumers themselves' (1979, p. 38). Steam-powered water pumps, for example, which were used in mining, created demand for themselves by consuming coal and iron during their production phase and operation, leading to an even further growth of machines. 'This syndrome of self-proliferation – by no means a linear chain but an intricate web of reciprocity – has been part of modern technology ever since', Jonas writes (1979, p. 38). In the discipline of anthropology, such a pessimistic viewpoint has not always been shared, as my previous summary of early evolutionist thought or of Daniel Miller's work on creative consumption has already shown.

The Life of Artefacts

In the Amazon's 'enchanted universe' (see Sahlins 2022), there is ample mythological and ethnographic evidence that artefacts may be alive. There are artefacts that can move; artefacts that can think and talk; artefacts that can transform into animals and stars; artefacts that shelter the souls of their makers, of their owners, and even of the devil himself; and there are also artefacts whose life forces can harm newborn babies.

Possibly, of course, artefactual agency and animacy are mere figments of human imagination and creativity (e.g. Gell 1998; Hornborg 2017, 2021; Pfaffenberger 1988). As Alfred Gell (1998) asserts, the enchantment of artefacts may be due to our incapability to understand their production processes, rather than due to artefactual agency. However, while such theory provides a valid and indeed insightful explanation for our ethnographic observations, it unfortunately denies artefacts the potential to be truly alive and thus closes ontological spaces that allow indigenous knowledge about artefactual animacy to thrive and survive. An ontologically agnostic position demands that we leave these spaces open.

Amazonian mythology indicates a transformational continuum between artefacts, human beings, an-

imals, plants, hills, lakes, and stars. A Tupi myth relates for instance how '[a]nimals did not exist [in primordial times], for things themselves had the power of speech' (Couto de Magalhães 1940, pp. 231–3, in Lévi-Strauss 1966, p. 416). Only when night fell for the first time, 'all things that were in the forest changed into quadrupeds and birds; those in the river became ducks and fish. The baskets turned into a jaguar, the fisherman and his canoe turned into a duck: the man's head acquired a beak; the canoe became the body, the oars the feet' (Couto de Magalhães 1940, pp. 231–3, in Lévi-Strauss 1966, pp. 416–7).

Artefacts, it appears, are able to turn into animals. A Trio myth provides another example of this. In the myth, we encounter two brothers who weave baskets decorated with a jaguar patterns, baskets that were so lifelike that they turned into jaguars. As Peter Rivière (1994, pp. 257–8) continues in his retelling of the story, '[t]he brothers were then able to skin these jaguars, whereupon the baskets became baskets again and the brothers had sets of jaguar clothes'. Like humans (e.g. see Rivière 1994; Vilaça 2005), it seems, artefacts can don and doff jaguar hides, assimilating their body and transforming into a jaguar. Appearances can be deceiving. *WYSINWYG in Amazonia* titles Peter Rivière: 'What You See Is Not Necessarily What You Get' (Rivière 1994, p. 256). A jaguar may be a jaguar, but it may also be a human or even an elaborately woven basket. The Yaguan Story of Musmuqui, also known as the Lemur-eaten-one's Orphan Cycle (see Chapter 5), likewise narrates how baskets can transform into a woman or, by inverting the leaves, into a man (Powlison 1969, p. 275).[6]

Among the Wayana, not only mythology, but also modern-day weaving points to the animacy of artefacts. Skilful weavers, the Wayana can craft fish-like plaques that transform into actual fish during rituals (Van Velthem 2001, p. 207), not unlike the jaguar-like baskets in the Trio myth, which transformed into actual jaguars. The Wayana case exemplifies that the boundaries between artefacts and human beings are far from solid, since craftsmen are intimately associated with their work: When they die, all their artefacts are destroyed, because they too are 'considered to have died' (Van Velthem 2001, p 212). A similar practice is found among the Matis, where Philippe Erikson observes that artefacts are 'conceived of as an extension of their maker' (2009, p. 177).

The intricate connection between artefacts and human beings likewise comes to the fore in the Urarina case, where newborn babies form deep connections with their hammocks, or rather, where hammocks form deep connections with their newborn babies (see Walker 2012b, p. 54). 'Over time, a baby's "vitality" or "vital breath" is said to permeate the hammock, a kind of "ensoulment" through which each becomes an extension of the other', Harry Walker (2012b, p. 54) writes. The baby's personhood is further formed by a rattle that is positioned behind the baby, and which not only comprises beaks and bones, but also 'empty

[6] The woven man, whose name Paul Powlison (1969, pp. 275-9) translates to 'Pack', later also transforms into a bee's nest and is eaten.

bottles, disposable razors, plastic spools, mirror frames, and sewing kits' as well as empty shotgun shells, cigarette lighters, and plastic combs (Walker 2012b, pp. 46–7), items that impart valued qualities onto the newborn child. We can thus observe that artefacts make people as much as people make artefacts (see also Hugh-Jones 2009; Miller 2009).

'[T]here are "multiple ways of being a thing" in the Amerindian lived world', Fernando Santos-Granero (2009b, p. 8) notes in the introduction to his edited volume on *The occult life of things*, an important reminder to remain ontologically open to the potentialities of life and matter. Among the Yanesha, according to him, things can be associated with deities and stars, enlivened by mimetic processes, or ensouled by human beings, animals, and plants. Or, as in the case with many foreign objects, they can also be 'plain'. '[P]ans, plastic tableware, watches, radios, torches, batteries, and so on are considered to be so alien that even if they are used on a daily basis they do not have the capacity of becoming ensouled', he writes (Santos-Granero 2009a, p. 110). The lack of soul of course does not preclude these objects from being alive (see also Pitrou 2015), and it would be interesting to know whether the Yanesha might consider the motion of watches or the energy of batteries as signs of life.

Artefactual Fetishes

The attribution of life to non-living beings is sometimes considered fetishism (Hornborg 2014, 2015, 2017, 2021; Pfaffenberger 1988), which according to Karl Marx hides social relations behind artefacts and leads to the reification and alienation of human beings. It is from this vantage point that Hornborg exhorts us to reject claims about artefactual life. '[W]e need to grasp that the operation of machines is a matter of societal relations masquerading as relations between things', he writes (Hornborg 2017, p. 9). According to him, we can only critique capitalist exploitation if we reveal and resist fetishism in all its forms.

Hornborg's exposure of modern-day fetishism merits attention and critical appraisal, as he expands classic Marxist theories of money and commodity fetishism by adding a detailed analysis of machine fetishism (see Hornborg 2001a, 2001b, 2015, 2022). As Hornborg persuasively argues, machines are intertwined with money, and together enable the exploitation of labour time, lands, and resources. This rectifies Marx's analysis and conclusions in an important regard. While Marx advocates for an accumulation of material artefacts (see Hornborg 2022, p. 46), Hornborg shows that such accumulation would only be possible through an accumulation of money, and by rejecting this, he paves the way for marrying eco-Marxism and post-growth.

And yet, I must disagree with Hornborg's ontological premise that artefacts cannot be alive. Life is complex, as we have seen, and the attribution of life is a multifarious matter. Further, and importantly,

anything can become a fetish, regardless of whether it is alive or not. To illustrate this last point, let me draw the reader's attention to the agricultural industry, and let me ask how the attribution of life to wheat, apple trees, and cattle limits the acuity of Marxist analysis. Surely enough, we would need to admit that we can still critique the commodity fetishism surrounding livestock. The problem is not the life of livestock, but its fetishism, namely when livestock is treated as a commodity with an inherent monetary value, or when it is considered to be more valuable than human life.

If the reader is willing to briefly dive into the depth of Marxist writing, I can further substantiate my argument by pointing to Marx's discussion on the proceedings of the Sixth Rhine Province Assembly. The assembly revolved around the Prussian Law on Theft of Woods and raised in particular the question whether the pilfering of dead wood constitutes theft and, if so, whether such theft should be treated in the same way as the cutting of living trees. Marx argues that a difference between these two activities should be upheld, since the cutting of living trees destroys their organic unity, whereas the pilfering of dead wood merely continues and concludes what nature had started. The assembly takes a different viewpoint, however, as one member points out that the poor pilferers often gash young trees to later collect them as dead wood. Marx is enraged by this perspective, as it effectively values young trees higher than human beings. '[T]he wooden idols triumph and human beings are sacrificed!', he observes in disgust (Marx 2010 [1842], p. 226). The underlying problem, then, is not that trees are alive, but that their lives count more than human lives.

In his commentary, Marx draws an explicit analogy between the fetishism of the Rhine Province Assembly and the fetishism of the 'Cuban savages':

> The savages of Cuba regarded gold as a fetish of the Spaniards. They celebrated a feast in its honour, sang in a circle around it and then threw it into the sea. If the Cuban savages had been present at the sitting of the Rhine Province Assembly, would they not have regarded wood as the Rhinelanders' fetish?
>
> (Marx 2010, pp. 262–3, original emphasis removed)

But then, Marx drily remarks, at the next meeting, they would have considered hares to be the Rhinish fetish, since the discussion on the hunting of game 'would have taught them that the worship of animals is connected with this fetishism, and they would have thrown the hares into the sea in order to save the human beings' (2010, p. 263, original emphasis removed). With regard to both the young trees and the hares, we note that Marx applies the term 'fetishism' to entities that he clearly considers alive. What is at stake when we speak of 'fetishism' is therefore not whether an entity is ontologically alive but whether its economic relations imbue it with a value that it does not possess. As such, I would be aghast to consider the 'ensoulment' of a hammock among the Urarina as fetishism, and I disagree with Hornborg

that only such characterisation allows us to critique the machine fetishism of our capitalist economy.

Further, even if we were to apply labels such as 'fetishism' or 'magic' to animist knowledge, we should note that such knowledge may form a powerful critique of capitalism, a point wonderfully made by Michael Taussig (1980). Based on his research among tin miners in Bolivia and farmers in Colombia, Taussig discusses the widespread idea that the devil inheres in production and consumption processes, finding that the devil imagery expresses the disillusion of workers with the change of economic orientation from use-values to exchange-values. '[Devil-beliefs] are collective representations of a way of life losing its life', Taussig (1980, p. 17) argues, using them as an image for the evil forces of capitalism. While Taussig's overall analysis has been critiqued for romanticising precapitalist societies (e.g. Parry & Bloch 1989; Walker 2012a), his remarks on the devil imagery still prove insightful.

In the Amazon region and beyond, capitalism is connected to the devil. For instance, the Urarina at least once attributed the shipwrecking of a trader to the demonic forces in his 'trade goods' (Walker 2012a), or as it were, in his 'trade evils'. As Walker notes, industrial products are widely known to be made and owned by Moconajaera, 'the Burner', who among the Urarina is often identified with the Christian devil. The movement of watches is for example explained by *Moconajaera busi* inside, that is, by the 'fire of Moconajaera', and that fire is comparable to the life forces of trees, plants, and plant-based artefacts. One of Walker's research participants elucidates the inherent fire of modern technical artefacts, and it is worth providing the full quote:

> Gasoline has *Moconajaera busi*, because it has a lot of force, it helps the motor. *Busi* is like its force, like its food or nourishment. Human beings have manioc beer, and machines also need their nourishment. The battery is the *busi* of the radio, the *busi* helps it. If these things didn't have a Mother, they wouldn't have any force at all.
>
> (Walker 2012a, p. 150)

These observations on the life of modern technical artefacts are relevant for our present discussion on fetishism. While Walker is like me sympathetic to Hornborg's motivation (see Walker 2012a, p. 155), he rightly points out that the matter of life is more complex in the Amazonian context, and that it is problematic to interpret 'life' as a fixed binary attribute of entities. The theory of fetishism can be advantageously applied to critique the capitalist system, including in the Amazonian context, but it should not be levered against animist ontologies. There is no reason for believing that the historical materialist distinction between living and non-living being is *the* truth, and its proponents might well heed Taussig's advice and approach matter and life in a dialectic way (Taussig 1980, p. 12).

Cans, Clothes, and Connectivity in the Amazon

Three decades ago, Stephen Hugh-Jones lamented that 'foreign goods are often strangely absent' from anthropological writings.

> As if to bring the image of a "traditional" society into sharper focus, the ethnographer has tidied away these intrusive objects, like the television cameramen who hide the tin cans from view and plead with Indians to remove their clothes to better present the viewer with untarnished images of the good life.
>
> (Hugh-Jones 1992, p. 43)

In response to his analysis, anthropologists have since zoomed in on modern artefacts, showing their creative integration into local knowledge systems and practices.

The anthropological literature demonstrates that modern artefacts form part of everyday life. Whereas some researchers may consider modern artefacts merely as 'foreign' or 'intrusive' objects, the inhabitants of the Amazon treat them as an ordinary part of life (see also Halbmayer 2018). In fact, modern artefacts, such as submarines (Gow 2001), guns (Hugh-Jones 1989), and metals (Kopenawa & Albert 2013; Overing 1996; Walker 2012a), are incorporated into ancestral myths, in line with Claude Lévi-Strauss' observations about 'cold' societies, and they are seamlessly integrated into relational ecologies. Indigenous peoples enculturate them into relations of care (Berjón & Cadenas 2018, Overing 1996; Walker 2013), exchange (Killick 2008), and predation (Ewart 2013; Penfield 2023) as well as into shamanic activities (Chaumeil 2000). As such, rather than as an epitome of acculturation processes, modern artefacts can be seen as starting points for the exploration of cultural continuities.

Among the Brazilian Panará, for instance, an analysis of foreign clothing points to the wider importance of body decoration. As Elizabeth Ewart (2007) describes, Panará regularly wear flip-flops, jeans, dresses, T-shirts, and wrist watches, sometimes just out of convenience, for instance to better protect themselves against sandflies and mosquitoes, but at other times also to temporarily acquire foreign capacities and capabilities, employing such clothing as a social skin. If feather headdresses and body paint turn Panará into proper humans, Ewart outlines, foreign clothes help them to successfully navigate non-Panará contexts. Another example of how modern artefacts express cultural continuities is how the Sanema people in Venezuela use hunting techniques to receive social benefits, vie for state support, and navigate the market sphere (Penfield 2023). In Venezuelan cities and forests, Amy Penfield observes, 'different permutations of predation, in animist and market forms, meet and intersect and become the means through which Indigenous people negotiate their place in relation to states and capitalist mechanisms' (2023, p. 164). The Sanema for instance hold regular meetings to emulate the behaviour of state

representatives and thus lure them closer, similar to how they copy the call of an animal to prey on it.

As the ethnographic record shows, modern artefacts form an indispensable part of everyday life, and they can be employed to great benefit. This does not only come to pass in the context of cans, clothing, and motors, but also in the context of the internet, where social media may for instance contribute to the empowerment of marginalised segments of society (Virtanen 2015) and to the widening of markets (Leal et al. 2021). It should therefore not surprise that modern artefacts are the stuff of dreams, for instance among the Matsés, where children dream of electric light, concrete paths, and airplanes (Morelli 2015, 2023), or among the Yagua, where a dream of phones portends a sad news and a dream of boat motors indicates a longer upcoming journey (see also Berjón & Cadenas 2018, p. 601; Walker 2013, p. 58). And yet, even though modern artefacts are creatively integrated into Amazonian worlds, we have to be attentive to how they change the wider relational ecology.

The Waorani leader Nemonte Nenquimo, who grew up in a small village amidst the Ecuadorian Amazon, begins her autobiography with the arrival of a plane, describing how proud her six-year-old self was at hearing its roar before the other children. She still remembers the warning of her uncle. 'Don't get too close to the *ebo* [plane]!', he said. 'It will suck you right up and cut you into little pieces' (Nenquimo & Anderson 2024, p. 6). But as a small girl, Nenquimo was unable to resist the allures of the plane and the modern artefacts it carried.

> [T]he planes circled over the forest. They lowered down gifts from the sky. It was powerful. The things that the white [missionary] ladies gave us were very powerful. Pots that didn't break! Machetes that could cut through trees like the trunks were made of papaya! We thought the white people were like gods. How could they make these things?
>
> (Nenquimo & Anderson 2024, p. 14)

Longing for dolls, lipstick, and artificial teeth, Nenquimo lost her path and was sucked up into the world of white artefacts (Nenquimo & Anderson 2024, p. 171). She fell prey to their allures. 'When the boa flickers its tongue', Nenquimo's grandfather warned her, 'all the animals of the forest lose their good sense. The agouti runs back and forth mindlessly. The deer approaches in a daze. Even a jaguar can get trapped ... For us here in the forest, the white man's world is the boa's tongue' (Nenquimo & Anderson 2024, p. 117). As Nenquimo's biography so powerfully illustrates, human beings throughout the Amazon region, and indeed throughout the whole world, are ensnared by modern artefacts. Nenquimo's story, however, also shows that modern artefacts can be tamed, for instance when phones, cameras, drones, and computers help in widely communicating important political messages, and in my thesis, I will discuss the challenging process of domesticating modern artefacts.

Summary

This chapter has provided the theoretical foundation of my thesis. I outlined how an analysis of relational ecologies – conceived as open, dynamic, and complex local systems – guides my research on the meanings and ramifications of modern technical artefacts among the Yagua. I then examined philosophical debates about life, tracing tensions between mechanist and vitalist approaches, their partial resolution in the rise of organicism, and their re-emergence in the post-humanist turn, particularly in new materialism. Against this backdrop, I defended an ontologically agnostic position holding that we cannot know the materiality of the world with certainty, including the materiality of technical artefacts.

I defined technical artefacts as tools, machines, and screens and discussed their integration and life in the Amazon region. I concluded with an overview of their dangers and opportunities, foreshadowing the possibility of taming and domesticating them.

Chapter 3



Fieldwork among the Yagua People



Overview



My thesis is based on an extended period of ethnographic fieldwork among the Yagua people in the Peruvian rainforest, which included participant observation, interviews, focus group discussions, and the collection of stories, songs, and photographs. In this chapter, I chart the methodological and ethnographic space of my project. I explain the choice of my fieldsites and methods, discuss the ethical challenges involved, and then sketch the history, geography, and everyday life of the Yagua people alongside their ontology and shamanism.

The chapter shows that the Yagua live in a complex and dynamic ecology populated by a variety of human and non-human beings. This detailed description provides the background against which to understand the origins, meanings, and ramifications of machines and screens among the Yagua.



Methodology



My thesis is based on thirteen months of ethnographic fieldwork in the Yaguan communities of Comandancia (Orosa River), Tangarana (Atacuari River), and El Sol (Atacuari River), whose locations are indicated in Figure 3.1. During my time of fieldwork, I participated in hunting, fishing, and gardening activities, played games, drank manioc beer, hung out in the hammock, and chatted about spirit beings, smartphones, and the meaning of life. As my notebook pages slowly filled up with mundane and not-so-mundane observations, I increasingly understood what was going on around me and refined my questions

and reflections.

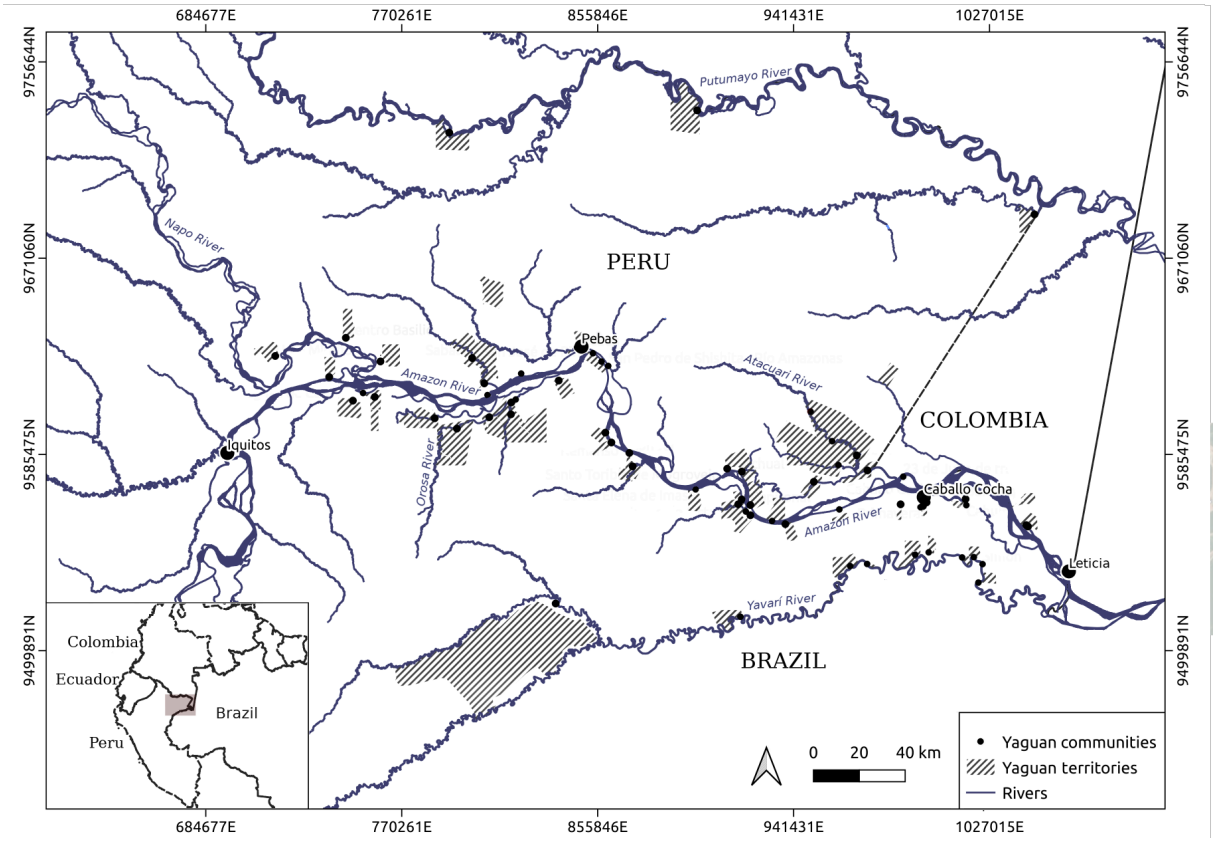


Figure 3.1: Location of Yaguan communities and territories in Peru. Map by author based on data by the Instituto del Bien Común (IBC), the Autoridad Nacional del Agua (ANA), and OpenStreetMap (OSM).

Fieldsite Selection

My decision to study and live among the Yagua people was taken when I was still planning to study the creation and transmission of environmental ethics. Back then, I wished to examine how environmental ethics were influenced by beings beyond the human, that is, how animals, plants, and spirit beings prescribed behavioural rules, punished misdemeanour, and reinforced moral codes. Pursuing that line of research among the Yagua seemed particularly promising, since the Yagua hold a significant amount of animist knowledge embedded in an 'enchanted' universe (*sensu* Sahlins 2022; see for example Chaumeil & Chaumeil 1992; Chaumeil 1994, 2000; Fejos 1943; Powlison 1969). There is for example a Yaguan story (the Story of Musmuqui; see Chapter 5), in which the protagonist repeatedly blames and attacks innocent animals for the death of his father, and the complaints by the latter animals clearly convey broader lessons on how to behave within a relational ecology. When he beats up the bushmaster and the bushmaster's venom spills and is carried away by other animals, resulting in all kinds of 'stinging creatures', the snake reprimands the protagonist as follows, for example: 'If you would just speak to me

(Bushmaster) when you come, Grandson (saying), "Did you really eat my deceased father?" ... We don't suddenly just beat up on someone without provocation' (Powlison 1969, p. 126). His rebuke mirrors earlier complaints by the jaguar and the giant anteater, who had also been falsely attacked.

Outside the mythological realm, the anthropologist Jean-Pierre Chaumeil describes with regard to the influence of non-human beings on environmental ethics for example how *tojamï* (Yaguan 'owners of the forest') are the 'guardians and regulators of the forest ... with whom the hunters have to negotiate the game seen as "their livestock"' (1994, p. 265, own translation). Initially, then, I had come to study the influence of non-human beings, such as talking bushmasters and forest masters, on environmental ethics. Much like a meandering river that winds itself through the Amazonian rainforest, however, my research project has changed and shifted its course. Once in the field, I noticed the influence of technical artefacts on environmental ethics: Shotguns changed forest life, chainsaws transformed gardens, boat motors revolutionised rivers, and televisions, smartphones, and tablets recreated new realities for adults and children. These non-human beings had before receded into the background of my study, but I now dragged them into the foreground, and the more I studied their influence on environmental ethics, the more I beheld the complexity of their integration, impact, and interconnectedness within the wider relational ecology.

Living and studying among the Yagua people turned out to be fertile grounds for research on modern technical artefacts. Yaguan perspectives on the life of machines and screens add welcome nuances to ongoing debates in science and technology studies and new materialism, highlight the heterogeneity of technological change, and can help to reframe the public imagery of Indigenous peoples in the Amazonian rainforest. The ecology of the Yagua encompasses after all chainsaws, boat motors, smartphones, tablets, and the internet as much as dolphins, jaguars, shamans, and manioc beer.

Coming of Age

In March 2021, when I first arrived on the Orosa River, at that time as an intern with the non-governmental organisation *Project Amazonas*, I frequently felt like a small child, unable to properly walk and talk. I was unable to set up my mosquito net, let alone wield a machete or pilot a boat, and I was also wrestling to become accustomed to the regionally spoken Charapa Spanish.[7]

I had planned to begin my fieldwork in the region of the Atacuari River, where a relatively high proportion of the population spoke the Yaguan language (Ministerio de Cultura 2025). However, when it transpired that pandemic-related measures would significantly delay my fieldwork, I decided as a

[7] *Charapa* (Spanish 'Arrau turtle') is a common way in Peru to refer to residents of the Loreto region. Compared to the Spanish spoken in other parts of Peru, Charapa Spanish features a range of grammatical and lexical peculiarities. To give an example, it uses the word *pacucho* to refer to a blond person, rather than the otherwise more typical *rubio*.

stopgap solution to do a research internship with *Project Amazonas*, whom I had already worked with during my undergraduate studies. *Project Amazonas* is a small non-profit organisation that carries out humanitarian, conservation, and research activities in the region. Based at the organisation's research station on the Orosa River, I studied emic perspectives on the pandemic, identified local health care needs, and supported the provision of community health worker training.

When the seven-month internship ended, I decided to draw on my good rapport and local knowledge to conduct a brief period of fieldwork on the Orosa River and carried out several interviews and focus group discussions in Comandancia (Orosa River). At the same time, I planned my relocation to the Atacuari region and towards the end of November 2021 journeyed there to choose a suitable fieldsite and ask for permission to undertake fieldwork. Manuel Ramirez Lopez, a Yaguan leader and knowledgeable elder from Comandancia, who had been curious to explore the life and history of his *paisanos* (Spanish 'compatriots', referring to the Yagua in this context), accompanied me on this trip as a guide. By exchanging stories, jokes, and goods with residents and by giving astute political advice on how to better organise and strengthen Yaguan voices in the area, he helped me to quickly connect with the communities on the Atacuari River.[8] I decided to settle in Tangarana, the most upstream community, where the Yaguan language was spoken most frequently and where I had been warmly welcomed, including at a village reunion, in which the community had expressed their approval of my research project. Except for shorter stays in Comandancia, El Sol, and other communities, I stayed in Tangarana all the way from mid-December 2021 until October 2022. Living in a new fieldsite came with new challenges. Compared to Comandancia, adults in Tangarana generally spoke Yagua to each other, so that I was largely excluded from conversations. My new household further relied significantly more on subsistence activities, and I was quickly expected to hunt agouti, chop firewood, and carry manioc, plantains, peccary carcasses, and *pihuayo* fruits. It was only towards the end of my fieldwork that I felt I had finally come of age.

An important event in my coming of age was when Lorenzo Mutyasurya, the community leader of Tangarana, showed me the *bayantu* (Yaguan 'deceased soul'), a mystical spirit of the forest, whose revelation used to be central in the male rite of passage. After seeing the *bayantu*, I was proscribed from eating howler monkey and from touching drumheads made of howler monkey skin, and I was also exhorted not to speak about details of the spirit to the uninitiated. Shortly after, Miguel Panaijo Saboya, the community leader of El Sol, approvingly noted that I drank the same beer, ate the same food, and lived in the same place as the Yagua, concluding: 'You are now a Yagua.'

[8] As it happened, a woman from El Sol even recognised him as her 'grandson' and kin, whom she had not seen for about seven decades. Manuel had told residents of the Atacuari about his brother, the *heroe del tigre* (Spanish 'hero of the jaguar'), who as a boy had survived the attack of a jaguar. As the story spread and reached Manuel's 'grandmother', she remembered this episode from when she was a teenager and asked Manuel to come and meet her.

Participants

Over the course of my fieldwork, I have met a wide range of people who invited me for a bowl of manioc beer, opened their houses, and sat down with me to teach me their language and share their stories, knowledge, and songs. My insights rely on these encounters, and even at my most sweeping generalisations about the Yagua people and the world, the reader should please keep in mind this limitation. The following list of my thesis' *dramatis personae* gives the real names of my research participants; I have only anonymised research participants if they had preferred to remain anonymous, or else if my writing might endanger or incriminate them.

Orosa River

Manuel Ramirez Lopez (Fig. D.20 in Appendix D), who accompanied me on my first trip to the Atacuari River, played a pivotal role in the political foundation of Comandancia. He further founded the local Yaguan federation, which he presided until recently. As a five-year-old, Manuel was separated from his parents; he was raised in Iquitos and then worked for different patrons. Upon reaching adulthood, he joined the military service and afterwards settled on the Orosa River, in the community of his late wife.

Manuel Ramirez Santana, or *Marasa* for short, is a son of Manuel Ramirez Lopez and a primary school teacher. He is a well-respected Indigenous leader, who in 2014 was elected vice president of the regional Indigenous organisation ORPIO ('Regional Organisation for the Indigenous Peoples of the East', or *Organización Regional de los Pueblos Indígenas del Oriente* in Spanish) and in 2021 and 2022 served as interim president of the same organisation. Manuel also enjoys music and sponsors the band *Marasa Sensual*.

Sina Macahuachi Medrano is a pre-school teacher. She and her husband Manuel Ramirez Santana (Fig. D.1) provided me with food, shelter, and friendship during my time on the Orosa River.

Gerlin Ramirez Santana (Fig. D.21), another son of Manuel Ramirez Lopez, is a primary school teacher and the community leader of Comandancia. He was always happy to engage in chats and conversations.

Luisa Ramirez Santana (Fig. D.65) is a daughter of Manuel Ramirez Lopez. A knowledgeable woman and mother of three children, she was one of my closest research participants. She and her husband *Donaldo Pipa Pipa* (Fig. D.41) took me for example on my first ever hunting trip.

Emerita Cahuamari Santana (Fig. D.68) is an elder from Comandancia. She makes beautiful hammocks, bags, and necklaces.

Nemesiu Cahuamari Santana is an elder, and a brother of Emerita.

Elias Pano Cahuamari is a son of Emerita and a primary school teacher. His late father was among the first Yagua to settle in the area of Comandancia.

Rocio Pano Cahuamari is a daughter of Emerita. Her candidness, knowledge, and openness greatly advanced my research.

Lilibeth Saboya Manoyama is a mother of three children, who likes to chat and joke. She taught me for instance how to weave roof-top coverings.

Atacuari River

Richa Mutyasurya is the oldest son of the late *curaca* Evarista and his wife, who in the 1950s migrated from the Cotuhe River to the Atacuari River (Chaumeil 1981, p. 155). He lives with his family in Tangarana and knows the forests of the Atacuari region like the back of his hand. He is also a skilled craftsman who produces manioc sieves, brooms, and drums.

Erlinda Ramunurya is the daughter of the late shaman Sixto and his wife (see Chaumeil 2000, p. 141). Richa and Erlinda (Fig. D.12) kindly welcomed me into their family and household, and taught me how to chop wood, carry manioc, helm the boat, fish, and hunt. I was sad when I learned after my fieldwork that she has passed away.

Julio Mutyasurya (Fig. D.44) is a son of Richa and Erlinda. He is a competent hunter and fisherman and a wonderful friend.

Candida Ramunurya is the wife of Julio. Together with their two children, Julio and Candida lived for several months in Tangarana. Upon my departure, however, they were about to relocate to Primero de Octubre.

Mariano Ramunurya is a knowledgeable elder and avid singer. He is a brother of Erlinda.

Lorenzo Mutyasurya is the charismatic *curaca* (Spanish 'leader') of Tangarana. He is a younger brother of Richa, and a skilled maker of blowguns and flutes.

Anastasio Ramunurya is an elder from Primero de Octubre, and the father of Candida.

Miguel Panaijo Saboya (Fig. D.15) is the well-respected *curaca* of El Sol and Primero de Octubre, and an engaging storyteller. He told me the Story of Sisuro (see Chapter 5).

José Mukatyu (Fig. D.17) is a knowledgeable elder from El Sol, who grew up on the Putumayo River, but then settled with his wife on the Atacuari River. Bewitched by a lumberjack, he is almost blind.

Methods

Clifford Geertz (1998) characterises the ethnographic method as a form of 'deep hanging out' (see also Clifford 1996, p. 5, for an earlier, less favourable use of the term). His description resonates well with

my own experiences, not least since I quite literally hung in my hammock for most of my fieldwork days, swinging back and forth, talking to friends, watching the domestic scenes, or maybe also just idly waiting for something to happen. Deeply hanging out enabled me to observe and participate in my host's everyday life.

From November until mid-December 2021, I lived in Comandancia (Orosa River), where I had before undertaken the mentioned internship with *Project Amazonas*; from mid-December 2021 to early October 2022, I lived in Tangarana (Atacuari River), with a month-long stay in Comandancia in April and another month-long stay in El Sol (Atacuari River) in August; I returned to the Orosa and the Atacuari region for one month each in August and September 2023. I plan to return again in October and November 2025 to present and discuss my research findings.

In Comandancia, I lived in the household of Marasa and Sina, both of them teachers. I frequently joined *mingas* (Spanish 'work parties'), played football in the afternoons, and occasionally taught in the local school. In Tangarana, by contrast, I seldom joined *mingas*, football, or school activities, but instead participated in a wide range of subsistence activities, including hunting, gardening, and fishing, in the family of Richa and Erlinda. I thus gained a varied impression of Yagan everyday life.

Repeatedly, I accompanied my research participants on smaller journeys, taking along my *cama* (Spanish 'bed'), which consisted of a mosquito net and a blanket, to stay overnight. In the Orosa region, I went for instance with Manuel Ramirez Lopez to the community of Santa Ursula, two hours upstream from Comandancia, as he wished to discuss the declining fish stocks and organise a workshop on this topic, and in the Atacuari region, I accompanied my hosts to relatives and shamans. That way, I visited a total of sixteen Yaguan communities in both Peru and Colombia.

Throughout my fieldwork, I facilitated more than sixty recorded interviews and focus group discussions. To organise these, I approached potential participants, explained my research project, and asked whether they would like to join. Not everyone agreed. Often, I was referred to elders, even though I had highlighted that I was keen on better understanding the perspective of younger generations. I was further often referred to men, especially in Tangarana, which unfortunately meant that I could not study female perspectives in as much detail as I had hoped. Interviews took place in the houses of my research participants, with us seated on the floor, on small benches, or in hammocks. Some of my research participants worked on small handicrafts while talking with me (see Fig. D.15), and their spouses and children walked around, played with each other, or tuned in to our conversation. Focus group discussions took place in the same houses or else also in more public spaces. Compared with interviews, the flow of conversation in focus group discussions was smoother, as participants bounced ideas and statements back and forth, confirming or gainsaying each other, throwing in opinions into another person's narrative, and jointly laughing at jokes.

In addition to interviews and focus group discussions, I collected ethnopoetic material, most notably fifteen stories and forty songs, but I could not transcribe and translate all of them. Since I asked my research participants to decide which stories or songs they would like to share, my collection encompassed a wide range of topics. In terms of stories, I recorded for example stories on the origin of the sun, the heroic deeds of the Yaguan warrior M̲uki, and on the events in the early life of Sisuro, whom we are going to get to know better in Chapter 5. I further took more than ten thousand photographs for illustration and documentation purposes. Rather than including photographs in the main text of my thesis, I have decided to relegate these to Appendix D, so that they can in their own ways speak to each other and create a visual narrative of my research context.

In my fieldwork, I was particularly attuned to the presence of surprises, as these often revealed my own biases. On my first journey to the Orosa River, I was for instance surprised when the crew of our *pongero* boat suddenly lowered a television screen and we watched one of the *Twilight* movies. I still remember how the three-year-old daughter of my later hosts was immediately hooked and excitedly exclaimed 'wolf, wolf' while pointing with her small finger towards the werewolf on screen. On another occasion, I was surprised when I found out that some machines and screens, maybe even all of them, are alive. Since I had before thought of modern technical artefacts as inanimate, the idea that they may be alive hit my brain like a bombshell. As such, I ended up exploring the 'lives' of machines and screens from various angles and brought modern technical artefacts centre stage in my thesis.

Ethics

While a full discussion of the ethical complexities that arose over the course of my fieldwork would go beyond the scope of this methodology, as it would also include questions on the permissibility of killing animals and condoning violence or on navigating different approaches to education and healthcare, I would like to herein briefly reflect on my research ethics and positionality.

As an outsider living among an Indigenous group that has again and again been marginalised and exploited, I found myself in an ethically complex context. I sought to minimise the risk of harming my research participants by committing to relational accountability and by recognising the entailed needs for respectful representation, reciprocity, and the rights of the researched (see also Chilisa 2012; Smith 1999; Wilson 2008). Before undertaking my research, I requested permission to join from community representatives and the regional Indigenous organisation ORPIO. Before taking photos, videos, or audio recordings, I asked for consent and let participants choose whether to be named, pseudonymised, or anonymised. The vast majority opted for their real names being used in publications.[9] The permission

[9] As one man jokingly said about his bachelor friend: 'If a woman sees this man, she needs to know his name.'

to take photos was important, and a few men of the older generation did not wish their photograph to be taken. In the Yaguan language, the word for 'photograph' is *ju̲ntu*, and it is the same word used for 'shadow' or 'soul'. Taking a photograph comprises a capture of parts of the soul, and I have heard stories of how animals and humans can get bedazzled by photos. Disclosing my research goals and methods was at times challenging, unfortunately, and I am afraid that even at the end, close research participants would sometimes introduce me to others by saying that I studied the Yaguan language.

My commitment to relational accountability entails an emphasis on building personal relationships with the participants of my study. As such, I saw myself less as an anthropological instrument set to gain the community's rapport and elicit information, but as a person whom people can relate to and trust. After all, a lack of relational accountability can – and often does – perpetuate oppressive power structures and may offend or harm Indigenous peoples (see Smith 1999). As the Maori scholar Linda Tuhiwai Smith warns, researchers frequently behave in a harmful way, even though 'their acts and intentions are always justified as being for the "good of mankind"' (1999, p. 26). As such, it was clear for me that my relations in the field had to go beyond the narrow purview of ethnographic research interests and needed to support research participants and their communities in a sustainable and trustworthy manner (see also Chilisa 2012; Smith 1999). In line with this, I also asked research participants for ideas, without overly pressing them, however, retained a degree of flexibility, and carefully listened to any comments and cues on my research project.

I contributed to my household economies by providing rice, salt, sugar, cooking oil, petrol, machetes, knives, fishing gear, and other resources. I further financially compensated interview participants, focus group participants, singers, and storytellers for their time. More generally, I sought to support the community, as opposed to individual hosts or research participants. In Comandancia, for instance, following above-mentioned initiative by Manuel Ramirez Lopez, I co-organised a workshop with his son Manuel Ramirez Santana on the depletion of aquatic resources by commercial fishermen on the Orosa River.[10]

Being a white researcher in the Amazon gave me access to certain elites and gate-keepers but also made me vulnerable. There was for instance a persistent rumour that I – like other white *pelacaras* (Spanish 'face-peelers') – went around at night and killed people. As I learned, there had even been a video circulating in the town of Caballo Cocha, in which 'I' was seen cutting off the heads of two children from Tangarana. As a consequence, the residents of a downriver community called me *cortacabeza* (Spanish 'head-cutter') until the leader of Tangarana intervened and assured them that no village children had

[10] Bankrolled by my university department, with additional support received from the non-governmental organisations *Centro para el Desarrollo del Indígena Amazónico* (*CEDIA*, Spanish 'Centre for the Development of Indigenous Amazonia') and *Project Amazonas*, the workshop saw fifty representatives from eight different communities along the Orosa River participating and provided a stepping stone for subsequent regional collaboration.

gone missing. On a different note, I was also accused of spying on illegal plantations on behalf of the United States Drug Enforcement Agency. After I had been seen around one such plantation, its owner let me know that he was going to have me killed if I ever was to go up their creek again, and while my friends kindly assured they would avenge me if I was killed, I preferred to stay away from that particular area from then on.

Ñijamï: History and Place of the People

The Yaguan history stretches back to times primordial, when the Amazon River still stood as a mighty kapok tree (Chaumeil 2000, pp. 151–2; Powlison 1969, pp. 114–7, 256–8). In those times, the people of the mythological twins held large and lavish feasts, and according to Miguel Panaijo Saboya, it was on one such occasion that *munuñu* (Yaguan 'savages') suddenly attacked *ñijamï* (Yaguan 'people'), and that they slaughtered, roasted, and ate everyone except for the twins and their grandmother. The grandmother survived because she had been working in the forest gardens, and as for the twins, they survived in the womb of their dead mother, which the savages had thrown away alongside the other entrails.

After the grandmother had retrieved them from the womb, the twins rapidly grew older, and they soon wished to hold a large feast themselves. To that avail, they asked their grandmother to produce copious amounts of manioc beer (*buya* in Yaguan). Since all their kin had been killed, the grandmother sceptically asked: 'Why do you wish me to produce a lot of manioc beer, my grandsons? Who is going to drink it?' However, she was assured that '[t]here are many people'. The twins then invited a swarm of bat people from a hollow tree log, a flock of macaw people, who lived in a *machimango* tree, a group of blowgun people from a blowgun, and many other people, all of whom joined for the feast. And upon termination of the manioc beer, they all went to war and took revenge on the savages (Miguel Panaijo Saboya, 2022, personal communication). This is the (abridged) story of the foundation of the Yaguan clans (see also Chapter 5 as well as Chaumeil & Chaumeil 1978 and Powlison 1969, pp. 243–53).

The People

The term *ñijamï* refers to the Yagua people themselves; in Miguel's story, they share manioc beer and support each other against *munuñu*, the cannibalistic savages. *Ñijamï* is used as an endonym in the Yaguan language, but it also refers to Yaguan and non-Yaguan people more broadly. For instance, I once misunderstood a research participant to be talking about a person called 'Munuñu', when in fact he was talking about a whole group of cannibalistic *munuñu*. When I tried asking in my confusion whether 'Munuñu' was Yaguan by asking whether 'he' was *ñijamï*, I was told: 'Yes! He/They were people [*gente*

era in Spanish]' (Anastasio Ramunurya, 2023, personal communication). *Ñijamï* and *munuñu* thus do not seem to be mutually exclusive, even though they are generally used in opposition to each other.

In the Spanish language, including by the Yagua themselves, the term *Yagua* is generally employed, and I follow previous anthropologists in using the latter term in English. The etymology of *Yagua* is unclear. The term *Zava* seems to have first appeared in writing in 1735 (see Chaumeil 1994, p. 190) and later morphed into *Yawa* and *Yagua*. It could well be, as Chaumeil suggests, that the term derives from the Yaguan word *hatiawa* (Yaguan 'kin'), which is sometimes used synonymously to *ñijamï* (Chaumeil 1994, p. 191). However, as Chaumeil also points out, we cannot rule out that it stems from the word *yawar* (Quechuan 'blood'), which would point to the historic use of red body paint among the Yagua (Flornoy 1953, p. 55; Chaumeil 1987), or else from the Taino word *yagua* (designating certain palm tree species) or the Guaraní word *yagua* ('long-haired'), as a reference to the Yagua's typical palm-leaf dresses (e.g. Villarejo 1953, p. 175, as cited in Chaumeil 1987, p. 19).

The term *munuñu* refers to surrounding Indigenous peoples, such as the People of the Centre, the Ticuna, or the Matsés, whom the Yagua periodically engaged in violent conflict (see Chaumeil 1994). As late as the mid-twentieth century, Bertrand Flornoy reports that the Yagua were afraid to enter the territories of the Cotuhé River because of their hostilities with the Ticuna people, since the latter ones had in the not-so-distant past killed one of their kinsmen (Flornoy 1953, pp. 144, 149). That being written, it should not be forgotten that there were also a buoyant trade and exchange with surrounding Indigenous peoples. In his book, Flornoy for instance also describes a group of Bora people, whom he had met during his visit to the Yagua people, and who traded axe heads and salt for Yaguan hammocks, baskets, and dart poison (Flornoy 1953, p. 141).

From Padres to Patrones

It is likely that the Yagua, Peba, and Yameo formed a single ethnic group when the Spanish and Portuguese colonisers arrived in the Amazon (Chaumeil 1994; see also Fejos 1943, p. 15; Tessmann 1930, p. 459). I therefore treat the early colonial history of these peoples together, at least until the nineteenth century, at which point the Yaguan ethnogenesis had clearly taken place.

The first missionaries to try evangelising the Yagua were the Jesuits. Beginning their missionary work in Peba-Yaguan territory at the end of the seventeenth century, they built at least five missions before they were expelled from Peru in 1767. As elsewhere, their teachings on 'love thy neighbour' were accompanied by brute force. Just two years before their expulsion, the Jesuit Father of the mission of San Ignacio de Loyola decided for instance to organise a punitive expedition into Yaguan territory, in which about a hundred Yagua were captured (Chaumeil 1981, p. 29). The role of missionaries drastically

diminished with the expulsion of the Jesuits. The Franciscans, who were active in Peba-Yaguan territories between 1776 and 1866, created three missions before they too were expelled. The Augustinians revived missionary activities in 1902, but abandoned their main mission as soon as 1916, and it was only in the mid-twentieth century that missionaries took a more active regional role again. At that time, Franciscan Fathers founded missions in Yanashi[11], Pebas, San Pablo, and Caballococha (Chaumeil 1981, p. 82). In addition to the Franciscan proselytisers, the Peruvian state invited missionaries from the Summer Institute of Linguistics to support ethno-linguistic studies and educational efforts; this also led to the arrival of Esther and Paul Powlison, who produced the first Yaguan dictionary (see Powlison 1995). A while later, in the 1970s, messianic movements and a range of smaller religious organisations began their still ongoing missionary activities (see f.i. Chaumeil 1984, pp. 38–40, for details on the movement of José Francisco da Cruz).

For the *patrones* of the early colonial period, the missionary activities of the Society of Jesus were a godsend, so to say. In a way, by seeking to discipline, punish, organise, and 'tame' the Indigenous populations (see also Fritz 1992, p. 100), the Jesuit *padres* cut the furrows that later allowed the large-scale incorporation of the Yagua into the regional capitalist system, since the organised docility of mission residents enabled patrons to effectively employ, exploit, and enslave them (Chaumeil 1981, p. 31, 1990a).

A Franciscan cleric described the deplorable situation in the mid-nineteenth century, as he was visiting an abandoned mission:

> The pagan indigenous, and especially those from Pebas are obliged by the governor to receive a knife, a machete, or a kerchief to penetrate the forests to extract (bramble) bushes or wax [*zarza*[12] *ó cera*]. Because of that, the indigenous man abandons his house, his wife and children, and makes a house in the forests for a period of five, six or more months. It is a normal thing that he finds his family in a situation of indigence and misery upon his return, and that he, weakened by the work and the lack of food, is unable to procreate.
>
> (Ruiz 1907, p. 113, as cited in Chaumeil 1981, pp. 35–6, own translation)

The rubber boom intensified structures of exploitation and violence. By its end in the 1920s, the whole regional political economy had been transformed. Patrons now sought to rebrand themselves as friends, supporters, and protectors (Chaumeil 1981, pp. 72–3), and we can thus observe a shift in governmentality akin to the one observed by Michel Foucault (1975) in 19th century Europe. Peonage was unending, however, as the Yagua indebted themselves over acquiring salt and machetes (Fejos 1943, p. 110). 'The Indians found it virtually impossible, under some arrangements, to pay off their debts by seasonal work

[11] The mission in Yanashi was later continued by Ursuline nuns and to this day provides schooling for surrounding communities, including for residents of Comandancia.

[12] The term likely refers to the roots of the *Smilax* liana, as described for instance by John Hemming (2009, p. 208).

and became in fact the serfs of the owners of haciendas who in this manner became the hereditary "patrons"', writes Paul Fejos (1943, p. 110), who carried out an ethnographic study among the Yagua in the 1940s. The remuneration for Yaguan people was abysmal, and there was even a saying that 'the Yagua is the cheapest labour in Loreto' (Chaumeil 1984, p. 8). By 1980, the vast majority of the Yagua people formed part in the patron system, working in the lumber economy, on plantations and pastures as well as in the production of plaited roof tops, construction posts, hammocks, and bags (Chaumeil 1984, p. 8).

On the Fringes of the State

Over the course of the twentieth century, the Peruvian state increased its presence among the Yagua, through investing into infrastructure projects, offering employment in schools and the military, providing legal protection against labour exploitation and territorial invasions, and handing out financial benefits. The Yagua have not always been supported and protected by the Peruvian state. Manuel Ramirez Lopez told me that the Yagua had lived in an 'age of innocence' before the 1970s, when they became more politically active and informed and began to form groups. He himself founded the *Federación del Pueblo Yagua del Bajo Amazonas y Bajo Napo* (FEPYBABAN; Spanish 'Federation of the Yagua people of the Lower Amazon and the Lower Napo'). Due to better political organisation and the help of non-governmental organisations, not least due to the *Sistema Nacional de Apoyo a la Movilicación Social* (SINAMOS; Spanish 'National Support System for Social Mobilisation') instituted under the government of Juan Velasco Alvarado, it was further possible to create Indigenous territories. FEPYBABAN is also affiliated with ORPIO, where Manuel Ramirez Santana briefly served as president.

Because of better political organisation and the increased incorporation into the Peruvian nation state, virtually all Yagua are today registered as Peruvian or Colombian citizens. Richa Mutyasurya and Erlinda Ramunurya, my hosts in Tangarana, were one of the few Yagua I met who did not have an identification card. Richa is a member of the blowgun clan (he is, so to say, literally a 'son of a gun'). The Peruvian state did not accept his clan name, however, and unlike his brothers, he refused to accept the name of his patron, arguing that he knows his own name and does not wish to accept another name for the public registries.

In any case, the incorporation into the nation state also translated into more fine-grained demographic information, complementing earlier counts and estimates of the Yaguan population. At the beginning of the last century, Günther Tessmann had spoken of '1,000–1,500 souls' (Tessmann 1930, p. 459, own translation); mid-century, Paul Fejos estimates the Yagua to number roughly 1,000 individuals, spread over 25–35 clans with 25 to 50 members each (Fejos 1943, pp. 15–6); a few years after Fejos, Flornoy

counts 2,170 Yaguan people (Flornoy 1953, p. 173); in the 1980s, Chaumeil had written of 3,300 Yagua (1984, p. 3). At times, there were even rumours of the Yagua being extinct (see Fejos 1943, p. 23; Powlison 1969, p. 3). In 2007, the Peruvian census identified 5,679 Yagua in 41 communities (INEI 2007). In 2017, the Peruvian census identified 86 Yaguan communities, with a population of about 10,000 residents. However, the census also included a question on ethnic auto-identification for the first time, which adds more nuance to the picture, since among those aged 12 and above, only 1,843 individuals identified themselves as Yagua (INEI 2017; Ministerio de Cultura 2025), and only 468 people declared Yaguan as their mother tongue (INEI 2017). Of these latter ones, however, the majority – 306 people – were younger than 18 years old. Given that children normally speak *less* than their parents, this appears implausible, casting doubt on the overall statistics. The Colombian census reported 984 Yagua in 2018, across all age groups, and without asking for self-identification. By estimating the general proportion of children to adults in the rural region of Loreto based on governmental data (see INEI 2017), we can assume that those auto-identifying as Yagua are accompanied by roughly 1,200 children aged under 12 and thus reach a lower bound of four thousand people. By following previous demographic statistics and ignoring ethnic auto-identification, we reach an upper bound of about eleven thousand people.

Between Rivers and Forests

Before moving on to the Yaguan ecology and ontology, let me add some descriptions of the space of my fieldwork. Comandancia is a community on the eastern bank of the Orosa River. Most travellers from Iquitos first go to Yanashi and then cross in wet season via creeks or in dry season via land to reach Comandancia (see Appendix C for a more detailed regional map). The buildings of Comandancia are stretched out along the riverbank (see Fig. C.2 in Appendix C). Walking from one end of the community to the other may well take over half an hour, and there is a geographic division between the lower and upper part of the community, which roughly follows clanic lines. A path of concrete (see Fig. D.9 in Appendix D) connects houses in the lower part of the community but then stops shortly before reaching the upper part of the community. The primary school, the pre-school, and the public venue used for meetings, parties, and marble games are the only buildings made of concrete. The other houses are made of wood; they are erected on stilts and covered with either palm leaves or tin. The inside of houses mostly consists of a large public area, generally divided into a common room and a kitchen area, and private bedrooms. People sleep on blankets, either on the floor or on wooden beds, covered with mosquito nets. As one leaves the houses, small pathways lead into the forests, cutting through undergrowth to reach gardens, fallows, and muddy waterholes, connecting residents with manioc and banana plants, fruitful peach palms, and pacas, tapirs, and peccaries.

Coming from Iquitos, Tangarana is more difficult to reach than Comandancia. After reaching Caballo Cocha by boat (or alternatively by a small plane), the journey up the Atacuari River takes between eight and twelve hours (see Appendix C for a more detailed regional map), depending on the water levels and the type of boat motor. Whereas Comandancia is flat and seasonally flooded, Tangarana is built on a hill, and as one arrives, one finds several steps and staircases leading up to the houses. The community is more circular, and closer together, with the football field, school, and teacher accommodation being in one corner of the community (see Fig. C.4 in Appendix C). While the layout of the village thus drastically differs from the layout of Comandancia, the houses are constructed in a similar manner. Like in Comandancia, they are on stilts, comprise a large common room and kitchen, and have one or more private bedrooms. El Sol is five hours downriver from Tangarana, thus forming the mid-point from journeys to Caballo Cocha. Compared to the other two communities, it consists of parallel rows of houses, with a large football field, and on a hill above the field are the school buildings, behind which begin the gardens and forests. As elsewhere, deeper forests are in Spanish referred to as *centro*, which also means 'centre'.

The location, layout, and composition of Yaguan communities keeps changing (see also Chaumeil 1981, 1994, pp. 212–3). During the rubber boom, the Yagua moved deeper into the forest, but nowadays, all communities are on the banks of rivers and creeks, and one can observe a steady move towards urban centres such as Caballo Cocha or Iquitos. Beginning in the 1940s and 1950s, the Yagua replaced their communal longhouses with individualised houses. In the 1970s, the construction of schools (and football fields) led to new focal points in the community and sedentarisation.

With time, the house types also changed. If the longhouse of the past used the forest floor at its base, later houses used first *huacrapona* palm bark and later well-cut wooden boards. The palm-leaf roofing is further increasingly replaced by tin (see Fig. D.4 to D.7 in Appendix D), mostly since it has to be changed less often and reduces pests. Palm leaf coverings are still at times preferred, mainly because they keep the house cooler. When I asked Nemesiu why he had a tinned roof, he explained that he received it for free from the government but that he otherwise still prefers palm-thatched roofs.

In Santa Ursula, two hours upriver from Comandancia, one of the community leaders also told me that they wish to 'urbanise', meaning that they aim to provide every nuclear family with their own house, replacing a system where at times several siblings share a house. 'It's nice if every family has their own house, right?' This tendency, however, is not universal, and in Tangarana, for instance, my hosts had plans to merge their house with their daughter's house.



An Ecology of Relations



The relational ecology of the Yagua people comprises a wide variety of beings, including humans, spirits, plants, machines, and animals. In the following, I sketch out basic tenets of that ecology by focusing on relations of affinity, amity, and adversity and by discussing the creation of selfhood in the Yaguan life cycle.

Relations among Animals and Plants

To begin with, I would like to explore existing emic relations among animals and plants, as analysed by Bonnie and Jean-Pierre Chaumeil (1992), not least since these relations by analogy illustrate central features of the relational ecology at large. I follow the Chaumeils in distinguishing relations of kinship, amity, and enmity. Kinship relations are largely based on morphological and ethological similarities. In the animal kingdom, the jaguar is for instance seen as the grandfather of the ocelot, the great anteater as the uncle of the silky anteater, and the red deer as the cousin of the grey one.

Friendships evolve from the sharing of resources and time. The tapir is the friend of various animals who frequent the waterholes because they drink together (Chaumeil & Chaumeil 1992, p. 29). Howler monkeys, spider monkeys, and woolly monkeys are friends because they play and forage together in the treetops (Chaumeil & Chaumeil 1992, p. 29). The same goes for squirrel monkeys and capuchin monkeys – there is even a song about a group of squirrel monkeys who sing *si, si, si* and become happy once the capuchin monkey joins and opens fruits, *to, to, to* (Yaguan onomatopoeia). Trumpeter birds have friendships with other game animals from the forest, because they issue warning calls at the hunter's approach (Chaumeil & Chaumeil 1992, p. 30). Living, drinking, eating, playing, or working together are thus seen as foundational features of animal friendships.

In addition to kinship and friendship, animals also have inimical relations. This is for instance the case for jaguars and other animals, including its own kin, since jaguars prey on them. Another despised animal is the sparrowhawk, because it notifies the hunters of the presence of other animals (Chaumeil & Chaumeil 1992, p. 30). Interspecific hostility exists further between the white-lipped and collared peccary, as is evidenced by their fights, spurred by their different odours (Chaumeil & Chaumeil 1992, p. 29).

We can observe close relations of kinship and enmity not only among animals but also among plants. The cultivated peach-palm tree is for instance the cousin of the wild one, again due to their strong morphological similarity (Chaumeil & Chaumeil 1992, p. 30). As with animals, inimical relations are marked by fights. Hardwood trees are the jaguars among the plants, whose successful rise goes to the

detriment of other trees. However, they can also be attacked; the nemesis of the kapok tree is for instance the strangler fig (Chaumeil & Chaumeil 1992, p. 30). Another hostility exists between different manioc species, as bitter manioc poisons sweet manioc and must therefore be planted separately (Chaumeil & Chaumeil 1992, p. 31). Notably, there are no friendships among plants. The Chaumeils (1992) attribute this absence to the plants' relative lack of movement, which makes it difficult for them to work or play together. An alternative explanation would be that the complex interactions between plants are less noticeable.

There are also intricate relations between animals and plants, most clearly evinced by the presence of *madres* in plants, which may take the form of animals. Ants are perceived as such *madres*, as they vigorously defend trees and bushes against attackers. To my knowledge, all animals and plants have *madres* (*jamï* in Yaguan), which as a category is akin to Carlos Fausto's (2008) definition of *donos* (Portuguese 'owners'). Note, however, that *madres* among the Yagua people can be of any gender and number, which sets it slightly apart from Fausto's category of 'owner', which is considered a singular entity (see Fausto 2008, p. 334).

The Domestication of Animals

Humans form various relations with animals and plants, not least when they are hunted and planted (see also Chapter 4). These relations at times also imply bonds of kinship and friendship. According to Chaumeil, clan animals are for instance considered kin, even though they are not necessarily treated as such. A member of the squirrel clan may call these rodents 'nephews' but may still eat them (Chaumeil 1987, p. 34). Some birds, such as red-throated caracaras, are well appreciated for transmitting messages; other birds, such as smooth-billed anis, are said to be dangerous *tunchis* (Spanish 'spirits of the dead'). Snakes are loathed, and when I asked why they are not eaten, I was told that they have always been the enemies of the Yagua.

As in other Amazonian contexts (e.g. Erikson 2000; Fausto 1999, 2008; Zuppi 2022), a special relation is further formed between humans and domesticated animals. Pets such as monkeys, agouti, and birds (Fig. D.28 to D.35) are coveted household members that receive a great amount of care. Right after capture, pet monkeys share the same bed as their owners to familiarise them with the smell, and they are tenderly fed. With regard to baby parakeets, I once observed how a woman masticated banana and then brought baby parakeets to her mouth, so that they can eat (Fig. D.30). Despite this care, such pets frequently die quickly after their capture, even though they would never be consumed by the pet-owning household. As far as I was able to observe, the domestication of animals is aimed at turning them into largely autonomous members of the household. This is clearest in the case of birds that often sleep in

trees and then return to the house for food. It is also apparent in the case of monkeys whose strings are generally attached to protect food in the house rather than to prevent them from fleeing, which they would not do once tame.

Endemic domesticated animals must be distinguished from non-endemic domesticated animals such as hunting dogs, chicken, and ducks (Fig. D.36 and D.37; see also Costa 2017, pp. 80–4; Zuppi 2022). Except for puppies and laying hens, non-endemic domesticated animals are not normally inside the house, and they also receive less care. I have for instance seen dogs being kicked and beaten, which I have never observed with regard to monkeys or birds. Families also killed and ate their chicken, especially for *mingas*, which once more they would have never done with pet monkeys, agoutis, pacas, or birds.

Affinity, Amity, and Adversity

The reader may remember how the mythological twins created the clan system by inviting among others bat people, macaw people, and blowgun people to their feast – fellow *ñijamï*, who later helped to avenge their parents' death. The clan system prevails to this day, albeit in a less pronounced form than before. Along the Atacuari River, the most important clans were the *Ramunurya* (Yaguan 'black ayahuasca clan'), the *Mutyasurya* (Yaguan 'blowgun clan'), and the *Apurya* (Yaguan 'red macaw clan'), but a few people also belonged to the *Mïkatyurya* (Yaguan 'squirrel clan') or the *Richaturya* (Yaguan 'bat clan'). Double, triple, or even quadruple marriages within two families were not uncommon; two brothers and one sister of my host father (*Mutyasurya*), for instance, had married two sisters and one brother of my host mother (*Ramunurya*), and three of their children (*Mutyasurya*, given patrilineality) had married three children of another family (*Ramunurya*). One research participant told me that his children should marry a member from their mother's clan, corroborating Chaumeil's theory of a predominantly biclanic system (see Chaumeil 1994, p. 243; Chaumeil 1987, p. 37). Along the Orosa River, the clan system was less noticeable, and I have met several Yagua who did not know their or other people's clans. In any case, it seemed not to influence marriage decisions. In neither region could I establish music or body ornaments particular to a specific clan, as documented in the literature (e.g. see Chaumeil 1987, pp. 34–6), which is presumably due to their decreasing relevance.

While Flornoy (1953, pp. 113–4) and other authors characterise residency patterns among the Yagua as matrilocal (see Chaumeil 1987, p. 38), I concur with Chaumeil (1994, p. 258) and Fejos (1943, pp. 76–7) that the ideal residency pattern is patrilocal. As Gerlin Ramirez Santana explained on the Orosa River: 'There is also a custom that the man is always going to pull [*jalar* in Spanish] the woman. That is, if I am from Comandancia and my wife is from Santa Rosa, I must bring her to Comandancia' (2022, personal communication). However, he also highlighted that it depends on individual families and relationships

and that he himself had initially tried to stay with his parents-in-law.

I observed several instances of matrilocality in my fieldsites. My hosts in Tangarana lived for instance next to two of their daughters, while their sons had moved to live with their respective wives in Primero de Octubre, and I found no indication that this was only temporary. Chaumeil (1994, p. 258) hypothesises that matrilocal patterns may increase due to the work-based mobility of men, which in the case of matrilocality would lead to an exodus of both men (for work) and women (for marriage). I would like to add that work-based mobility also leads men to find women elsewhere and settle down with them, closer to their work. In Comandancia, there have been at least two Yaguan men from other communities who had worked as lumberjacks and then settled down with their wives, next to their parents-in-law. Subsistence activities are gendered, with men typically responsible for hunting and fishing and women for cooking and child-rearing. However, many activities are done as a couple or family unit. For instance, wives would now and then accompany their husbands into the forests and help them to locate, reach, and carry prey, and husbands would help in the production of manioc beer by harvesting manioc, chopping firewood, carrying water, and taking the large and heavy pot off the fireplace. Gardening, harvesting, and gathering was done by both men and women.

Maternity and paternity are largely based on biological connections. At times, however, they are also assigned on the basis of functional roles. In one of my fieldsites, my neighbours for instance had a daughter who was not biologically related to either father or mother; after birth, the parents had simply accepted the baby from the biological mother and reared her as their own. Couvade restrictions only apply if the biological parent assumes the parental role. Kinship relations often induce convivial relations, solidarity, and mutual support. In Tangarana, it was often the daughter of my hosts who cooked in our house, despite having her own kitchen area in the house next door. When my host's son lived with us, his wife also cooked, and we worked as a larger household unit to get and prepare food. Conviviality and commensality are important markers of good relations, and when I was introduced to others, people often highlighted that I drank and ate everything with my hosts. Talking with each other and sharing knowledge and jokes are likewise important to increase bonds of kinship and friendship.

While kinship relations were typically amicable, there was also conflict and mistrust among different family members. I have known adult siblings who could not stand each other, and it was not uncommon to hear complaints that grandchildren, nephews, and nieces stole goods. There were also rumours on the Atacuari River that community members poisoned chicken and dogs, especially when it came to non-Yaguan affines. In the past, a group could split to prevent the escalation of conflict, but nowadays, this is more difficult due to the school-caused sedentarisation. Despite this, however, one man on the Atacuari River indicated his plan to move seven hours downriver to live with the grandparents of his wife, since he could no longer stand the animosity towards him. Another person moved from El Sol upriver to

Tangarana, since there had been a significant amount of theft in his forest garden. Migration thus still occurs, even though typically in smaller groups.

Tensions also arose vis-à-vis unrelated non-Yaguan residents. It was not for nothing that the *teniente* (Spanish 'lieutenant', regionally referring to the village head responsible for internal affairs) of Tangarana decided to build a prison ahead of the village anniversary and to have a small number of sober men at the party, who were equipped with canes to solve disputes, if needs be. At a previous party, an outsider had gotten into a fight with someone from the village, and as the *teniente* intervened and sent him off, the outsider had punched the *teniente* in the face and left a wound next to his temple. On another occasion, an outsider had threatened to shoot a Yaguan merchant when the latter one was unwilling to provide more beer and liquor on tab. Enraged, the merchant then got his own shotgun, and it was probably only for the intervention of two women that the situation did not further escalate. If good relations are built on the basis of the mutual exchange of food, drink, resources, and information, relations of enmity are thus marked by the sustainable or unsustainable exchange of resources via predation.

In the past, the Yagua also fought with surrounding Indigenous peoples, in particular with the Matsés and the People of the Center (Witoto), but also with the Ticuna, Cocama, and Jivaro. Chaumeil (1985) notes a qualitative difference between the Matsés and the People of the Center on the one hand, and the Ticuna, Cocama, and Jivaro on the other side. With the latter ones, the Yagua practised a form of trophy culture, where they would take the teeth to use them for collars and charms, or where they would use the thigh bones for flutes, and they would also regularly trade goods. With the former ones, they would not trade anything, not even teeth. Nowadays, of course, warfare has ceased.

Selfhood and Life Cycle

To better understand the Yaguan relational ecology, it is important to understand what human selfhood means. There are various explanations for the creation of the self, which at times complement and at times contradict each other. According to Richa Mutyasurya and Anastasio Ramunurya, the Yaguan body is created by conjoining paternal semen and maternal blood. Its hard components (bones, teeth, and nails) are engendered by the paternal semen; its soft components (muscles, organs, and skin) are provided by the maternal blood. This theory contrasts with Chaumeil's observations that 'the embryo is "fed" in terms of meat with the male sperm' and that 'the woman's participation during the gestation is reduced to being a mere receptacle and does not directly influence the growth of the embryo' (Chaumeil 1994, p. 247).

Birthing takes place in a secluded space. In the past, expecting women went to a birth hut in the forest (e.g. see Villarejo 1953, in Sierra de la Calle 1993, p. 45); nowadays, they remain in the house

and find a retreat there, or else, especially in the case of complications, they go to a hospital or a shaman. A strong woman may give birth all by herself, I was told, but it is not uncommon to have female relatives accompanying the birth. Upon completion of the birth, the umbilical cord is cut by the godparent-to-be, and the placenta is buried in the forest (see also Chaumeil 1987, p. 144). Pregnancy is accompanied by a small number of dietary and behavioural restrictions, applicable to both parents. These couvade restrictions intensify after birth. Non-human beings touched, killed, or eaten by either parent may harm (*cutipa* in Spanish) the baby by transferring physical characteristics (see also Chapter 6). Parental restrictions provide a pathway to protect the newborn person from dangerous relations.

Among the Yagua, missionaries have in the past observed that restrictions only apply to fathers. According to Laurentino Alvarez (1913, cited in Sierra de la Calle 1993, p. 18), the father sleeps after birth, while the mother carries out her regular activities. The missionaries express their surprise that women accept the laziness of their husbands (Alvarez 1913, p. 74, cited in Sierra de la Calle 1993, p. 18). Chaumeil also notes that 'during and after birth, the father kept a period of "couvade" called *newanase siskatia*, "that he does not move", during which he had to abstain from carrying out heavy work or go to the forest' (Chaumeil 1987, p. 39), but in another publication he mentioned that women and men face the same restrictions (Chaumeil 1987, p. 104), in line with my research participants, who all clearly confirmed that fathers and mothers face the same restrictions. In the past, the paternal couvade may have simply been more pronounced, because men are more exposed to dangerous forest entities in their typical work than women.

The substance of the self is animated by non-substantial life forces, or souls. There are at least two life forces, one of the day, visible as shadow, and one of the night, necessary for dreaming. Eyes and limbs were also regularly singled out as life forces, allowing us to see and to move. Women receive their life forces from their mother; men from their father. According to Chaumeil, the life forces of the day and night reside within the body from the start. *Huñitu*, however, the vital principle, is missing at birth, and the child only slowly develops the principles of seeing and walking (Chaumeil 1987, p 39). I was told that newborn babies already possess all the different souls, but further that souls may leave the body. If the soul of the night leaves, the body appears dead, for example, and when it returns, the person wakes up. It is well possible that some people then conclude that small babies lack the life forces of sight and movement, because they neither see well nor walk.

Closely connected to the couvade restrictions at birth were the dietary and behavioural restrictions after the rites of passage to adulthood, which are nowadays only infrequently practised, if at all. Girls, upon their first menstruation, had to retreat into a menstruation hut and remain there until their menstruation had fully stopped. Their heads were shaven, and some restrictions remained in place until the hair had grown to its original length. Women similarly face a range of regulations during their menstruation. It is

dangerous for them to pass certain areas. The owners of kapok trees are for instance antagonised by the odour of vaginal blood and may shoot a harmful dart against trespassing women. Owners of the earth may similarly take their revenge, as might have happened once with my neighbour, who after a long day of work suffered from a hemorrhage that left her on the brink of death. According to one village elder, the hemorrhage was sent by an earth owner, whom the menstruating woman had passed on her way to the bath. Men must not see any vaginal blood, be it at menstruation or at birth, as the contamination would drive away hunting prey, who smell the odour of the blood.

Mythologically, the female rite of passage is mentioned in the context of the creation of the sun and the moon, as it begins with a girl in a menstruation hut, who at night was violated by her own brother. She did not recognise him, but the next night, she used genipa paint to smear it into the face of her brother, revealing his misdeed to everyone. Ashamed, her brother ran off and became the moon. The girl also ran off ashamed. She was repeatedly abused on her way and finally eaten by a jaguar, but her son was saved and later became the sun, joining his father in the sky (see for this story also Chaumeil 2000, pp. 189–92; Powlison 1969, pp. 224–34).

Boys, upon first seeing the *bayantu*, were not allowed to eat or touch certain beings, sometimes even for more than a year. The *bayantu* is a spirit being men draw from the forest, which neither women nor children are allowed to see or learn about. If a boy does not follow the restrictions, the contacted entity may *cutipa* (Spanish 'harm') him, producing an infested wound on the skin. It is said that boys die once cutipated in the aftermath of seeing the *bayantu*, but I have met many elders showing me the scars of these wounds and explaining how they survived by seeking the help of a shaman.

Mythologically, the *bayantu* can also be linked to the female puberty rite. According to a story told to me by Mirardo, there was once a Yaguan *maloca* (Spanish 'long house') that was annihilated by enemies. Only one girl survived, namely in the menstruation hut. As she left the hut, the spirit of her deceased husband threatened her and she fled. A wooden bridge carried her weight, but not the weight of her husband and his entourage, who made the bridge break and then fell into the river and drowned. During the ritual, men bring these spirits from the forest (but for an alternative story and explanation see also Chaumeil 2000, pp. 185–6). While dangerous for women, men share their manioc beer with the *bayantu*, and some say that the *bayantu* provides meat in return for the beer.

There is a clear connection between the puberty rites and the couvade: like the transition from the womb to the outside world, the transition from childhood to adulthood constitutes a period with increased vulnerability to dangerous beings; relations to such beings are therefore restricted. At birth, parents are responsible for managing the person's relations; at the transition to adulthood, the person itself is now responsible for surviving and thriving in the ecology of relations.

At death, the life forces leave the body. The soul of the eye rises up, either to God, as I was told in

one case, or, as Chaumeil (1985) writes, to an eternal fire. Another soul begins a shadow existence as *tunchi* in our world and becomes dangerous to humans, in particular to young children. It is no longer the self, even though it may continue to reside at the place, and relations with living persons are curtailed amid widespread fear of illness and death. Shamans can still see the dead person walking around, but its soul now mingles with other *tunchis*.

To this day, relatives leave the house of the dead person to protect themselves against *tunchis*. In the past, the house would be burnt with everything inside. I have heard of this happening but never seen it myself; I observed rather that boards from the old house could be reused for other purposes. The dissolution of relations is particularly strong in the case of shamans, who may turn into jaguars, the predator par excellence and enemy of the Yagua. Other dead persons may also transform into animals, most notably birds (see also Sierra de la Calle 1993, pp. 34–5). In particular smooth-billed anis (*locreros* in Spanish) are feared for being *tunchis*, and I have repeatedly observed how my research participants scared these birds away. The fear of the living vis-à-vis the dead is further shown by the fact that the Yagua sometimes use *achiote* to protect themselves against *tunchis* and that they tie their hammocks at the end of the day, so that they cannot be used by *tunchis* at night.

Entering Shamanic Worlds

Shamans, or *nïmara*, as they are called in Yaguan (for more information on the Yaguan terminology, see also Chaumeil 2000, pp. 52–3), are at once pundits, diplomats, and protectors. As intermediaries between the visible and invisible world, they are responsible for negotiating with the beyond-human world. If there is a dearth of game animals, they can persuade the game masters to release more animals; if it is too dry, they can attract rain; if someone has disappeared in the forest or drowned in the river, they can help locate and retrieve them; and if someone has contracted a disease, they can analyse the underlying causes and provide treatment.

Modern Shamanism

Richa, my host in Tangarana, once told me that the age of shamanism was over. His scepticism towards contemporary shamanism stemmed from repeated experiences of disenchantment, in which he had unsuccessfully sought shamanic support. 'They are all quacks', he decreed (Richa Mutyasurya, 2022, personal communication). His father-in-law Sixto (see Chaumeil 2000, p. 141, for a photograph) had been the last proper shaman of the region, he told me.[13] Sixto had socialised with *ja̲ja̲mï* and *mïkadija̲mï*, the

[13] The trope of 'the last shaman' is widespread in the Amazon region. Andrew Gray (2003) provides for example an insightful account of Psyche, the last shaman among the Arakmbut, whose death provoked a series of socio-economic changes

non-human people of the water and earth, and he had possessed remarkable curative abilities.

Manuel Ramirez Lopez from the Orosa River similarly confirmed the demise of Yaguan shamanism. His father had been a powerful shaman. Manuel had once observed him vomiting raw meat, a clear and disturbing indication of his father's nocturnal transformation into a jaguar.[14] According to Manuel, today's shamans were mere shadows of the past. They might feign engagement with the spiritual world, but they did not actually perceive it.

However, upon further enquiry and observation, it transpired that shamanic practices are far from extinct. In particular in the Atacuari region, shamanism plays to this day a major role in explaining and overcoming bodily ailments. Richa's brother Lorenzo for example, the village head of Tangarana, praised the shamanic abilities of his distant cousin in Siete de Agosto. That shaman, still alive, had once removed a large boa spirit from Lorenzo's stomach and had on another occasion freed him from the near-fatal embrace of the spirit of a giant anteater.

Even Richa turned in a period of need to various shamans. When the health of one of his family members deteriorated, he spent considerable resources assaying different shamans. He even sought the help of two Christian shamans from Caballo Cocha. 'Only prayers', Richa later described what these shamans did (Richa Mutyasurya, 2023, personal communication). By praying, they temporarily abated the illness, he told me, but they did not provide lasting relief, unfortunately. There still existed shamans, I found out, and they still trained new apprentices. Compared to earlier times, however, they were harder to find, identify, and trust.

The shamanic worldview is central to this treatise on the life and impact of artefacts, and I am fortunate that Chaumeil (2000) has examined it extensively. Shamanic knowledge provides an opening to understand artefacts from an emic perspective and allows us to approach terrains of ontological difference. As we shall see in Chapter 6, the shamanic practice allows for example to elucidate the life forces of boat motors and chainsaws.

Apprenticeship

It takes between two and six years to become a shaman among the Yagua (see also Chaumeil 2000, p. 95). Shamans are generally male (Tessmann 1930, p. 467; Fejos 1943, p. 90; Chaumeil 2000, p. 55), even though in principle women can also learn the shamanic arts (Chaumeil 2000, p. 55), and in my fieldwork, I indeed heard of one woman – the wife of a former shaman – practising shamanism.

in the community and region.

[14] Stories of jaguar-people who transform food abound throughout the Amazon basin. Aparecida Vilaça aptly compares such persons to dictionaries: 'The efficacy of the body as a medium of translation, like a three-dimensional Google Translate, emerges here in its extreme and almost caricatural form, when the metamorphosis of the person is objectified as a metamorphosis of the things surrounding him or her.' (2016, p. 71)

I have met several Yagua who were in the process of learning the shamanic arts. A core aspect of shamanic apprenticeship is the ingestion of *purgas* (Spanish 'purgative'). These beverages are generally based on hallucinogenic plants such as *ayahuasca*, *toé*, and *piripiri*; however, they can also include commercially acquired ingredients such as gasoline or camphor (Chaumeil 2000, p. 109), and I have indeed made the acquaintance of an apprentice who scornfully rejected forest products in favour of *Siete Raices* liquor and *Agua de Florida* perfume from the town. Shaman apprentices have to slowly adapt to the strong beverages, which can dangerously weaken them (Chaumeil 2000, p. 98). The acquisition of knowledge and power needs to be carefully managed to prevent harm, and apprentices have to undergo a strict regime of dietary and behavioural restrictions, which is comparable to the restrictions observed after birth and during the adolescent rites of passage.

A primary goal of drinking the dangerous *purga* is to gain the support of auxiliary spirits. These do not only constitute a source of knowledge, but also supply artefacts such as invisible darts, keys, and clothing. The most powerful auxiliary spirits are the *jam̲ï* of plants (translated into Spanish as *madres*), in particular of the *ayahuasca* vine and of the *toé*, *piripiri*, and tobacco plants (see Chaumeil 2000, pp. 107-9). Juvencio Mutyasurya from Primavera (close to Caballo Cocha) told me how the *jam̲ï* of *ayahuasca*, *toé*, and other *purga* ingredients helped the shaman:

> The first time they make you drink that remedy ... the *madre* comes and presents itself. Then, you vomit. Then, a lot of things happen. It makes you fart; it makes you poop. Once you take it fast – ooh, it knocks you down! Then, your teacher blows over your head, and it heals again. In your dream, it is said, you see all types of animals. They can't resist. There comes the boa, there comes the elephant, there come lions ... there come water people, there come planes. There come – ooh, many things come! You want to scream.
>
> (Juvencio Gomez Noriga, 2023, personal communication)

The plant owners bring these different entities to the shaman apprentice. The apprentice needs to be fearless, however. Juvencio noted how the spirits of boas and lanceheads have to be caught without flinching, because they would otherwise leave and the apprentice would have forfeited the opportunity to gain their knowledge and support. As the above quote by Juvencio shows, auxiliary spirits are not restricted to the realm of plants and animals but extend to artefacts. Upon a follow-up question with regard to planes, he clarified: 'They bring the planes to teach you. They [the planes] are going to stay with you.'

Shamanic Vision, Knowledge, and Might

Auxiliary spirits, including owners of plants, animals, rain, thunder, wind, and planes, are acquired by attracting and taming them. Upon the death of a shaman, these 'children' run amok. In a particularly tragic case, the death of a shaman from Uranias (Atacuari River) released two boas, who then killed a five-year-old boy in a nearby community. Smoking tobacco – and exchanging spiritual tobacco with auxiliary spirits – helps to create and maintain healthy relationships.

The primary responsibility of Yaguan shamans is to cure ills, and they apply various methods to do so, including palpations, massages, and suctions. Chaumeil describes in detail how Alberto Prohaño once healed a young Ticuna boy in Eden de la Frontera. The boy's parents had brought tobacco and money to pay for their accommodation, and Alberto agreed to cure the boy, beginning by blowing tobacco into his hands to 'heat them up' and around the boy to 'clean' the atmosphere (Alberto Prohaño in Chaumeil 2000, p. 132). Noting that the boy's illness was his cold, he then began to massage the boy's limbs and blew further tobacco, announcing that 'I am going to heat up your body to heal you' (Alberto in Chaumeil 2000, p. 132, own translation based on the French translation by Chaumeil), chanting. With his hands, Alberto scanned the boy's body for the darts that made him ill, and upon encountering them, he called upon his auxiliary spirits to help him extract the darts. Alberto then inhaled a lungful of tobacco and brought his mouth close to the darts to 'suck' them out. He is called *muchi* (Yaguan 'hummingbird') during that period, since he sucks the ill from the sick like the hummingbird sucks the honey from the flower. Alberto then rose with considerable noise and went into a corner to vomit the extracted dart, which he showed to the parents. With the help of his auxiliaries, he sought to determine the origin of the dart, before he threw it onto the ground to destroy it. After sucking and destroying four darts in that manner, he finished with a blow of tobacco to wrap up the session. In subsequent sessions – Alberto repeated the healing procedure three times more, vomiting ten darts in total – he managed to establish that a person called Cariwari had wished the child dead and had therefore sent an iguana to cut the boy's throat. Thanks to Alberto and his auxiliary spirits, the boy did not die immediately; Alberto cut off the animals' heads to prevent further harm. In the following days, the health of the boy significantly improved, without any further remedies, and the parents left. Tragically, however, the parents returned a few days later with the boy even more ill than before. Alberto found that Cariwari had taken the boy's spirits. He was able to find the spirits with the help of his auxiliary spirits and revive the boy, but it was already too late, and the boy died a few hours later. The non-Yaguan shaman Cariwari had proven more powerful than Alberto (see Chaumeil 2000, pp. 131–7 for more details).

The shaman's central position in the relational ecology is fraught with dangers. Shamans are not only distrusted by residents of surrounding communities, but also by members of their own community. They

are for example frequently accused of causing disease and death. When visiting a shaman in Eden de la Frontera, people in the neighbouring community warned me that he had attacked and killed various people: 'They don't like him [in his own community]. There have died three children. And another boy had something on his shin. They sent him to [the shaman], but another person warned: "No, it had been his uncle [the shaman] himself, who has done the harm."' (anonymised research participant, 2023, personal communication) Given the general distrust, shamans are frequent targets for shamanic and non-shamanic attacks and must therefore guard themselves against invisible darts and poison (Chaumeil 2000, pp. 65–7).

A Plurality of Worlds

Yaguan cosmology comprises numerous habitats and worlds. According to Chaumeil (2000, p. 162), there are three subterranean worlds, one intermediary world, and seven sky worlds. The subterranean worlds consist of the world of the people without anus, the world of earth people, and the world of water people; the intermediary world is our world, the world of people; and the sky worlds comprise the world of vultures, the world of the condor, the semi-world, the world of the sky lake, the world of the moon, the world of the sun, and the great sky. José Mukatyu from El Sol similarly sketched several worlds when I spoke with him. He outlined that there are the worlds of the sun, the moon, and the stars; below them is the world of the vultures and condors; below them lies the world of the immortal *cristianos* or *gente* (Spanish 'people'), who live amid fog; below them are the parakeets and frogs, then the hawks, then the vampires and bats, and only then there is our world.

The world of the water includes for instance dolphins and water people. They both appear like people, and there is a persisting fear that dolphins may transform into white men to seduce and abduct women of the community, and that *sirenas* (Spanish 'sirens, water people') can draw boys into their underwater realms. During my time, there were several sightings of *sirenas*, although I was never able to confirm their existence myself. Manuel Ramirez Santana told me how he had once been persecuted by *sirenas* as a young man. The two *sirenas* wished to marry him, and they wooed him by providing plentiful fish. However, he did not want to enter their water world, and when the *sirenas* became too demanding, he prayed to God for help. This worked: The *sirenas* appeared for a last time and then disappeared.

José shared a story to explain how he knew that dolphins were people. According to him, one of his relatives once went fishing, and as he was trying to fish a *paiche*, a dolphin came and turned over the canoe. The man was full of anger, and so he took his fishing spear and harpooned the dolphin. He went to his camp on the riverbank, told his companions, and then in the evening prepared his bed. But suddenly a speed boat with policemen arrived, who asked the fishermen: 'Is the criminal here?' The

fishermen denied, but the police surrounded the bed of the culprit and identified him as the criminal. They took him along in their boat, and when they arrived in a city, they changed to a motorcar and drove to the hospital, where he found the dolphin. 'But it is no longer a dolphin, but a Christian', José told me. The fisherman's harpoon was stuck in the dolphin-man's buttocks, and the fisherman was given the choice between either removing the harpoon within five minutes, or else remain in the dolphin-man's city forever, so the man quickly took a knife out of his pocket and removed the harpoon. The police then took him back into the motorcar and the yacht and took him home. The man then found that the motorcar was actually a *charapa* turtle, the speed boat was in fact a large caiman, and the policemen were ducks. Henceforth, the man knew that dolphins were people like us, living in cities below the water, and he told his kin about it.

As José's story shows, modern technical artefacts are entangled with the underwater worlds of non-human people. This has also been observed by a hunter from El Sol who once reported how two women invited him to visit their home in the lake. These water people, as I was told, possessed similar amenities as human townspeople, including for instance motorcars. When I asked how they get hold of these goods, I was informed that they stole them from the town.

Hybrid Ontologies

My description of Yaguan cosmology highlights the strong presence of animist ontological principles. However, animism among the Yagua is variously combined with analogism and naturalism, leaving us with hybrid ontologies.

Such hybridity can be found throughout the Amazon region. Harry Walker describes for instance how Urarina parents weave used shotgun cartridges into their baby's rattle to increase his hunting prowess (2012b, p. 47) or how the father's spending a day in the sun can lead his baby to develop a fever (2012b, p. 74). These two cases, which would point to an analogist ontology, are integrated into an ontology that in other cases could also be characterised as animist. Indeed, Philippe Descola (2014, p. 277) acknowledges that 'perhaps the most common situation is one of hybridity, where one mode of identification will slightly dominate over another one, resulting in a variety of complex combinations', adding that his typology of ontologies is meant to serve in particular as a heuristic device. As Ernst Halbmayer argues, 'different ontological perspectives can communicate with one another' (2012, p. 105). Lewis Daly speaks in a similar context of the 'poly-ontological' constitution of cosmologies (2015, pp. 87, 322).

Analogist traits among the Yagua appear for example when a nocturnal animal harms a baby during the couvade by causing insomnia (see Chapter 6) or when a plant with a resemblance of a lancehead is able to cure bites of that snake. Naturalist inclinations show most clearly when the Yagua self-consciously

consider their ancestral knowledge as 'beliefs', when they point to 'viruses' for explaining illness, or to the importance of 'vitamins'.

In light of this ontological hybridity, it should not surprise that the shamanic worldview is blended with Christian theology. Anastasio told me for example a creation myth in which people left their initial world in the sky because there were too many snakes, which I interpret as an interesting twist to the biblical creation story. The reader may also remember how Richa, asked about the fate of the souls after death, explained that the soul of the eye rises to God, or how Manuel prayed to God in order to repel the *sirenas* that had been persecuting him.



Summary



This chapter has set out the methodological foundations of my thesis and introduced the Yagua people. During an extended period of ethnographic fieldwork in Comandancia (Orosa River), Tangarana (Atacuari River), and El Sol (Atacuari River), which combined participant observation, interviews, focus group discussions, and the collection of songs, I developed an in-depth understanding of Yaguan life-worlds.

My elaborations underscored the complexity of Yaguan ecologies and highlighted a recurring tension between autonomy and dependence. Rites of passage, for example, demonstrate the self's aspirations for autonomy as well as its dependence on the surroundings. The chapter showed that Yaguan shamans play a central role in the management of relations with non-human beings and provided details on shamanic apprenticeship, practice, and cosmology.

In conclusion, my chapter has traced key contours of Yaguan history, geography, ecology, and cosmology. The next chapter will turn from this broader background to the everyday realities of my Yaguan research participants.

Chapter 4



Autonomy and Dependence



Overview



This chapter examines key economic relations among the Yagua people. The first section provides an overview of the affordances of the forests, on which the Yagua depend for subsistence activities, including hunting, fishing, and gardening. I then focus on the relations within capitalist webs through which modern artefacts are acquired. A detailed look at typical labour conditions illuminates localised forms of capitalist exploitation and explains how consumption patterns are intimately tied to production and patrons. It is often the patron who provides money or goods and who creates new desires and demands. In the final section, I shed light on the role of the state in pushing technical change.

Overall, this chapter shows how Yaguan people navigate their autonomy amid dependencies on the forest environment, capitalist structures, and the state. It is thus important for understanding the origins and trajectories of modern technical artefacts and provides the background for the Story of Sisuro in Chapter 5.



The Affordances of the Forest



When I asked my Yaguan research participants about their perspective on life in larger towns, they often mentioned its costs. Everything, they complained, was to be bought: spices, fish, meat, even *pihuayo* and manioc beer cost money. In their villages, by contrast, coriander grew underneath the houses, *aji* pepper and lemon were found on nearby bushes, fish was caught in the river, animals were hunted in the forest, and *pihuayo* and manioc could be found in old and new gardens. These are the affordances of the

forest, which, compared with towns, offer a greater degree of autonomy from the capitalist system.

While there is less dependence on money, there is greater dependence on non-monetary factors, such as the weather, the seasonal availability of animals and fruits, and the support of forest owners. Jean-Pierre Chaumeil (1994, pp. 214–43) beautifully describes how everyday life among the Yagua changes throughout the year with the rise and fall of the waters, with the ripening of *pihuayo* palm fruits, and with the relative scarcity or abundance of animals and their eggs. The 'time of *pihuayo*' (see Fig. D.66 in Appendix D for the preparation of *pihuayo* beer), for example, which roughly refers to the months of February, March, and April, is a time of collective activities such as group hunts, lavish drinking feasts, and the great *ña* ritual, not to mention warfare in times past, Chaumeil observes. With the end of the 'time of *pihuayo*', the rainy season slowly gives way to the dry season, and tortoises and turtles lay their eggs. Forest animals are more dispersed, and hunting takes on a more individual character. The gardens are prepared by slashing and burning the forests, and around the month of September, they are planted with manioc, plantains, and bananas. And as rainfall resumes, birds lay their eggs, and communal life gains in importance again. Chaumeil's analysis of the annual cycle reflects his own time and location of fieldwork. In my fieldsites, turtles and tortoises have become increasingly rare, and their eggs no longer mark the beginning of the dry season, as it had been been in Chaumeil's case. Further, fishing has since become more important, and especially along the Orosa River, activities increasingly depend on the passing of *boquichico*, *sábalo*, *lisa*, and *huasaco*.

In the following, I wish to introduce different domestic activities, such as hunting, fishing, gardening, gathering, cooking, and the making of artefacts, and compare my own notes with the observations of Chaumeil (1987, 1994). I should highlight that I distinguish these activities mostly for analytical purposes. In practice, activities are frequently combined, and I have seen men collect vines during a hunting trip to later produce a broom, shotguns being taken along for fishing expeditions, and hunting dogs finding an agouti when we had only gone out for harvesting manioc.

Hunting and Fishing

In his ethnography on the Yagua people from the mid-twentieth century, Paul Fejos (1943) writes that the Yagua typically employ blowguns, spears, and various types of traps for hunting; according to the same author, fishing constitutes a secondary activity only, as 'the Yagua are forest rather than river Indians' (Fejos 1943, p. 43). However, the situation had already dramatically changed when Chaumeil carried out his fieldwork. Blowguns and spears were largely replaced by shotguns (see Chaumeil 1994, p. 230), and fishing activities increasingly gained in importance (see Chaumeil 1994, p. 232).

Chaumeil distinguishes three dominant hunting techniques, namely the ambush, the pursuit, and the

entrapment of animals (Chaumeil 1994, p. 226). Nowadays, however, neither ambush nor entrapment techniques are widely used. Most commonly, hunters walk through the forest with a single-barrelled shotgun and kill animals as they encounter them, or else follow their tracks (see Fig. D.41). At times, they may still decide to ambush animals close to a waterhole. Especially in the case of paca (Fig. D.42), it is also typical to go by canoe at night and scan the riverbanks, if water levels allow.

My household in Tangarana owned several hunting dogs specialised in agouti, who would generally accompany us as soon as we went towards the forest, carrying an axe, a machete, and sometimes a shotgun. We took the dogs to a good hunting area, and while we often followed existing paths, the dogs ran through the underbrush and sniffed for animal tracks. When they found a track, they followed it and then chased the animal until it hid in a hollow tree trunk or a hole in the ground, at which point the dogs would loudly bark to call us and we would follow their barks and assess the situation. If the animal was in a hollow tree trunk, we quickly sealed any remaining holes to entrap it. Depending on the location of the animal, we would sometimes use the axe to make further holes, until we could reach the animal with our hands, break its hind legs to prevent it from fleeing further, and then pull it slowly out, making sure to grab the neck as soon as possible so that it could not bite or scratch us. Once out, we killed the animal by giving it a blow on its head with a thick tree branch or the blunt side of the axe. If the animal was in a hole in the ground, we would seek to enlarge the hole with a machete until we could reach the animal. At times, we used a small stick to check for the position of the animal and its type; agouti grunt when poked, and their fur could be found on the stick.[15] Over a day of hunting, we would generally encounter one or two animals.

After an animal is killed, the hunter often searches for suitable palm leaves, preferably from the *ungurahui* palm, to make a *capillejo* (Spanish 'basket') for carrying the animal. This *capillejo* was worn on the back, attached to the forehead with the bark of a tree or an industrial strap. For the *capillejo*, two palm leaves were cut to the same length and then intertwined, before the remaining halves of the palm leaves were individually woven and then connected at the bottom (see Fig. D.40 and D.44). It was often the hunter's companion who was tasked with carrying the animal, in particular when it was a less experienced hunter like me. In case of heavy animals, they would be gutted and skinned beforehand to save weight. If several animals had been hunted down, as often happened in the case of peccary, the heads were sometimes left in the forest for the same reason.

White-lipped peccary (Fig. D.44), by the way, seems to have replaced the tapir as the most valued prey (see Chaumeil 1994, p. 227, on the special status of tapir), not least because they fetch higher prices on the market. In Tangarana, the whole village was informed whenever their tracks were found, and larger hunting parties went out to shoot the animals. A good hunter could kill ten peccaries in one

[15] There can for instance also be armadillos, silky anteaters, pacas, and snakes in the hole.

day, sometimes even fifteen or twenty. The hunters first stalked them, and then, upon the first shot, ran after them, often with bare feet or trainers instead of rubber boots to be faster. Not all shot animals were recovered afterwards, partly because they survived and fled, partly because other animals such as boas or jaguars would eat them, and partly – at least as far as I was told – because other hunters stole them.

In any case, apart from agouti, peccary, and tapir, typical prey also included deer, armadillo, tortoise, caiman, monkey, and sloth as well as game birds such as trumpeter, turkey, and curassow. I have been unable to confirm any hunting taboos related to particular species, although I was told, for example, that deer were not shot in the past. In contrast to Chaumeil (1994, pp. 230–1), I have been unable to confirm taboos against killing an animal without permission, against overhunting, or against hunting badly, that is, injuring animals without killing them, taboos whose disobedience was previously sanctioned by forest owners with illnesses and whose existence I still encountered in stories. Notably, there were taboos associated with specific days, such as Sundays, Easter, or San Juan, when the forest was said to be dangerous. Mentioning intended prey before the hunt was considered bringing bad luck, as the animals might dream of the impending danger and then hide.

Various *pusangas* (Spanish 'luck charms') could be employed to aid the hunt and attract animals, but they must not be shown or spoken about, lest they use their power. In Tangarana, Mariano Ramunurya told me for instance that different parts of the *tatatawa* bird could help to attract animals. When he had once used such *pusanga*, it had even been too strong, and a collared peccary attacked him and bit into his shotgun. The property of the *tatatawa*, namely that it is followed by all kinds of animals, is thus transferred to the hunter, in an analogist fashion. The same happens with the capuchin monkey, whose bones can be used to ask for animals. However, this only works if its chest points up when it falls; if the chest points down, it is useless as luck charm. Julio Mutyasurya told me that one can also ask vultures to aid with the hunt, throwing them a bit of 'food' (e.g. rotten fish) and asking for animals. What he further revealed was that benevolent forest owners, such as the owners of a waterhole, may at times appear in the dream to a hunter and indicate where to find special luck charms, such as water drops that can be guarded in a small perfume bottle, which then allow the hunter to shoot many animals. His brother once had the chance to acquire such a charm, but when he talked about it, the owners reappeared and reprimanded him for revealing the secret, and he had lost his opportunity. Based on my observations, hunting is no longer as prestigious an activity as it is described by Chaumeil (1994, p. 224). One man, for instance, preferred working on plantations and fishing, because these activities were less risky in terms of yield and thus a more secure way of feeding his large family.

Fishing is done with nets (see Fig. D.45), preferably in lakes or creeks, with different mesh sizes applied to catch different fish species. Once caught, it is advisable to remove the fish quickly to prevent

it from being eaten by piranha or larger animals, such as otters, boas, or dolphins, who would destroy the nets. It is also possible to fish with a fishing spear. These spears generally have three barbed hooks to pierce larger fish. They can be used during the day but are most effective during night when fish rest and the glow of the torch pierces the water. Fishing hooks with worms or fruits as bait are also used. Chaumeil (1987, p. 85) observes that the latter form of fishing is the only one carried out by both genders, an observation that still seems to apply today.

Barbasco poison is rarely used nowadays, as it is a longer process to prepare the poison. The roots of the *barbasco* vine have to be scooped out and smashed (see Fig. D.47). They are then mixed with water and the resulting white liquid, if not the roots themselves, is released into the water body. On the Atacuari River, I more often observed the use of industrial poison, namely when the river was narrow and slow. However, fish caught with industrial poison must be carefully gutted and the guts must be disposed of separately, lest dogs or chicken may eat them and die. On the Orosa River, I have never observed the use of poison, but residents complained that commercial fishermen from outside used poison. According to residents, this reduced both the quantity and quality of fish in the river, and the problem was such that we decided to organise a workshop on the topic to evaluate different strategies to combat it.

Similar to hunting, luck charms can be used to improve the results of fishing. I have in particular observed the use of a fish parasite that was brought into contact with a fishing rod. Interestingly, this was done openly, rather than secretly. Neither in the case of hunting nor in the case of fishing have I been able to confirm Chaumeil's observation that the Yagua follow certain rites to placate the owners of animals (see Chaumeil 1994, pp. 231–3), even though I did hear that shamans could influence the availability of prey.

Gardening and Gathering

In terms of subsistence gardening, the Yagua plant crops such as sweet manioc, plantains, bananas, sugar cane, papayas, and pineapples. Especially in Tangarana, gardening was mostly carried out by individual households. *Peu-a-peu*, our household slashed a large swath of forest, cut the larger trees with a chainsaw, and then burned everything with gasoline to plant the crops. Harvesting occurred almost daily, depending on availability. In Comandancia, and more generally throughout the Orosa, it was more typical to organise *mingas* (Spanish 'work parties') for clearing the forest, planting the scions, weeding the gardens, and even peeling the manioc tubers to produce *fariña* (Spanish 'flour'). The organising household invited workers the previous day, and workers congregated in the host's house in the early morning, welcomed by a bowl of *masato*. Often taking along two twenty-litre buckets of *masato* (Spanish 'manioc beer') – *samirya buya* (Yaguan 'good manioc beer') – the party then moved to the *minga* place;

the hosts often treated workers to *masato* throughout the work (see Fig. D.49). Upon return to the host's house, workers received an exquisite dish, such as a chicken, monkey, or peccary soup. As observed by Michael Chibnik (1994, p. 143), the organisation of a *minga* is also a matter of gaining prestige, as the hosts need a fair quantity of *masato* and food. In my fieldsite, a few *mingas* came with sugar cane liquor or fish only (as opposed to *masato* and meat), but the hosts would announce that beforehand to prevent disappointments.

Chaumeil (1987, p. 94) describes various rituals connected to gardening, such as the distribution of *piripiri* powder. I have not observed any such rituals myself. However, José Mukatyu explained that one should pray to the earth owner before planting. 'In your heart, in your stomach, I'm placing my small manioc plant. Protect it well, so it becomes beautiful and makes a lot of fruits', he pleads the earth owner (personal communication, 2022).

Fallows would often contain fruit trees, which were propagated by the Yagua as well as by animals, water, and wind. Gathering of palm tree fruits such as *ungurahui*, *bacaba*, *huasai*, *aguaje*, or *pihuayo* took place regularly to make further drinks. The trees are generally felled, even though they may also be climbed, sometimes by using a liana in the form of an eight around the feet, sometimes by leaning another tree trunk against the actual tree, as is for instance necessary in the case of the spiny *pihuayo* (see Fig. D.50). In the case of the *aguaje*, it is also typical to collect the fruits on the ground. Apart from these, various fruits could be consumed during hunts, including *shapaja* nuts or cacao, and a range of fruit trees, such as *anona*, *caimito*, *mame*, or mango, could also be found around Yaguan houses. In addition to fruits, people also gathered honey and *suri* larvae.

Having outlined how different items of food are hunted, fished, gardened, and gathered, I now turn to the preparation of food and drink among the Yagua to provide further context on Yaguan autonomy and dependence.

The Preparation of Food and Drink

In Tangarana, the fireplace was rectangular in shape and had an iron grill on top, on which one could place the pots and frying pans as well as meat, fish, and bananas for smoking. The latter ones could also be placed directly into the fire, as was often done by children. In Comandancia, we had both a gas stove and a fireplace, but my host strongly preferred cooking with gas to prevent smoke. Cooking was typically carried out by the women of the household, in particular by the daughters and daughters-in-law of my hosts. Young girls frequently helped in the process, not only by gutting fish and cleaning dishes, but also by taking care of their siblings. Men fetched water, chopped firewood, and occasionally helped with the gutting.

A meal typically consisted of meat or fish, accompanied by rice, plantains, or manioc. Meat and fish were shared among members of the wider family. If someone was seen with prey, it was not uncommon to pass by and see whether one was offered a part or, in the case of non-Yaguan residents, whether one could buy a part. Indeed, it was difficult to retain meat. I have repeatedly heard the suggestion to ask for meat as a gift in case someone had been unable to buy meat; put differently, if a hunter's family wished to keep all their meat and refused to sell it, they could be asked to give it for free, which they would then be hard-pressed to refuse, even though they would in that case have to give away less than what they would have sold. Interestingly, Chaumeil writes that the hunter receives the spine, head, and heart of peccaries (1987, p. 230), while nowadays, at least the spine and the head went to the person carrying the meat. Indeed, as mentioned above, if many peccaries were hunted, the head may be even left in the forest due to its weight. The special status of spine, head, and heart, which Chaumeil observes, could thus be mainly due to the difficulties in preserving them.

Unfortunately, I cannot describe the preparation of fish and meat in detail, as it strongly depends on the particular species, the animal part, the freshness, the available ingredients and appliances, and individual preferences. The fur of a sloth, for example, is difficult to remove, and I have seen a sloth carcass being 'bathed' in a hot pot to make the fur removal easier (see Fig. D.53 to D.59). It was then compartmentalised and smoked. The fur of a monkey, by contrast, can be removed more easily by burning it and scraping it off. Once the animal is turned into meat, differences between animals are less pronounced. Meat is normally cooked or smoked. If cooking oil is available, it may also be fried.

With regard to fish, *boquichico* was descaled, gutted and then cut against its bones, to make bone removal easier. Fish with less bones, such as *huasaco* or *lisa*, were merely descaled and gutted. Fish like *carachama* or *cunchi* did not even need to be descaled; however, their fins were shortened, especially if poisonous or sharp. When fish had been in the net and boat for a while, it was often smoked.

While there was never table water, food was generally accompanied by a drink. The most basic drink, also often provided by patrons to their workers, was flavoured water. In Comandancia, we also often had *amarillo* (Spanish 'yellow') or *negro* (Spanish 'black') soda drinks alongside the meal. In Tangarana, we now and then plucked lemons to make lemonade. Other drinks were made of *bacaba*, *huasai*, and *ungurahui* fruits, depending on the season. To prepare these latter drinks, the fruits were collected, heated, and pounded. A sieve was then used to remove the seeds, and the pulp was mixed with water and preferably consumed with *fariña* (Spanish 'manioc flour').

Regarding drinks, the most important ones were *masato* made of sweet *manioc* or *pihuayo* (see Fig. D.65 and D.66). Various forms of preparation existed, as the tubers and fruits were mixed with *camote*, sugar, sugar cane juice, and saliva. In the case of manioc, the tubers were cut small, sometimes even already in the field, in particular when its peel was removed to reduce weight. After cooking, the tubers

were pounded in a trough specifically made for this purpose; turned upside-down, the trough otherwise also serves as a seat. While pounding, the preparing woman also added sugar syrup or sugar cane juice. To help the fermentation process, the majority of women also chewed parts of the pulp in their mouth and then spat it back into the trough. Once everything was pounded, the pulp was collected in a large container, most typically an old oil barrel that served for collecting water. The pulp could at this point already be used for making a drink; however, the resulting drink would be unfermented, sweet, and may give stomach problems. The pulp would therefore preferably be left for two or three days before it was mixed with water – generally from the river, if the rainwater barrels had been repurposed for the *masato* pulp – and served. For *masato* made of *pihuayo*, the fruits are cooked before peeling and removing the pits and the pulp is then made in the same trough; no saliva is added.

Handicrafts

The missionary and linguist Paul Powlison casually observes in his doctoral thesis that '[t]here is not much art evident in Yaguan handiwork' (1969, p. 40). This aligns well with Julian Steward's and Alfred Métraux's earlier observation that the Yagua people 'manufacture *unelaborated* pots, chambira-fiber bags and hammocks, *simple* baskets and mats' (Steward & Métraux 1948, p. 727, emphasis added). And yet, Annemarie Seiler-Baldinger provides an important counterpoint to this narrative. 'My own observations ... led me to the persuasion that the derogatory judgements [referring to e.g. Powlison 1969, pp. 14, 40; Montoya Sanchez 1967, p. 112] reveal more about the untrained eye of the ethnographer ... than about the actual situation', she writes (Seiler-Baldinger 1979, p. 61).

In her work, Seiler-Baldinger focuses on the weaving of Yaguan hammocks, a female activity which used to play a significant role among the Yagua. The particular quality of hammocks from the Peba region has been noticed by travellers as early as the early 19th century (Seiler-Baldinger 1979), and it was in the past for instance common practice for the wife to gift her husband a large hammock upon marriage, and for the women of her husband's family to judge the regularity of her thread, the consistency of her stitches, and the overall quality of her weaving (Seiler-Baldinger 1979, p. 118). Nowadays, many young Yaguan women no longer know how to manually make hammocks, not least due to the availability of industrially produced hammocks.

Making a hammock takes time (see Fig. D.68 to D.72). First, the shoots of spiny *chambira* palm trees are cut in the forest and brought home. The women take the shoots, kink the inner leaves in the middle, and then rip off individual fibres; these fibres are spun into a yarn, which can be used to make carrier bags and hammocks. The yarn is dyed with artificial colours from nearby towns, or else with colours from surrounding resources, such as the black of genipa fruits for black or the yellow of *achiote*

bark (see Fig. D.71), and it is then woven into sturdy hammocks. These show patterns such as stripes, zigzags, or arrows, which are likened to the characteristics of animals or plants and depend on different colouring and weaving techniques (Seiler-Baldinger 1979, pp. 110–5). All in all, it takes between 70 and 150 hours to make a hammock (Seiler-Baldinger 1979, p. 88).

To illustrate the complexity and creativity involved, let me highlight that the dyeing process, which of course is only a minor step in the whole process, has recently been specially recognised by the Peruvian state, as the Ministry of Culture declared the 'knowledges, experiences, and practices of the Yaguan people associated with the creation of traditional dye with plant species' to be national cultural heritage (Ministerio de Cultura 2024, own translation). In theory, this decision enables the Yagua to market their hammocks more successfully and profitably. However, Anita Say Chan (2014) discusses the socio-economic consequences of pronouncing certain ceramics of the Peruvian highlands as 'cultural heritage' in a critical manner; it would be worthwhile to explore in future whether the ministerial resolution yields any particular returns to the Yagua at large.

The production of hammocks is only one example of the rich material culture among the Yagua people. Bags and baskets, blowguns, flutes, and drums, brooms and roof-tops are ingeniously crafted. So are manioc beer sieves (Fig. D.73 and D.74), which are everyday objects that are used to prevent stalks and larger manioc chunks from entering the beer, and whose production is a male activity (Chaumeil 1987, p. 109). Richa, my host in Tangarana, was an excellent craftsman of such sieves, and he told me that there are at least five different patterns, namely rings, arrows, zigzags, crosses, and stripes. The manioc sieves are preferably made from branches of the *bacaba* palm tree. These branches are cut into several pieces of equal length and then carefully peeled, either with the fingers, or by using a hand. Subsequently, the weaving begins with two crossed pieces of the bark, which form the centre of the sieve-to-be, and patterns are created by crossing these central and subsequent pieces in different ways, creating a sieve with roughly fifty bark pieces per side. Four thicker branches are used to create the rectangular frame of the sieve, as the *bacaba* bark pieces are spun around, and then fixed with either lianas or a metal wire.

I can confirm Chaumeil's observation that the sieves are 'more or less squared' (Chaumeil 1987, p. 109) but would like to highlight at the same time that manioc beer sieves provide an excellent example of ongoing knowledge exchanges and technological changes. Richa was for instance the only person in Tangarana who could create round manioc beer sieves, using a liana for the frame. As he proudly told me, he had copied the design from Bora people. Another time, I had bought a manioc beer sieve from a Ticuna artisan and taken it to Tangarana. Its different design – the acquired sieve had three slim branches on each of its side frames, rather than one thick one – was studied with great attention by Richa and his sons and sons-in-law, who told me they might emulate it.

Ongoing technological change is also shown by the inclusion of plastic tubes, metal wires, and bottle

caps into Yaguan artwork. Flutes, for instance, are often made by drilling holes into a plastic tube or hose nowadays, and when I asked to buy a flute, I learnt that the plastic flutes were considered more valuable than the flutes made of reed, because they were more durable (see Fig. D.76). Similarly, I had to smile when I saw children using a plastic toy that seems to have replaced the children's blowguns used in the past. Their toy was made of a plastic tube with two bottle caps on each side. Inserting a branch on one side would push the bottle cap in and thus create pressure within the tube, leading to the sudden release of the bottle cap on the other side, which can be used as a projectile. And for decoration, bottle caps and metal beer cans can be hung up, providing colour to the room or doorway. In fact, when I first arrived in Tangarana, the community had recently finished their anniversary, and for that purpose they had created a string with empty beer cans and liquor bottles, stretching from one side of the river to the other.

Capitalist Webs

The preceding section has focused on the affordances of the forest. However, money and the capitalist economy become increasingly important among the Yagua, and even hunting, fishing, and gardening depend nowadays to a large extent on external income to buy shotguns, shotgun shells, boat motors, chainsaws, fuel, oil, axes, machetes, nylon nets, and fish hooks. More than once, we lacked food in our households because we lacked shotgun shells or fuel. In Tangarana, for instance, fuel was needed for fishing, as we went to a lake that was half an hour away by motorised boat; paddling there would have taken a significant amount of time, and the fish might have decayed before arrival at home. While the wide spread of activities such as hunting, fishing, gardening, and gathering are an expression of Yaguan autonomy vis-à-vis the capitalist economy, even these activities thus depend on external income.

By elucidating productive relations and state benefits, the remaining sections of this chapter indicate how modern technical artefacts can be acquired. While some artefacts can be crafted by the Yagua themselves, as my elaborations on the fabrication of hammocks and manioc beer sieves have shown, modern technical artefacts, such as chainsaws, smartphones, and televisions, can only be gained through capitalist and colonial webs.

Exploitation and Resistance

The colonial history shows that the Yagua managed time and again to artfully navigate their relations with Catholic *padres* and capitalist *patrones* to acquire axes, machetes, and clothes while retaining their

autonomy. Thus, after the first Jesuit mission had been founded in Peba-Yaguan territory, Father Samuel Fritz comments:

> They appear of a bad disposition, since all possible means have been tried with them to convert them by kindness, presents, and by the sternness of the Spaniards, but no progress has been made, since the wild beasts themselves are more quickly tamed. In their retreats they kill and destroy one another for the iron goods that they have received of me, or have carried off by theft from the Omaguas.
>
> (Fritz 1992, p. 100)

It is ironic that Fritz compares the Peba with 'wild beasts', since the Story of Sisuro in the next chapter provides a radically different account of the colonial encounter. Particularly striking is the inversion of 'man' and 'beast': In the Story of Sisuro, the colonisers, who come from afar to steal Yaguan territories and lives, are turned into a white horse, and the local populace is depicted as guarding their livelihoods and as capturing and taming the white horse. The 'iron good' is acquired by taming the coloniser, and not – as Fritz would have it – by being tamed by the coloniser.

While the Peba-Yaguan peoples built relations with coloniser-thieves like the Jesuits to get hold of artefacts, they sought to retain their autonomy in these relations and did not necessarily fall for the colonisers' devious tricks and rules. From the archival record, it seems that the Peba played the system: they accepted 'iron goods' as gifts but rejected the rules of the mission. Fritz describes for instance that the Peba left the mission as they pleased. And the Caumares, probably a Yaguan clan (Chaumeil 1994, p. 189), similarly demonstrated their autonomy in the face of missionary oppression. In 1696, they for instance twice attacked the mission of San Joaquín de Omaguas, causing Fritz to lead a punitive expedition into Peba-Yaguan territory (Chaumeil 1981, p. 21).

Resistance also emerged in the mission of San Ignacio de Loyola de Pebas y Caumares, where a Caumares man named Rafael, described in the accounts as 'mischievous' and 'evil' (Chantre y Herrera 1901, p. 473), gave rise to a scandal by living in concubinage. After the Jesuit Father José Casado had him publicly flogged for his sinful actions, Rafael and his brother ambushed Casado, 'closed in on him full of anger, and barbaric, they took his life by piercing him with spears' (Chantre y Herrera 1901, p. 473). The chronicler reports that the missionary was left 'swimming in his own blood' (Chantre y Herrera 1901, p. 473), and most residents, including the Yagua, subsequently fled into the forest.

Comparing the Pebas, Caumares, Covaches, and Yagua who lived in San Ignacio de Loyola, the chronicler notes that 'the Yagua were by nature very inconstant, they went and frequently came from the forests [*montes* in Spanish] and they had their fights there and sometimes killed whole families' (Chantre y Herrera 1901, p. 472). When after the murder a new Father arrived at the mission and declared a

general amnesty, the Yagua were the only group to remain in the forest (Chaumeil 1981, p. 28). Soon after, the Jesuit Father organised the armed expedition mentioned in Chapter 3, in which he captured about a hundred Yagua by force, but they did not go to Joaquín de Omaguas because the missionaries were afraid of revenge from surrounding Yaguan kin (Chaumeil 1981, p. 29).

The case of Rafael shows how the Yagua sought to resist and tame their colonisers, and many more such instances can be found in the archival and ethnographic record. I wish to highlight another episode, which occurred at an Augustinian mission. In December 1911, while the Father was out, rubber traffickers – most likely from the infamous Casa Arana (Chaumeil 1981, p. 63; see also Hemming 2009, pp. 204–31) – came there with a good number of knickknacks in their canoes, docked in the mission's harbour, and then persuaded the mission's residents to come and take a closer look at the goods. Once the residents were inside the canoe, the traffickers suddenly cut the ropes, paddled into the centre of the river, and used shotguns and machetes to intimidate the Yagua on the shore and to subdue and tie those in the boat. The chronicler describes how they then went downriver and halted at a beach:

> At night, they docked on a sandy spot to sleep; and since the heathens appeared well tied and not just a little dejected, those 'civilised' [the rubber traffickers] calmly gave themselves over to sleep. But, close to midnight, one of the heathens managed to free himself; and with all given dissimulation freed his companions; and once free, all of them (there were seven) hurled themselves against their tyrants, of which they killed one with the first blow, seriously injured a second, letting escape from their hands a third one who threw himself into the river, disappearing in it. The Indians, astonished at this, fled into the forest without finishing, persecuted by the bullets that the four survivors shot, who two months later were captured at the Putumayo and taken to prison in Iquitos, from where they left free six months later. The savages did not return to Jericho [the mission]; and those who had been there dispersed the same day as the abduction happened. The kidnapped Indian women could not be freed by the Indian men, since they had camped further downriver, and never again was heard of them.
>
> (Alvarez, in Chaumeil 1981, pp. 63–4, own translation)

The episode shows the violence and oppression the Yagua faced, but it also clearly evidences their resistance. The kidnapped Yaguan men managed to escape, and the remaining residents of the mission dispersed without giving it a second thought. Indeed, the Yagua soon after set fire to the mission and completely abandoned it (Chaumeil 1981, p. 64).

The Patron System

As discussed, the *padres* were over the years replaced with *patrones*, and up to this day the capitalist system in the Peruvian Amazon revolves around patrons. Reflecting upon past exploitation, Manuel Ramirez Lopez from Comandancia described patrons once as 'those who had money', and he explained that a patron was 'the person who commanded, managed people, who only sat in their place, their office, in order to manage people with his own economic resources, and the Indigenous peoples: working for, suffering in order to enrich the patrons'. Abuse of workers and women was typical, as Manuel went on to report: 'While benefitting from every person, every worker, they paid them a pittance [*les pagaban miseria* in Spanish]. They gave them a pair of underpants, they gave them a pair of trousers, a shirt, and made them work months to pay for it. All the while, the patrons enriched themselves.'

The patron economy creates and fosters desires for modern artefacts by bringing the Yagua in regular contact with patrons and their sometimes lavish lifestyles, which are characterised by smartphones, television sets, and in particular speed boats. As already mentioned in Chapter 1, the idea of 'own needs and desires' needs to be further unpacked; in the Yaguan case, needs and desires are also shaped by patrons who engage in conspicuous consumption and offer goods as payment that the Yagua might not otherwise acquire.

The patron system is often portrayed as a highly exploitative system (e.g. Chaumeil 1984; Hemming 2009), in which labourers are trapped in an endless spiral of debt that strips them of their agency and power. Evan Killick (2008) opposes this simplistic view, however, and argues that the Ashaninka people use the system to turn patrons into *amigos* (Spanish 'friends') and *ayomparis* (Ashaninka 'trading partners'), into participants of a trade and debt system that revolves around long-term relationships of reciprocity and trust. Building on Killick's work and his own fieldwork, Harry Walker (2012a) remarks that the Urarina actively and voluntarily engage with so-called *habilitación* to solicit and acquire foreign goods. As he observes, the Urarina see themselves as 'the initiators of *habilitación*, guided by their own needs and desires, and far from the passive victims of domineering *patrones* in need of cheap labour' (Walker 2012a, p. 146). '[T]he Spanish term *habilitación* ("fitting out") ... connotes a notion of "empowerment"', Walker (2012a, p. 157) argues. Following a similar train of thought, Amy Penfield notes that the Venezuelan Sanema subject themselves voluntarily to relations of debt. She further suggests that for the Sanema such subjection is best interpreted as a form of peaceful predation: '[T]he more recent arrangement of dependence is actively pursued by the Sanema as a way to "extract" resources from their Ye'kwana neighbours by eliciting empathy while at the same time rejecting any long-term commitments of reciprocity that symmetry demands; in essence, they are eschewing their debts ... ' (Penfield 2017, p. 334).

The Yagua generally embrace the work opportunities provided, which allow them to buy food, clothes, and modern technical artefacts, among other things. Like the Urarina and Sanema, the Yagua do not see themselves merely as victims of an exploitative patron system. One reason for this may be that they still possess means of resisting over-exploitation. The reader may still remember how Flornoy's Yaguan guides simply returned home when they did no longer wish to work (Flornoy 1953, pp. 75–7), showing their 'freedom' in a way that Flornoy did not appreciate, and the author describes how this is a typical reaction of Yaguan workers (1953, p. 215). Chaumeil includes the oral testimony of a research participant where Yaguan workers even went beyond a refusal to work and killed their patron:

> At times, someone wished to leave. He handed over his harvest from a month or more to pay for his debt. The patron weighed the rubber. Once he was done weighing, the peon asked him: 'Patron, I want you to settle my debts.' 'Continue working', he answered him, 'you have a lot of debt.' The peon then worked, until one night he escaped ... From then on, he [the patron] was more careful so that nobody escaped. The Yagua decided to kill him. One Sunday when the patron asked all of them to hunt for the weekly mass, they killed him. From there the Yagua fled into the forest.
>
> (Chaumeil 1981, pp. 68, 71, own translation)

Such violence remains an option for enforcing contracts and defending against mistreatment. The reader may for example remember how a member from my household was once threatened by a patron, who wished to acquire more liquor on tab, and how he then went home to get his shotgun. And when another patron refused to pay, there were open deliberations to raid the patron's plantation and take his machines and fuel in compensation for the lacking wage. My Yaguan research participants also refused to work for patrons known for violence, low pay, and inadequate food.

I should add that I have frequently encountered exploitative labour relations over the course of my fieldwork and that I have also heard research participants complain about them. Interestingly, the most common cause of complaint was that patrons did not pay their labourers in a timely manner. In my region of fieldwork, it was the patrons who tried dodging their debts and evading their labourers. One patron for instance received meat from my host but was allegedly short on cash. It took us six months to procure the payment, and even then, the patron tried arguing variously that she thought the meat a gift, that it had been off, that she had been sick, and that she was still short on cash. Two other patrons simply disappeared to larger towns, and it was unclear whether they would return with the labourer's pay. Yet another patron asserted difficulties in his sales and refused to pay his workers, and when a friend of mine demanded her month's worth of pay, the patron threatened to have her killed. But let me now turn from these more general remarks on the patron economy to a description of the work opportunities.

Hunting for Money

For at least a hundred years, Yaguan men have been employed as hunters for meat and hides (Chaumeil 1984). While smaller prey like game birds, monkeys, and agoutis are killed for subsistence, larger prey such as paca, deer, and peccary are generally hunted for sale. Patrons provide fuel and a boat for going to areas rich in game, a shotgun, a torch, shotgun shells, salt, and batteries for the hunt, and *fariña*, sugar, and soap for nutritional and hygienic necessities.

I once participated in a ten-day hunting trip in the Orosa region, accompanying three hunters, one of the hunters' wife, and two children. Three days were spent on the journey and seven days in the central hunting camp. Even though the proximity to larger communities had according to the hunters reduced the availability of game animals, they nonetheless encountered and killed the following animals during the expedition: two white-lipped peccary, one collared peccary, six paca, two deer, one armadillo, one giant anteater, four *perdiz*, two trumpeter birds, one *pucacunga* bird, one parrot, one uakari monkey, one sloth, one squirrel, and one small caiman. Most of these animals were hunted by two of the three hunters. Profitable meat was later sold to their patron, who had beforehand supplied the goods needed for hunting.[16] The deal was highly disadvantageous for the hunters, as they were charged above the usual price for the goods bought on credit, and were additionally bound to sell the meat below its usual price. When I asked for the typical returns from a hunting trip, I was told that a hunter could return with around 100 kilograms of meat, which they would sell for S/10 per kilogram to their patron. The patron would then discount about S/600 for the provided goods, leaving S/400 for the hunter. 'Oftentimes, it doesn't suffice for you', Gerlin told me later. 'And what do you do then? You once more get yourself into debt' (2022, personal communication).

The hunting trip did not only entail the collection of meat, though. One of the hunters also caught a Mata-Mata turtle on our way home, which was valued for its medicinal properties. The hunters also brought home an armadillo tail, which could be heated to treat ear pain, a sloth bladder, which could treat children wetting their beds, and anteater paws, which could alleviate the sting of bullet ants. The hide of the collared peccary could be sold for S/10 on the market. One of the hunters further collected lianas to produce a broom, others collected *chambira* fibres for bags and hammocks.

Logging Economies

In addition to hunting, the Yagua also gain financial income and goods through the logging industry. One research participant received, for example, a new chainsaw (Fig. D.22) for a month of work scouting

[16] The patron was a descendant of a former patron called Tello, who had already been there at least fifty years ago (see Chaumeil 1981, pp. 151–2), indicating the persistence of structures of domination and exploitation.

trees, that is, showing the location of economically valuable trees. Various research participants also told me how they had travelled as loggers when younger, and they at times even met their spouses during this employment and settled on another river.

In most Yaguan communities, residents complain about illegal logging, and it is not uncommon that logging companies betray village leaders and residents. Along the Orosa River, at least two communities were paying off debts to the state because logging companies had involved them in what might be called timber-laundry: The logging companies buy logging rights in Yaguan territories to show evidence that they legally acquired their timber. However, they then sell timber illegally felled elsewhere. Indeed, they might not even fell a single tree in Yaguan territories, or they might fell them to trick forest monitors, but let them rot in the surroundings. The underlying rationale is that trees are heavy and that economically valuable trees in Yaguan territories might be too far from the river to be profitable. In the case on the Orosa River, the company afterwards disappeared. The state first threatened to imprison the village leader for collaborating in the fraud and later fined the communities for the company's wrongdoing. A few years later, another logging company came and offered to pay off that fine.

This latter company was active in the region while I lived in Comandancia, so that I could closely observe the procedure and collect testimonies of village leaders and residents. One of the loggers gave me details on the costs and profits of his company, which I was unable to verify independently. He explained that his company received S/300,000 for four kilometres of wood (800 five-metre parts). Petrol cost S/100,000; the workers were paid S/50,0000; an additional S/15,000 was paid for food; sawing and river transport costs extra, and the company also had fixed costs, such as their tractors (which cost 40,000 dollars when bought used, or 150,000 dollars when bought new). Comandancia received S/20,000 for the wood, which was invested in the construction of a public house (see Fig. D.10 and D.11).

The logging activities were widely criticised in the village, and residents were well aware of the exploitation, resulting in the contract with the logging company not being continued. 'It has destroyed a lot of our land. It has wasted our trees', Luisa Ramirez Santana complained about the logging, and Rocio Pano Cahuamari added that many trees were rotting in the creeks, without being used. She further told me: 'They damaged four hectares of my *chacra* ... They are badly destroyed. I cannot garden there. What can I do now? ... How will we maintain our children? Where will we plant?' (Rocio Pano Cahuamari, 2022, personal communication) Indeed, the logging destroyed large parts of the forest, as the tractors created pathways of mud that traversed former gardens and *chacras* (see Fig. D.77).

White Gold

Another important income source is the coca economy. The historic record suggests that the Peba-Yaguan peoples used powdered coca for medical or ritual purposes in the past (see also Chaumeil 1984, p. 13). A missionary account from 1740 documents for instance coca use for the Peba people (see Magnin 1940, p. 46, in Plowman 1981, p. 199); this is also the first documented mention of Amazonian coca in general (Plowman 1981, p. 199). In the 19th century, Francis de Castelnau writes that Yaguan 'plantations don't consist of anything but bananas, coca, and manioc' (1851, p. 19), and Paul Marcoy indicates in a travel report that the Yaguan guide in a mission site was 'swallowing a handful of *Ipadu* leaves' and that '[t]he Yagua cultivate coca on a very small scale and chew it like the Quechua of the Andean highlands, but unlike them without adding a pinch of caustic ash' (Marcoy 1866, p. 264).[17] By the twentieth century, however, the Yagua had ceased to use coca, and to my knowledge, they no longer cultivate it for their own use. Yet, coca plantations constitute an income source that in some regions is even more important than hunting or logging, and according to official figures, Yaguan territories still comprise an estimated 1,187 hectares of coca plantations (DEVIDA 2023, p. 133).

The large-scale cultivation of coca plants began in the 1970s (Chaumeil 1984, p. 13), and the white gold rush continues to this day. In fact, the Peruvian coca economy has in recent years significantly increased and expanded its territory. In 2022, coca fields covered a total of 95,008 hectares, and roughly a tenth of it was in the Lower Amazon (DEVIDA 2023, p. 55). Compared to the year before, coca territories in the Lower Amazon had increased by 35%, and in the district of Ramón Castilla, where one of my fieldsites is located, coca plantations had even increased by 204% (DEVIDA 2023, pp. 56, 69).

There are various types of work in the coca economy: the coca fields need to be cared for with machetes and pesticides; the leaves need to be harvested and processed; meat needs to be hunted and cooked; fuel needs to be transported and carried to the laboratory; and the cocaine base – the intermediary product that can be later turned into cocaine – needs to be smuggled to the next location. By far the greatest number of workers are needed for the harvest. A *cocal* (Spanish 'coca field') can be harvested every three months, and the patrons also recruit plantation workers in nearby villages and towns. Depending on the number and size of the plantations, village workers are often employed for periods of between one and three weeks, during which they either commute daily or settle in small barracks on-site, and the *patrón* provides at least breakfast, lunch, and soft drinks for free.

Workers from nearby Yaguan villages would be more likely to work in pairs, often as husband and

[17] Günther Tessmann misunderstands Marcoy as saying that *ipadu* is the Yaguan term for coca, and seeks to refute him: 'I asked every Yagua I saw. But the result was always the same: The Yagua do not have coca and do not know *ipadu*.' (Tessmann 1930, p. 36) The word *ipadu*, however, is of Tupi origin (Plowman 1981, p. 210) and I find it unlikely that Marcoy meant to imply that it was a Yaguan word. In any case, Tessmann's observations run counter to the records mentioned above.

wife, whereas workers from further away would tend to work on their own. To harvest a coca bush, workers bring them between their legs and then grate the individual twigs with their index and middle finger. In Spanish, this is called *raspar*, leading to coca workers being called *raspachinos*.[18] The weight of plucked leaves is measured twice a day, once before lunch, and then at the end of the shift, and noted down in a booklet. A typical worker or worker pair can harvest between 50 and 150 kilograms a day, depending on the state of the *cocal* and the speed and dexterity of the worker.

Working in the coca economy is dangerous, however. First of all, workers run a risk of being imprisoned for their work, and the risk is high enough that the otherwise incessant *cumbia* pop is muted on the *cocal*, so that workers can hear military helicopters in time to flee. Caught red-handed – or black-handed, as it is in the *cocal* – workers may face a prison sentence, and they may also be caught in the crossfire between their patrons and the military. In addition, there is a risk of being killed by patrons unwilling to pay, especially for migrant workers. Those who work in the laboratories are further exposed to toxic substances, and more generally, the work on the coca plantation is arduous. Harvesting is done during hours of intense sun, increasing the risk of heat stroke. Carrying the leaves is also potentially dangerous, and I heard of a young Yaguan man who tripped with a heavy bag of coca leaves and died.

As a matter of principle, workers are only paid once the whole *cocal* is harvested, and sometimes only several weeks later, namely once the cocaine base is successfully sold. While patrons offered different wages, wages in 2022 ranged between 0.8 and 1 Sol per harvested kilogram. They also offer different products for sale, allowing workers for instance to buy rice, sweets, and alcohol on tab. The goods are considerably more expensive than in town – liquor costs three times, a shampoo even four times as much as in town – but it saves the workers the trip to the town and further allows them to buy goods before payday. For the patron, the sale of goods provides additional income and further removes the need to carry around large quantities of cash, which would make them a likely target of river pirates and armed robbers. For the latter reason, they sometimes also pay their workers only in the town.

Tourists, Blowguns, and a Banknote

Forty years ago, a tourist brochure described the Yagua as 'one of the few remaining primitive peoples in the Amazon River Basin in their natural habitat' (see reprint in Chaumeil 1984, p. 29), and to this day tourist flyers and postcards still show them clad in palm-leaf dresses, and next to pictures of pink river dolphins, anacondas, and sloths. Beginning in the second half of the twentieth century, the Yaguan

[18] Since the activity can be painful if done over an extended time, most workers have a type of cloth (generally a long sock, cut into a small band) on their hands as a protection. More daring workers – who would not typically come from the villages – would also add a sharp piece underneath that cloth; however, if the patron finds this out, their pay is reduced, as the sharp piece damages and sometimes kills the plants. For the latter reason, workers are also disallowed from harvesting the leaves during rain, even though that would be easier.

culture has been variously exploited as a tourist attraction, leading Chaumeil to entitle one of his books *Between Zoo and Slavery* (1984). That notwithstanding, tourists are a welcome source of additional income and catering to them can also reinforce Yaguan ethnic identity (Gallego Acevedo 2011; Riedel 2006).

There are several communities close to Iquitos in Peru, which cater rather specifically to the perceived needs of tourists. Explorama Lodges for instance is a North American company that closely collaborates with the Yaguan community of Las Palmeras, two hours downstream from Iquitos. When I visited the community, I found myself cast into the role of a tourist, as it was expected of me (as a white researcher) to join for a Yaguan dance, take many photos (see Fig. D.79 to D.82), buy artwork, and then participate in a blowgun competition against two Yaguan women, for which I had to sponsor a banknote as target (Fig. D.83). The latter activity can be seen as a metaphor for modern-day transformations of the Yaguan culture, since it is no longer the animals that are preyed upon, but money itself. Residents of Las Palmeras have partly relocated there from other communities to help sell the Yaguan culture.

Tourism-based migration also took place close to Leticia in Colombia, where the Greek American adventurer Michael 'Jungle Mike' Tsalickis, who later served twenty years in federal prison for smuggling cocaine, attracted several Yaguan families to the communities of La Libertad and Tucuchira (Gallego Acevedo 2011, p. 119). Reflecting on her fieldwork from the early 2000s, Lina Marcela Gallego Acevedo describes how the residents of La Libertad projected a stereotypical image of the Yagua to the tourist. Whenever they heard the boats of tourists, they put on their *champas* and face paint, presented dances and songs in the Yaguan language, highlighted their advanced knowledge of nature, and of course displayed their artwork. They offered 'a culture to consume', as Gallego Acevedo shows. The author also points out how the representation for tourists has seeped into the everyday in La Libertad. Residents behave according to how they believe that tourists believe them to behave in order to become more attractive.

The Role of the State

While missionaries and patrons play a central role in the acquisition of modern artefacts, it is important not to underestimate the relevance of the state. While that actor has in the previous sections remained rather passive, the developmental state has partly assumed the paternalistic aspects of missionary work. The state influences technological change among the Yagua by providing monetary income for the acquisition of modern artefacts, setting up infrastructures for technological transformations, and fostering technological desires via schools and teachers.

State Benefits

There are three major state programmes that provide financial and non-financial resources to alleviate poverty in Peru, namely *Juntos*, *Pensión 65*, and *Qali Warma*. *Juntos* (Spanish 'together') is the flagship poverty eradication programme of the state. Created in 2005, it provides S/200 every two months to poor households with at least one child below the age of fifteen. Benefits are only paid if household members have a valid identification card and if children undergo obligatory health check-ups and regularly attend school (Decreto Supremo 032-2005-PCM). As a result of the last requirement, families are severely limited in their mobility, and it is not uncommon that husbands and wives temporarily live in different locations. Complementary to *Juntos*, the *Pensión 65* (Spanish 'pension 65'), installed in 2011, supports extremely poor individuals aged sixty-five and older with S/250 every two months (Decreto Supremo 081-2011-PCM). For both programmes, individuals have to travel to the next town to receive the money. In larger towns like Caballo Cocha, the money can be collected at any time; in smaller towns like Yanashi, it can only be collected at certain times of the year, when civil servants come to distribute the money.

The *Qali Warma* programme (Quechuan 'strong child') seeks to redress nutritional deficiencies in children of school age. The delivered food primarily consists of rice, pasta, beans, and split peas alongside canned milk, tuna, sardines, and chicken (see also Ricaud Oneto 2022). The programme replaced the *Programa Nacional de Asistencia Alimentaria* (PRONAA; Spanish 'National Programme of Alimentary Assistence') in 2012 to cater for children in kindergartens and primary schools (Decreto Supremo 008-2012-MIDIS), and in 2014 it was expanded to further provide food to secondary-school children from Indigenous communities of the Peruvian Amazon (Decreto Supremo 006-2014-MIDIS). Generally, teachers and parents have to ensure that there are a canteen and sufficient firewood, and they are also responsible for preparing and distributing the food.

Infrastructure Projects

The Peruvian state also plays a role in providing electricity, streets, and communication networks. To make this more tangible, I wish to briefly describe electricity provision in Comandancia and Tangarana. Upon my arrival in Comandancia, most houses had already been fitted with solar panels and were able to light their houses at night. The installation had been for free, but residents had to pay S/9 per month for using them (and an additional S/3 for the public lighting). Once every few weeks or months, workers of the electricity company would come by to collect the debts. Some people refused to pay, as it would overly strain their tight budgets, but if too much debt accrued, the electricity company would cut the cables and disable the panels. The batteries attached to these solar panels were too weak for watching

television or playing music on loudspeakers; the batteries in school buildings had formed an exception in that regard, but they had stopped working due to misuse.

The situation in Tangarana was different. When I arrived, there was a communal petrol-driven power plant, which was switched on every evening from 7 pm to 11 pm. A gold miner had given it to the community in exchange for their permission to search for gold in their surroundings. The petrol mostly derived from the fuel tank of a lumber patron, who had not paid his workers but had also failed to transport his fuel out of the forest, as a consequence of which it was appropriated by the community. While the petrol had sufficed for about two years of light, it became scarce during my stay, and the community was already considering how to collect payments for the collective petrol and oil when – to everyone's surprise – solar panels arrived. While the Peruvian state had promised an electricity source in every house of the region, the state was for a long time unable to deliver on its promise and therefore began to collaborate with non-profit organisations. The members of one such non-profit organisation, which is connected to a for-profit company specialising in renewable energies, reached us during a village party around 5 pm, when several bowls of manioc beer were circulating. The engineers who arrived at the village expected residents to sign the contracts immediately and receive their solar panels. The two problems were, however, that people were no longer sober and were also unable to pay the required S/27, an advance payment for three months' worth of electricity. The engineers complained that they had been given advance notice of their visit – it turned out that a village leader had two years ago agreed to their visit, without specification of date, and that due to the pandemic they had only now managed to come – but ultimately agreed to distribute the panels the next morning. The engineers were also unable to fathom the financial burden. 'Who doesn't have S/27?' they asked incredulously. The panels were of the 'third generation', as the engineers proudly remarked, fitted with USB sockets and custom-built light bulbs. What the 'third generation' of solar panels meant in practice was that people were unable to tamper with the cables or to use their own light bulbs or appliances. It also meant that the battery box regularly needed an activation code that could be bought in Caballo Cocha only. If someone did not pay, it remained dark. Otherwise, interestingly, the houses were kept alight throughout the night. Residents had been warned that the batteries need to regularly discharge (by keeping at least one light on) in order to prevent them from malfunctioning. One resident switched the light off to sleep better at night, and his battery promptly broke down.

Teachers and Schools

The establishment of schools provides the Yagua with better protection against capitalist exploitation and a better understanding of their rights, but it also has several negative side effects, and Chaumeil goes

so far as to call educational measures of the state 'just as ethnocidal as those of the missionaries' (1984, p. 40). An early textbook from 1958, published by the Peruvian Ministry of Education with support by the Summer Institute of Linguistics, provides a glimpse into the lessons at that time. On the first page of the first unit of *Nature and Social Life*, intended to teach Yaguan students Spanish and reading skills, there is a map of Peru. On the next page, it says: '*Rajo̲tya̲ rataju̲ raje diye. ¿Tara jirya? Peru mucadi jantyasarada.*' 'I'm in the first year of primary school. What is that? It is the map of Peru' (Ministerio de Educación Pública 1958). This being the first three sentences learned, the reader can fathom the purpose of education in Peru. Even nowadays, children are indoctrinated into the nation-state early on. They are for instance mustered at least once a week and then have to sing the national anthem while raising the national flag. Officially, bilingual schooling means that children who are monolingual in Yaguan are taught Spanish, reading, and writing, and the textbooks are crafted with that purpose in mind. These days, however, all children are fluent in Spanish, and only a few understand or speak Yaguan, meaning that most of the learning materials are useless. It is also noteworthy that education materials are literally bound up in patriotic doctrines. At the back of all textbooks, including Yaguan ones, there is the Peruvian flag, anthem, and coat of arms. Students in rural villages of the Peruvian Amazon learn significantly less than students in urban centres such as Yanashi, Caballo Cocha, or Iquitos. For that reason, wealthier Yaguan families would send their children to relatives in urban centres, or else move there altogether.

In general, education greatly impacts lifestyles, consumption, and labour patterns. The construction of bilingual schools often caused a regrouping of communities, sedentarisation, and an increasing dependency on the state and foreign goods (Chaumeil 1981, pp. 95–6). Further, the abuse of Yaguan women and girls as household aides in town was only made possible by increased bilingualism in the mid-1970s (Chaumeil 1984, p. 16). In addition, children are more likely to be separated from their parents when the latter ones take up wage labour, since there are penalties for not attending school. Schooling also encouraged the migration to towns, not as families, but rather as individuals. Becoming a nurse, a teacher, or an engineer is frequently the understood purpose of schooling, and people with such jobs cannot continue living in the community.

In the early 1980s, Chaumeil already observes that school contributed to the 'creation of new necessities' (1981, p. 96, own translation), and my own ethnographic experience and data confirms this. One example of such is the introduction of grasscutters, which were distributed to help clear the school football field, but then got quickly taken up by other residents, replacing the machete. Another example is the introduction of computers and tablets in schools, which I will turn to next, as well as the encouragement for pre-school teachers to use multimedia for their lessons and the installation of internet antennae in schools to enable twenty-first century education. All of these developments affect the relational ecology.

Teachers form in this context the vanguard of technological change: they are often the first people to have radios, televisions, and smartphones, and they frequently have the biggest engines and loudest speakers. For their studies, they must live in a larger town and adapt to the urban lifestyle. In comparison to other residents, they also have a considerable salary, which they cannot spend in the villages. All teachers I met have a secondary house in a town, where they prefer to live during vacations.[19] The role of teachers is not to be underestimated, since these local elites are often a role model for children and young adults.

Computers and Tablets

Another example of how the Peruvian state provides modern technical artefacts and creates new desires and dreams is its attempt, in line with international development actors, to promote digitisation. At the turn of the century, the hope of bridging the digital divide had become prominent across the world (Avgerou 2003; Heeks 2002; cf. also Arora 2019). Famous in this regard was the One Laptop Per Child (OLPC) project, for example. Suggested by the angel investor Nicholas Negroponte, its aim was to provide widespread access to laptops and thus revolutionise education. His idea rested on the assumption that children would make significant strides in their education by interacting with artefacts and tools, including for instance computers. Such an assumption was critiqued in the educational scholarship, but found its backing in the Californian hacker culture, and ultimately also in the United Nations (Ames 2019). In November 2005, Kofi Annan, back then the United Nations Secretary-General, presented the first OLPC laptop model at the World Summit on the Information Society in Tunis, noting that '[t]he $100 laptop is inspiring in many respects [and] holds the promise of major advances in economic and social development' (MIT News 2005). Alas, the promise went unfulfilled, and the project is now widely regarded as a failure (Ames 2019). I saw a couple of OLPC laptops in my fieldsites. The small green laptops, which to me seemed like oversized game boys, were stored in the school building, covered in dust and cobwebs. A teacher told me that they had hardly been used, and in any case, that they had only been used for playing games.

The episode demonstrates the impact of international development discourses on Yaguan communities, which I also felt while doing an internship with *Project Amazonas* (see also Chapter 3) and teaching at the bilingual school in Comandancia. As it happened, it was the first day of school after more than a year of pandemic-related school closures, and the Peruvian government had sent ten student tablets, which the head teacher tasked me to set up and explain. While the distribution of tablets was nationally framed as a measure to abate the negative impact of school closures, the initial impetus had derived from pre-

[19] This pattern is further fostered by the need to annually reapply for teaching positions, which would make it difficult for teachers to invest into a house or garden in a village – after all, they might have to change the year after.

pandemic times. At the end of 2019, the Peruvian Ministry of Education had announced the acquisition of 200,000 tablets, donated by the state agency Pronatel (National Programme for Telecommunications) for use in rural schools. It was only five months later, when the government agreed on the provision of another 840,000 tablets (Decreto Legislativo No. 1465), that it justified their acquisition with pandemic-related school closures and the need to find alternative teaching methods. 'This illness brings us much harm, much damage. It brings us the death of many people. But we also have to see an opportunity for change', then-President Martín Vizcarra (2020) argued in an address to the nation.

The roll-out of tablets began in October 2020, and roughly half a year later, when the worst of the pandemic was already over, they finally reached Comandancia. The Android-based tablets, produced by Lenovo, measured eight inches and had a storage space of thirty-two gigabytes. All came with a sturdy black rubber casing. Their main application *Aprendo en casa* (Spanish 'I learn at home') was part of a larger governmental initiative offering distance-learning alternatives during the pandemic.[20] To gauge the students' reading skills, I asked them to open and read the first text on the *Aprendo en casa* app, which was a text about Frida Kahlo that according to the Ministry of Education should have been at the appropriate level for the students. Unfortunately, the text proved too difficult to read, and as far as distance learning was concerned, the *Aprendo en Casa* app turned out to be largely useless.

There were other apps on the tablet, though. One app allowed students for instance to take a three-dimensional virtual tour of the Greek acropolis, allegedly of educational value to learn about Greek history, art, and culture, but students hardly engaged with it. They briefly assessed its entertainment value, then found it wanting, and quickly moved on. Another pre-installed app was *1,000 cerillas* (Spanish 'matches'), an app with match puzzles whose gamified approach to maths was more appreciated by the children. Regardless of the tablets' deficits in educational terms, however, the students were thrilled about their new devices. They took them home, and at the next class, they showed what it means to be a digital native. All students had found out how to play games on their tablets, and they used these new skills throughout the whole day. One student played for instance the Android dinosaur game, which opens in the absence of internet. Her dinosaur jumped cactus after cactus, until it was hit by a pterodactyl and the game restarted. Other students had managed to install more complex games via Bluetooth. Playing *Mi Talking Tom Gold Run*, they ran with their tomcat behind a robber, sliding underneath barriers and bridges, jumping across cars, and collecting gold coins on their way. Students connected themselves to the world of video games and learnt about the importance of making money. In the above-cited speech, Vizcarra (2020) had foreseen these wider implications: 'A tablet which reaches

[20] The *Aprendo en casa* initiative had begun right at the start of the pandemic, producing web content and transmitting lessons via television and radio. It had been widely lauded for its success (Morales 2020). As early as July 2020, for instance, the ministry had proudly reported that their programme reached more than 95% of college students in Peru, with six million television viewers per week (see Morales 2020, p. 38).

a student in a rural, remote area, does not only reach the student, it reaches all his family. With this tablet, you connect yourself to the world.' And indeed, the tablets reached beyond the school settings and entered the houses of parents and friends.

In Fujimori, a Yaguan community located two hours downriver from Comandancia, the parents' association convened for a meeting soon after the tablets were distributed, and they asked the teacher to take them back. In an interview, the teacher explained:

> I distributed the tablets, hoping that they would be well used. But that did not happen ... Many children got sick [*se mareaban* in Spanish] ... They dedicated themselves to other things. They did not listen to the orders of their father or mother at home. More than anything, they were with the tablet. And they watched ... aggressive movies, home-made videos, and sometimes they even downloaded pornographic videos, and the children were hardly eight, ten years old. And more than anything, they dedicated themselves to these videos and often ignored the topics of the class. And for that reason, the parents said 'no' at the end. They said that the children get sick with the tablets, and that they don't get any benefit ... One thing is that they did not listen to us as parents. Another thing is that they didn't even go to school any longer. That's why the parents decided against handing out the tablets.
>
> (Gerlin Ramirez Santana, 2022, personal communication)

I will further discuss wider ripple effects of tablets, including their disruption of kinship relations, in Chapter 7. For now, let me conclude the section by noting that students in Comandancia kept the tablets until a year later, when a regional school supervisor arrived to inform everyone that the tablets should have stayed at school (despite the app being called *Aprendo en casa*), for exclusive use towards educational purposes. The supervisor was appalled to find the tablets' storage space filled with games, movies, and pornographic material. During her visit, she revealed that the tablets remained property of the state and that every student was personally responsible for the tablet registered under their name. As can be imagined, some of the tablets were already in poor condition. For the two tablets in Comandancia that had broken because of inappropriate use, the parents had to shoulder the considerable costs of repair, or else students would have to settle the debt upon turning eighteen. After the visit of the school supervisor, the tablets were stored in the school building, next to the OLPC laptops, and their direct impact on community life diminished.



Summary



This chapter has examined how Yaguan people navigate their autonomy in the face of dependencies on the forest environment, the capitalist economy, and the state. I described how everyday subsistence activities such as hunting, fishing, gardening, and gathering increasingly depend on artefacts that cannot be manufactured by the Yagua themselves, including shotguns, torches, and boat motors. These dependencies draw Yaguan households into capitalist webs, with members working as hunters, lumberjacks, and plantation workers, and in some cases catering to tourists.

I then turned to the role of patrons and the state. I showed that these not only provide financial and non-financial means to acquire modern technical artefacts but also create and foster new desires and dependencies. The next chapter turns to a story, in which a flying white horse takes the role of patrons and the state.

Chapter 5



A Flying White Horse, a Princess, and a Wish-Granting Metal



Overview



This chapter centres on the Story of Sisuro, told to me by the community leader of El Sol. The story recounts how a young Yaguan man captures a flying white horse and is given a wish-granting metal rod. The metal provides him with food and shelter, helps him survive the onslaught of his brothers, and enables him to win over the princess of a faraway kingdom. In this chapter, I analyse this story and argue that the metal rod is a metaphor for machetes and other modern artefacts, that the flying white horse represents coloniser-thieves, and that the marriage with the princess marks the protagonist's process of becoming the Other. My analysis highlights the mythical life and might of metal artefacts and emphasises the ambiguity inherent in processes of Other-becoming.



The Importance of Stories



Stories are powerful instruments for transcending time and space. By reflecting on the complex ecology they are embedded in, they provide meaning and help to create and re-create relations between human and non-human beings. Throughout the Amazon region, stories play a central role in transferring knowledge and values. Before going into the Story of Sisuro, I wish to briefly reflect on the interpretation, possession, and transmission of stories in the Amazon and present an overview of the Yaguan story cosmos for context.

The Interpretation of Myths and Stories

Percy Cohen characterises myths as follows: 'a myth is a narrative of events; the narrative has a sacred quality; the sacred communication is made in symbolic form; at least some of the events and objects which occur in the myth neither occur nor exist in the world other than that of myth itself; and the narrative refers in dramatic form to origins or transformations' (Cohen 1969, p. 337). In anthropology, stories and myths have been interpreted in wildly different ways (see also Cohen 1969; Hill 1988). Edward Burnett Tylor (1871), for instance, treated myths as animist explanations of history and held that the personification of non-human entities in myths provided a means to understand and control these entities, Bronislaw Malinowski (1926) suggested that myths existed to sanction existing rules and orders, and Claude Lévi-Strauss (1955) argued that myths helped to resolve and overcome structural contradictions. What seems to be the golden thread from Tylor to Lévi-Strauss, however, is that they consider myths as containing elements that, as Cohen had put it, 'neither occur nor exist in the world other than that of the myth itself'. For Cohen, the inclusion of non-existing elements distinguishes myths from 'history or pseudo-history' (1969, p. 337). This position, however, seems difficult to defend without specifying who knows about the existence or non-existence of such elements, and on what grounds such knowledge is constituted.

Let us for instance consider Davi Kopenawa's story on the origin of metal. According to Kopenawa, metal was first used by the demiurge Omama to reinforce the stability of lands. The same demiurge then 'turned the remaining metal harmless and used it to make our ancestors' first metal tools' (Kopenawa & Albert 2013, p. 28). Is this a 'myth', I wonder, as defined by Cohen, or is it a 'history'? In my view, considering Kopenawa's story a myth would enact epistemological and ontological violence. If the researcher was to argue for example that Omama never really existed, such argument would contradict Kopenawa and the evidence he holds to demonstrate Omama's existence.

Incidentally, the example also allows me to point to the different relations of myth and history which Lévi-Strauss applies to distinguish 'cold' and 'hot' societies. As Kopenawa's story shows, 'metal tools' have among the Yanomami been created at the beginning of time, as is typical in 'cold' societies, which seek to annul the effects of historical change by inserting them into mythology. And yet, Kopenawa is far from oblivious to historical change. In a later chapter, he writes for instance that 'one day the machines arrived in our forest without having been preceded by any word' (Kopenawa & Albert 2013, p. 235), and he describes how the machines subsequently led to destruction, disease, and death. His story at this point is no longer set in mythic times, and the description is typical of 'hot' societies, which thrive on historical change by structuring their stories around it.[21]

[21] Lévi-Strauss's distinction was at times misunderstood to mean that 'cold' societies undergo less historical change than

We could of course further question whether the distinction between mythic and non-mythic times is then still tenable, or whether not the very distinction is anathema to ontological agnosticism. At least in the Yaguan case, however, the distinction between mythic and non-mythic times corresponds to emic conceptualisations of time. In the Yaguan language, the verb suffix *-jada* for instance indicates a primordial past, and in the Spanish language, story tellers emphasise the word *antes* (Spanish 'before') by stretching the first vowel and repeating it twice. I do not wish to overemphasise the distinction of these times, however, since there may still be overlaps when it comes to storytelling, and as such, I do not hold a strict distinction between myths and other (hi)stories. In my own writing, I do not make judgements concerning the truth value of the stories and myths shared with me. If I employ the term 'story' more often than the term 'myth', I do so because of the connotational baggage of the latter term. In any case, Miguel Panaijo Saboya used the generic term *cuento* (Spanish 'story') to refer to the story that I am going to analyse as well as to stories that are set in mythic times, such as the story on the origin of clans we have already encountered in Chapter 3.

Drawing on their experiences among the Napo Runa, Michael Uzendoski and Edith Calapucha-Tapuy observe in *The Ecology of the Spoken Word* that '[s]torytelling is a facet of human existence that, when explored deeply and socially, tells us significant things about the pragmatics of daily life, including experiential realities' (2012, p. 5). Following in their footsteps, I seek to provide an ethnopoetic analysis of the Story of Sisuro to bring Yaguan ontology, ethics, and aesthetics closer to the reader and at the same time show how stories can creatively incorporate metal artefacts. Like Uzendoski and Calapucha-Tapuy, I am further cognizant of the fact that stories do not only reflect everyday realities but also bring them on and shape them. 'Storytelling is how Amazonian Quichua people create, define, and feel – as well as think – the social, ecological, and spiritual realities of their world, the community of social and cosmological relations that defines them', Uzendoski and Calapucha-Tapuy write (2012, p. 5), and the same can be said for storytelling among the Yagua people. In this light, there is also the question of how the Story of Sisuro impacts the world beyond the story.

Possession and Transmission

Stories are embedded into complex ecologies, and removing them from their context risks distortion and destruction. The Waorani warrior Nemonte Nenquimo was aware of this when she shared her insights and experiences with a wider audience: 'Our stories have never been written down. Not like this. Part of me is scared. Have I told too much? Left too many tracks? What will you do with my story now that it has been written? I hope you will let it live' (Nenquimo & Anderson 2024, p. 1). Her words highlight

their 'hot' counterparts (e.g. Hill 1988), but the distinction was only about the respective appreciation of historical change (see also Gow 2001, pp. 15–6).

the vulnerability of stories and storytellers, and they urge us to take great care in our analysis.

The Yanomami shaman Davi Kopenawa revealed the same awareness when he shared his stories with his collaborator Bruce Albert. Right at the beginning of his book, he remembers telling Albert to treat his stories with care, diligence, and respect:

> If you want to take my words, do not destroy them. They are the words of *Omama* [the Yanomami demiurge] and the *xapiri* [Yanomami 'spirits']. First draw them on image skins, then look at them often. Then you will think: '*Haixopë* [Yanomami 'indeed']! This truly is the story of the spirits!'
>
> (Kopenawa & Albert 2013, p. 11)

His exhortation reflects what Cohen calls 'the sacred quality' of myths, which brings up the question whether it might be better to hide them from the eyes and ears of other people. After all, there is a danger that some readers may fail to protect the words of Nenquimo and Kopenawa and exploit them to their own advantage.

However, as Nenquimo points out: 'A story dies when no one tells it' (2024, p. 1). As such, stories are kept alive by sharing them, and in the process, they can teach the readers important lessons. This is a central motivation for writing them down. Based on his observations of 'white people', for example, Kopenawa reaches the conclusion that 'their fathers must truly have lacked wisdom to have left them nothing but bare and scorched land, permeated with epidemic smoke and crisscrossed by streams of dirty water' (Kopenawa & Albert 2013, p. 12), and he asks Albert for his stories to be widely shared among 'white people' so that it may 'penetrate their minds' (Kopenawa & Albert 2013, p. 12). These words highlight once more the transformative quality of stories regarding their surrounding social realities.

Storytelling among the Yagua People

Yaguan stories lead in many directions. I heard stories of lavish feasts, great hunts, and prophetic dreams, of sirens, snakes, and the spirits of the dead. A friend told me how a sloth once stole his shotgun and how on another occasion a large tortoise helped him to carry his quarry to the hunting camp. Indeed, the linguist, missionary, and folklorist Paul Powlison (1969) devoted his entire doctoral thesis to Yaguan storytelling.

In the past, Yaguan feasts involved the narration of stories (Powlison 1976), and myths provided the basis of larger Yaguan rituals (see Chaumeil 2000, p. 241; Chaumeil 1987, pp. 39–41; Chaumeil 1990b). They were also transmitted in smaller settings. One research participant reminisced how his grandfather told him and his siblings stories when they were in the forest and preparing to sleep. As

he explained, his grandfather habitually continued talking even long after the children had fallen asleep. Nowadays, it seems that television sets have largely replaced human storytellers, as children frequently flock to them in the evenings. When I did my recordings, however, children often still sat with us and listened attentively to the stories of their relatives. Further, people still sporadically told longer stories. When Manuel Ramirez Lopez accompanied me to the Atacuari region, he for instance shared the origin story of the sun and moon with our hosts and had an interested audience for that.

In his detailed analysis of Yaguan folklore, Powlison (1969) reaches the conclusion that Yaguan stories display epic tendencies. He focuses his analysis on the following story cycles: the Moon and Sun Tale; the Twin Cycle; the Lemur-eaten-one's Orphan Cycle (Story of Musmuqui); the Little Baldy Cycle; the Turtle and Jaguar Cycle; and the Knee-bite Twin Cycle. As he highlights, however, the separation of these cycles is not set in stone. Depending on the storyteller and context, the cycles may well overlap and merge with each other. Still, I would like to analytically distinguish them and briefly walk the reader through them, since various of their motifs reappear in the Story of Sisuro.

The *Moon and Sun Tale* has already come up in my discussion of the female puberty rite. It is one of the most well-known stories among the Yagua people, and when I asked research participants to share stories with me, this was the story they generally suggested first. In brief, it tells of a girl violated by her brother while in the menstruation hut. When this becomes public, both the girl and her brother flee out of shame. The brother becomes the moon; the sister is violated again and killed by a jaguar; their son survives and becomes the sun.

The *Twin Cycle* is another well-known story cycle, and we have already briefly encountered it in Chapter 3. The Twin Cycle begins with the massacre of 'the people'. The surviving twins learn from their grandmother and the tapir (who later marries their grandmother) about their history and avenge their parents' death. The twins reappropriate blowguns and flutes, create the clans, re-establish feasts and songs, steal manioc, *pihuayo*, and plantains, and give rise to the Amazon River by felling a mighty kapok tree. As such, their story is intricately linked with the Yaguan past and Yaguan identity.

The Lemur-eaten-one's Orphan Cycle is about a young man called Musmuqui, and I am going to refer to the cycle as the *Story of Musmuqui*, since this is how I have come to know it as in the Atacuari region. The family of Musmuqui's mother consists of night monkeys (*musmuqui* in Spanish), who have eaten Musmuqui's father and brothers and are at the beginning of the story just waiting for Musmuqui to mature and make for a tastier meal. His mother lies about the death of his father, but Musmuqui eventually finds out about it from a bushmaster snake and kills his cannibalistic mother and her family. The reader may remember from Chapter 3 how the bushmaster and other animals berated Musmuqui for falsely accusing them of his father's death.

We have not yet encountered the other stories. The *Little Baldy Cycle* follows the conflict between

a group of warriors and a potent shaman. The story commences with the abuse of the shaman's wife and the beating of the shaman by the group of warriors. To punish the warriors, the shaman steals one eyeball from each warrior, only sparing two brothers who have not participated in the beating. The warriors then attack an enemy group but fail and are transformed into peccaries and other animals. Only the two brothers remain, and they find the shaman's house and are both served a sweet potato. One of the brothers is greedy, however, and eats another potato. Enraged about this, the shaman offers the warriors' eyeballs disguised as *ungurahui* fruits and cuts off the leg of the trespassing brother, who afterwards transforms into a toucan. As the brothers approach a river, the brother on the ground mistakes a boa for a bridge and is swallowed. He manages to escape by cutting the boa open with a piranha tooth, but the stomach juice destroys all his hair, leaving him bald (hence the story's title). The story then continues with Little Baldy sleeping with a tinamou, an anteater, a turtle, an armadillo, and an agouti, staying underneath a termite nest overnight, and joining a porcupine for a large feast. Afterwards, he returns home and reunites with his family.

As Powlison (1969, p. 352) notes, the stories of Little Baldy and Musmuqui are sometimes merged. In my own fieldwork, I also recorded a story that parallels the Little Baldy Cycle in some respects. In the story, told to me by Julio Mutyasurya, a man and his wife find fresh tracks of white-lipped peccaries, and the man follows the tracks and shoots one peccary after another with his blowgun. At some point, however, the white-lipped peccaries ambush him, and four peccaries transform into people and complain about his excessive hunting. To punish him, the peccary chief forces the hunter to marry his two daughters and the hunter gradually turns into a peccary. When he flees two years later, he becomes human again. In the meantime, however, his wife has slept with a jaguar to obtain food, and when the hunter finds that out, he angrily leaves her and ventures out to sleep with different animals, having almost identical experiences as Little Baldy in that regard. The story ends with him marrying a human woman but leaving her again when his mother-in-law complains about his laziness and serves him old clothes instead of meat.

The *Jaguar and Turtle Cycle* describes how the eponymous animals try tricking and killing each other, with only Turtle succeeding. Jaguar for instance tries to kill Turtle by drowning him, but Turtle fakes his death. On another occasion, Jaguar chews Turtle up, but Turtle survives. The trickster Turtle then fakes smashing and eating his own testicles and offers some of the fake testicles to Jaguar. Encouraged, Jaguar smashes his own testicles to taste them as well, and Turtle afterwards kills the incapacitated Jaguar. Another Jaguar is talked into stretching out his neck underneath a bread-fruit tree, and Turtle lets a fruit fall to sever his neck. Yet another Jaguar is persuaded to climb into a cooking pot to acquire a flute and is then cooked alive, with his toenails exploding and turning into the less ferocious jaguars of current days. In some versions, this cycle connects with the Moon and Sun Tale, namely when Jaguar is

killed as punishment for eating the mother of the sun (Powlison 1969, p. 349).

The *Knee-bite Twin Cycle* narrates the actions of Mocayu, a trickster who gives birth to wasp twins and experiences various adventures with them, in which Mocayu proves to be more knowledgeable and skilled than his sons. For instance, while they build a hut out of mud, like wasps would do, Mocayu builds a house of leaves, which turns out to be more durable during rain. Mocayu also survives the attacks of various animals and in this he equals Sisuro, as we will see. For instance, the mythological *to̲cachi* bird defecates stones that drive Mocayu into the ground, but Mocayu survives and later kills the bird. He also survives the onslaught of caterpillars and re-acquires his human form after they have already ground him to dust.

As we will see in the next section, the Story of Sisuro features various motifs prominent in the above cycles. Like in the Twin Cycle, the Story of Musmuqui, and the Little Baldy Cycle, for example, the protagonist of the Story of Sisuro is on the move and seeks to reconnect with his past, and like in the Jaguar and Turtle Cycle and the Knee-bite Twin Cycle, he repeatedly survives attacks that should be fatal.

The Story of Sisuro

The Story of Sisuro was told to me by Miguel, the charismatic *curaca* of El Sol. Miguel was one of the first Yagua I met in the Atacuari region, and over the course of my fieldwork, I got to know him very well. One day, I went to a *minga* with him and later joined a round of manioc beer, during which he suddenly got up and told a story of how he and another hunter from El Sol once shot, gutted, and skinned a peccary, and how the peccary still ran away. Afterwards, I asked him whether he could tell me more stories, and he told me the Story of Sisuro.

When Miguel told me the story, he was swinging in the hammock of his humble home in El Sol, surrounded by his wife and a couple of grandchildren, my voice recorder in his hand. Never have I met a more gifted storyteller. When a hunter shot a woolly monkey, Miguel's arm followed the trajectory of the dart and then *cha* – the monkey was hit – and *boom* – the monkey fell – and Miguel's downward-circling hands visualised the monkey's spiralling movement to the ground. It was 'somatic poetry' at its finest (Uzendoski & Calapucha-Tapuy 2012). I was completely hooked, and hope that the transcript in Appendix B conveys some of Miguel's voice and narrative genius to the reader. In the following section, I provide a brief synopsis of the story.

Synopsis

The story begins with a widow, who lives with her three sons in the forest. One day, the two older sons learn about their father's blowgun and go on a successful hunt, bringing back twenty woolly monkeys. Their mother receives them with a drink of blended banana, which is regionally referred to as *chapo*. They go for another hunt and are once more served *chapo*. The youngest son, who grows up quickly, observes this and wishes to join in the hunt. His brothers, however, refuse to take him along, arguing that he is not yet able to walk.

When the two older sons return with another twenty woolly monkeys and receive their food, the youngest son asks his mother why he did not receive any food, and she explains that this is because he does not yet hunt. The youngest son then tries to persuade his brothers again to take him along, but they still refuse, this time arguing that he does not yet know how to carry prey. When he next asks them, they reject him because he has developed *sisu* (Spanish 'scabies, wounds') all over his body, and they henceforth call him Sisuro (Spanish 'scab').

Since his two older brothers refuse to take him along, Sisuro decides to go fishing with his father's fishing rod and when he brings back twenty *sábalo*, his mother serves him food. A while later, his two older brothers return from another successful hunt, but this time, their mother does not serve them immediately, instead telling them to serve themselves. When the brothers find out that they are not served because of Sisuro's fishing, they become angry and decide to leave.

Sisuro wishes to join them, but they threaten to kill him if he does. The next day, they pack their bags, store the blowgun in the house, and walk far away, until they reach a large banana plantation with a widow and her four daughters, where they briefly rest. As they look behind to see whether Sisuro follows them, they once more talk about their plan to kill him. The four daughters, who overhear him, are shocked. Despite his brothers' warning, Sisuro follows them a day afterwards because he does not believe that they would kill him. When he reaches the plantation, the four daughters tell him about their brothers' conversation and warn him against continuing his path. The widow further tries to persuade him to work for her, and while Sisuro is adamant in his wish to find his brothers, he agrees to work for a night at the plantation, given that it is already getting dark and he could anyway not continue. The widow explains his work, which consists of guarding a cluster of ripe bananas.

Sisuro asks for a wooden board, nails, and a rope of a hundred metres and then promises that not a single banana will be eaten. He hammers the nails into the board to create a bed of nails, and when he is attacked by sleep and wants to lie down, the nails poke his back and wake him up. This repeats various times, so that he is still awake when there is suddenly a white horse that descends from the sky and goes for the cluster of ripe bananas. Before the horse can eat a single banana, the man lassoes it

with his rope. The horse begins to kick and to wail and pleads Sisuro to set it free. When Sisuro keeps it prisoner and it becomes almost dawn, the horse asks where Sisuro was going.

When the latter explains that he is following his brothers, the horse warns him once more that his brothers were going to kill him, namely by cutting him in half, and it also tells Sisuro that his brothers are going to give him blended faeces to eat instead of food. It then offers to accompany Sisuro and gives him a small metal rod. The horse teaches Sisuro how to call the metal and how to use it for receiving food and shelter in the blink of an eye, and it also reveals that the metal can help him survive his brothers' attacks. Sisuro tries out the metal and afterwards sets the horse free.

When the widow comes to the banana grove in the morning, she is thrilled that the cluster is still whole and offers Sisuro money and her daughters as wives, but Sisuro refuses to marry, since he still searches for his brothers, and he does not understand why he should receive any money. The women cannot dissuade Sisuro from following his brothers, and shortly after, Sisuro is on the move again and after a longer walk finds his brothers eating lunch in the middle of the road. As he had been warned, his brothers cut him in half and kill him. But since his head is still alive, he can call the metal for help and the metal mends and revives him. He follows his brothers again and once more finds them eating. The brothers are puzzled why he is still alive and decide to tie him up with a liana this time, assuming that he would be unable to leave.

But as soon as they are out of earshot, Sisuro calls his metal, and the metal sets him free. For a third time, he catches up with his brothers. This time, he jokingly asks them to share their *chapo* with him. In response, the older brother begins to poop into the drinking bowl, blends [*chapea* in Spanish] his faeces, and offers this as *chapo* to his brother. Sisuro is then killed again and revived by the metal.

When he reaches his brothers again, they wonder how he could be killed and decide to throw him down a steep cliff. After they have walked off, Sisuro notes that he has lost his metal on the top, and he begins to despair. He repeatedly calls his metal, shouting this time, and after several unsuccessful attempts, the metal indeed hears him and listens to his predicament. It then thinks about how to save him and extends its tongue. Periodically, it asks Sisuro whether the tongue has reached, and when the tongue extends about three hundred metres, Sisuro can finally grab it and is raised up by the metal. On the ridge again, Sisuro puts the metal into his pocket and continues his path.

After a long journey, he hears a king on his horse, who offers his daughter as a wife to whoever can hit him in a knightly joust. Sisuro's brothers try but miss. Sisuro asks the metal for a shiny horse, which he mounts. When he passes his brothers with the horse, they no longer recognise him. Only when Sisuro hits the king in the chest and dismounts, do the brothers recognise him again, and they lament that he succeeded where they failed. Sisuro is married to the princess, and the two brothers remain without a wife. At this point, the story ends.

Structure, Place, and Time

The Story of Sisuro carries the listener from a small dwelling in the forest to a distant kingdom. For analytical purposes, I distinguish four major acts. The first act (ll. 1–279) takes place deep in the forest.[22] Over the course of this act, the brothers find their father's blowgun and fishing rod, respectively, and the rivalry between Sisuro and his older brothers ends in the brothers leaving the house. The second act (ll. 280–483) brings the three brothers to a large plantation that is owned by a wealthy widow and describes how Sisuro acquires the wish-granting metal from the flying white horse. In the third act (ll. 484–569), the brothers are once more on the move and Sisuro survives the attacks of his brothers. The final act (ll. 570–601) takes place in a distant kingdom, in which Sisuro wins a knightly joust against his brothers and is married to the kingdom's princess.

The distance covered in the story is remarkable. Both before and after Sisuro works in the plantation, a sevenfold repetition of 'he goes' stresses the length of the journey (ll. 280, 484). The distance from home is further emphasised by traditionally non-Yaguan elements, such as the patron (in the person of the widow and plantation owner), the white horse, the bag of money, the king, and the princess. As we have seen in the previous section, such journeys are not uncommon in Yaguan storytelling. Musmuqui, for example, wanders around for a long time and at some point encounters a mighty artefact, described as a 'wand', which he later uses to slay his cannibalistic night monkey mother (Powlison 1969, p. 280). And Little Baldy, the warrior whose fellows lost their eyes to a shaman, is described as crossing a large river and moving from animal to animal before finally reaching home. Interestingly, both Musmuqui and Little Baldy return home at the end, one to kill his mother, the other one to see his family again. In the Story of Sisuro, however, the protagonist does not return to his original homestead but instead moves further and further away from it.

The increasing spatial distance can also be read as a reflection of Yaguan history, which takes the reader from an ancestral past to colonial times. The abundance of woolly monkeys is frequently mentioned when Yaguan people revel in their ancestral past, and the use of a blowgun is a further hint in that direction. It is then also striking how Sisuro uses a fishing rod instead of a blowgun (l. 225), since the Yagua rarely used fishing rods before the mid-twentieth century (see Fejos 1943, p. 43). Equally striking is how his older brothers leave their blowgun at home (l. 274) to seek wage work (l. 275), or how the horse introduces Sisuro to the metal (l. 423). These actions point to changing subsistence patterns and indicate the entanglement of metal, modern artefacts, and colonial relationships, which we have already touched upon in Chapter 4.

[22] The line numbers in this section refer to the story's translation in Appendix B, pp. 216–236.

Characters

The Story of Sisuro begins with a widowed woman and her three sons. Overall, the woman is probably the most tragic character in the story. She plays a central role in the first act, since she cooks and cares for her sons (e.g. ll. 102, 135, 160, 292), tells the two older sons about the existence of their father's blowgun (l. 10), and hands the fishing rod to Sisuro (l. 225). By imparting her knowledge to her sons and raising them, she takes a similar position as the grandmother of the mythological twins (see also Chaumeil & Chaumeil 1978, pp. 177–8). And yet, the animosity between her sons ricochets back to her at the end of the first act, and she is left alone by her sons and never mentioned again in the remainder of the story.

The two older sons are presented as skilled huntsmen. Their mother wonders at the beginning whether they know how to hunt (l. 18), but once they are in possession of their father's blowgun, they quickly show that they know how to use the blowgun, kill woolly monkeys, and weave baskets for carrying home the prey. The two brothers are almost indistinguishable from each other to the degree that it is sometimes not even clear whether a verb is meant to refer to a single brother, or to both brothers (e.g. ll. 37–39). As such, their relationship is reminiscent of the brotherly bonds in the Twin Cycle and the Wasp Twin Cycle.

The youngest son is the only human character with a name: Sisuro. He initially differs only in age from his two older brothers. He is younger and does not even know how to walk and talk in the beginning. Over the course of the first act, he rapidly grows, and Miguel highlights this several times by mentioning that Sisuro had 'grown' (e.g. l. 142) or that he 'already conversed' (l. 176). When his brothers later still refuse to take him along for hunting, they justify this with his skin disease, his *sisu*. This skin disease marks Sisuro as a pariah. Three times, the older brothers also call him *dañado* (Spanish 'damaged'; ll. 256, 269, 276) because of the skin disease, and as a result, Sisuro has to venture out by himself, as an individual, whereas his brothers always venture out together, as a unit.

Besides Sisuro's family, there is also the family of the owner of the banana grove, a widow with four daughters. The widow acts as a patron (or matron, as it were) of the banana grove and wishes to attract Sisuro as a worker and son-in-law. Her offer to pay five bags of money reveals a larger endowment, emphasised by her openness for further negotiations (l. 347) and her insistence on the payment (l. 475). Her daughters, like Sisuro's brothers, form a unit. They seem bewildered by the brothers' actions (l. 286) and sincerely concerned about Sisuro's well-being.

The white horse from the sky is introduced as a thief. Apparently, it engages in its nefarious activities only at night, when most people, including Sisuro, are normally asleep, and as dawn approaches, the horse becomes clearly nervous (l. 403). Upon being caught, the horse is at first very aggressive, kicking after

Sisuro (l. 395), but then tries to negotiate (l. 407) and in the course of their conversation demonstrates great knowledge and power (ll. 412, 425). The wish-fulfilling metal, which we will shortly discuss in greater detail, could be an extension of the horse, as the horse hands it over to 'accompany' Sisuro (l. 419). Since the metal is new to Sisuro, the horse teaches its name and use: '[S]ay "little metal" to it' (l. 423).

The king and his daughter appear rather abruptly in the final act, a long way from the home of Sisuro, his brothers, and their widowed mother. There is no further information about the king, the kingdom, or the princess, but presumably they symbolise great wealth and alterity. It is by the way not uncommon to find elements from non-Yaguan origins in Yaguan stories, and Powlison (1974) also narrates a Yaguan version of Hansel and Gretel which one of his research participants had heard from his ancestors (who in turn might have heard it from Paul Fejos).

Kinship Relations

At the centre of the Story of Sisuro are the protagonist's kinship relations. The first rift in kinship relations begins with Sisuro being excluded from hunting by his two older brothers, who reject him arguing first that he is unable to walk and carry prey and then that he is wounded and 'damaged'. When Sisuro begins to fish, kinship dynamics further deteriorate, in particular the relation between the two older brothers and their mother. Initially, they are on good terms, as the mother indicates the location of the blowgun, dart quiver, and poison, receives them with *chapo*, and takes care of the meat, all the while the brothers go hunting and bring home food. The break occurs when his mother serves Sisuro and tells his brothers to serve themselves. The importance of serving food is highlighted by the fact that Miguel misspoke and corrected himself. At first, the mother says 'My dear son, there is food–' (l. 133), but then Miguel rephrased his sentence: 'No: She herself served it' (l. 134). This strongly contrasts with later, when Sisuro has brought home fish and is served, while the brothers are told to serve themselves: 'My son, there is food in the pot. You are going to serve' (l. 246). This precise situation, when Sisuro, the pariah, receives preferential treatment, breaks all kinship relations with their mother and brother. 'I don't have a mother here' (l. 261), they say very clearly. The rupture is even more pronounced by their use of the word *madre* (Spanish 'mother') instead of *mamí* and *mamá* (Spanish 'mum, mummy') (e.g. ll. 47, 103, 109, 192), signalling relational distance.

The threat of the two elder brothers to kill Sisuro emphasises the break in the kinship relations. Sisuro's mother is worried over the threat and tells Sisuro to stay at home (l. 292). Sisuro refuses to accept this break, however, and repeatedly argues that his brothers will not kill him (ll. 293, 299, 320, 466, 526). Given customary patrilocality among the Yagua, it is telling that all sons leave their mother,

who remains alone, without anyone to provide for her, another clear indication of the ruptured kinship relations, further underscored by the older brothers leaving their blowgun at home (l. 274), thus not only breaking with their mother but indirectly also with their deceased father.

The third and fourth act of the story then powerfully demonstrate how strongly the relation between Sisuro and his two older brothers is broken. Most obviously, the brothers seek four times to kill Sisuro, once by cutting him in half (l. 490), once by tying him up (l. 503), once by slashing him (l. 517), and once by throwing him down a ravine (l. 528). These episodes are reminiscent of the Turtle and Jaguar Cycle, where Jaguar repeatedly tries to kill Turtle, before he is killed by Turtle, as well as of the Knee-bite Twin Cycle, where Mocayu is repeatedly killed but survives.

The story relies on strong food symbolism to express the ruptured kinship relations, as the older brothers at one point invite Sisuro for their blended faeces (l. 517). This is an inversion of the offer of blended banana customary in kinship relations.[23] After this clear rejection, Sisuro no longer tries to go after his brothers, but instead competes against them to win a princess. When he mounts his horse, his brothers do not even recognise him any longer (l. 586), and they only notice that it had been Sisuro when he wins and unmounts (l. 593). Whether Sisuro noticed his brothers at the end, is not mentioned in the story.

Taming the Colonial Beast

In Chapters 3 and 4, I have already elaborated on the past and present of exploitative colonial relationships. Here, I show how the Story of Sisuro provides further insights into Yaguan dealings with processes of colonisation. In the first section, I compare the twins' acquisition of blowguns and flutes with Sisuro's acquisition of metal. The second section focuses on the might and life of the metal, and the last section examines the topic of Other-becoming, which is key to understanding the Story of Sisuro.

The Mythical Acquisition of Artefacts

The mythological forebears of the Yagua frequently seized artefacts by force, similar to how Sisuro violently captures the white horse and detains it with a long rope. This is particularly clear with regard to the acquisition of blowguns and flutes in the Twin Cycle. In mythic times, it is said, blowguns were found in the forests. Instead of manufacturing them, the hunters of those days would collect them from the blowgun tree, called *rudasiñu* in Yaguan. Like a clam, that tree periodically opened and closed, and

[23] Making someone else eat faeces is by the way a recurring motif in Yaguan mythology. Musmuqui tricks for example his companion – a man created by weaving a *capillejo* – to eat his own faeces because he does not wish to share his food (Powlison 1969, p. 278).

hunters had to tune in to the tree's rhythm and carefully retrieve the blowgun, lest their arm might get squished. Darts and dart quivers could be taken from palm trees, but as with the blowgun tree, hunters had to proceed with care, since the trees were protected by scorpions and snakes. The situation changes with the arrival of the mythological twins, the creators of the clans and big feasts. Ignoring the guidance of their grandmother, the twins tear the *rudasiñu* tree open by force to snatch the blowgun, damaging it in their wake. Their grandmother is dismayed: 'What on earth did you ruin it for? Now our posterity will always hereafter have to make their blowguns painstakingly.' But the twins retort: 'So what? Let them make them with their hands!' (Powlison 1969, p. 110) They then kill the scorpions and snakes, and thus similarly destroy the ability of future generations to collect darts and dart quivers in the forest. Confronted about the unnecessary killing by their grandmother, they reply unconcerned that their descendants would now have to produce darts and quivers themselves.

The story of the blowgun reveals how the mythological twins extend their predatory logic to artefacts. They disregard and violate the complex ecology of the forest and thus force their descendants to manufacture these artefacts themselves. It can be read as a critique of the twins' insouciant behaviour and their upsetting of the fragile ecological balance of the world, maybe also as a result of the orphaned twins' lack of understanding of underlying ecological relations. After all, the production of a blowgun is a lengthy and laborious process. Just the polishing of the blowgun's inner tube, done by repeatedly inserting a wooden ramrod into the tube and adding sand, takes about six weeks. Paul Fejos compares the process to the 'finest precision work, since the slightest error will render the work of weeks a total loss' (1943, p. 49). Because of the violent destruction of protecting trees and animals, carried out by the twins, whose father had been unable to teach them, posterior generations were doomed to craft artefacts by themselves, and taking turned into making.[24] But: 'So what?' The nonchalant reply of the twins shows that the change is not necessarily for the worse. The story might indeed suggest that the twins prefer the autonomy of production over the dependencies of predation. By destroying the protecting trees and insects, they enable their descendants to handcraft their hunting equipment and reduce the risk of being squished by a closing blowgun tree or being stung by a red scorpion. The twins domesticate blowguns to increase their autonomy, one could argue, in the same way that they later steal *pihuayo* seeds, plantain scions, and manioc cuttings from their stingy grandfather to plant them themselves.

The twins also violently seize the flute, this time from the spirits of their deceased parents (Powlison 1969, pp. 110–2). As the reader may remember, savages had killed the twins' people, and it is the tapir, a friend and recognised kin, that shows the twins the place of their parents' gruesome murder. From

[24] There is also a version of the Wasp Twin Cycle, in which Mocayu plays the role of the twins and mischievously destroys the good things of the world, including the blowgun tree (Powlison 1969, pp. 299–300). Apart from this, there are also versions of the Twin Cycle, in which the mythological twins command the blowgun tree to provide a blowgun, which is then used as a prototype, or in which they simply manufacture the blowguns themselves (see Powlison 1969, p. 246).

time to time, the latter ones' spirits descend to dance and play the flute, their approach accompanied by roaring thunder. When the twins observe the ritual for the first time, they faint upon hearing the flute. Over time, however, they accustom to its shrill sound, similar to how shaman apprentices slowly adapt to drinking *purgas*, and then wonder: 'Why not snatch away our deceased parents' flutes? With them we could avenge our deceased father.' They hide in the bushes the next time that their parental spirits descend and ambush them. 'A *tunchi* [spirit of the dead] is holding me!', the parents exclaim.[25] The twins introduce themselves as their sons and then snatch away the flutes. The younger twin takes the flute of their mother, while the older one goes for the flute of their father. As the flutes heat up, the younger twin cools his down by blowing on it, while the older twin loses it. 'It's burning me, it's burning me, I'm letting go of it!', he shouts (Powlison 1969, p. 111). Their father grabs it again and disappears, so that the twins are left with their mother's flute only. They go home and try it out on their grandmother, who is knocked down by the shrill trill. Like the twins, the grandmother gradually adapts and 'hardens', but she disapproves of their behaviour: 'Groan, what gives with you two! I suppose now you've swiped your deceased mother's flute, too!' (Powlison 1969, p. 111) The twins explain that the flute might allow them to avenge their parents' death. They indeed successfully slay their enemies, after which the spirits of their parents steal back the flute, however.

Note how the grandmother is in both cases complaining. She thus embodies a respectful stance vis-à-vis the non-human forest guardians and the spirits of the deceased (Chaumeil & Chaumeil 1978, p. 184). The founders of the Yaguan clans, however, do not listen to her admonishments and scolding. In the case of the flute, their ignorance is rewarded, as they succeed in killing their enemies. In the case of the blowgun, the outcome is less clear, since the manufacture of blowguns could be either interpreted as unnecessary work or as sought-after autonomy. All in all, we have at least two comparative instances where culturally important artefacts derive from a predatory act, in the first case by killing the guardians of the blowgun and its accessories, in the second case by fighting the spirits of their deceased parents.

In the Story of Sisuro, which explains the provenance of metal artefacts, we are once more confronted with an artefact that always already exists. Yet, the story markedly differs from the Twin Cycle insofar as the artefact is not violently stolen from protective forest beings or ancestors. In the case of metal, it is taken from a white horse, the metaphoric coloniser par excellence. The blowpipe is derived from the forest and then used in the forest; the flute is taken from ancestral spirits and then used against enemies; the metal is received from the whites and is used to navigate a world without brothers and kin.

The white horse is an otherworldly being that descends from the skies, which are otherwise the realms

[25] The version of this chapter is the main version in Powlison's mythology. For the details of the ambush, however, I draw on a description by Miguel. Powlison for instance merely mentions that the parental spirits 'have a premonition of danger and sense the presence of an unpleasant heat (from the bodies of the living boys)' (1969, p. 249). In the version provided by the Chaumeils (1978, p. 163), the father senses the heat and notes that there are 'people' (*gente* in Spanish) nearby. Miguel's inclusion of the perspectival inversion – the spirits of the dead perceive the living as spirits – makes clear that the kinship relations are severed, even if the twins wish to rebuild them.

of vultures, condors, and the spirits of the dead. The horse is not endogenous to the Amazonian rainforest, and its whiteness can be straightforwardly interpreted as an attribute of European colonisers. In contrast to the Twin Cycle, it is not the story's protagonist who steals. Rather, the protagonist guards someone else against being stolen from. While trees, scorpions, and snakes protect their resources and the spirits of the dead parents dance with their flutes, the white horse, in turn, is a thief, seeking to steal a ripe cluster of bananas from the garden of a widow, who lacks a husband or son-in-law to defend herself against the incursions of the white horse.

The appropriation also proceeds in a very different way. The twins know what they are after. They have heard of blowguns and they have seen the flutes and decided to seize them. For Sisuro, on the other hand, the metal is a new object, and he has to be taught to use it. He does not go after it but rather receives it in return for releasing the horse, which, as it should not be forgotten, he had only caught because of his employment by the rich owner of the banana grove. The metal then, has been exchanged, rather than preyed upon, acquired during work as a farm hand by taming a flying white horse.

The Life of the Wish-Granting Metal

The metal rod that Sisuro receives from the horse, which is called *fierro* or *fierrito* ('metal' or 'little metal') in Spanish has uncanny abilities: it can provide food and shelter in the blink of an eye, extend its tongue for several hundred metres, and revive the protagonist from the dead. The fact alone that the metal is able to talk shows that we are dealing with an extraordinary artefact.[26]

We can interpret the wish-granting metal as a metaphor for the miraculous might of modern artefacts. Machetes and axes, not to speak of chainsaws and shotguns, provide magnificent means for procuring manioc and meat, and '*ta* – a table full of food' (l. 446). In the Story of Sisuro, the metal may stand as a *pars pro toto* for modern goods from the Other, whose imagined power encompasses the ability to deliver whatever their owner desires. This interpretation is further corroborated by the way that the metal arguably forms a part of the white horse (l. 419) and that Sisuro acquires it during wage work, which both symbolise alterity.

But before we turn to the process of Other-becoming, there is the following question: Should we brush all mythical might aside and interpret the artefact's power and agency as merely metaphorical? I fear that such an interpretation would downplay the emic ontological perspective on the animacy and agency of artefacts. The reader may recall from the previous section that there is another Yaguan myth involving an artefact of unexpected capabilities. The flute, which the twins steal from their mother, makes the uninitiated tumble and fall. Those who are not yet 'hardened' cannot withstand the flute's sound and

[26] One could even make an argument that *fierro* should be treated as a name and capitalised to *Fierro*, since it seems to have person-like characteristics.

faint, and for the twins, a single blow suffices to defeat their enemies. Sisurito's magic metal, it appears, finds itself in good company.

In the Story of Musmuqui, there are further artefacts with eerie powers. For example, after Musmuqui erroneously beats up the bushmaster snake, the latter one reveals not only the night monkey identity of his mother but also the whereabouts of his father's blowgun: 'That blowgun of your deceased father's ... cries regularly as you approach. She [the night monkey mother] hid it nearby. It is up under the ridgepole along with a dart carrier and all' (Powlison 1969, p. 126). Let us note the anthropomorphic qualities of the blowgun. The weapon – tucked away in the rooftop of the house – is described as 'crying', which indicates a human-like interiority. After finding the crying blowgun, the boy follows the bushmaster's advice and ambushes his maternal uncles, killing one after another. Furious over her brothers' deaths, the boy's mother tries to catch her son with a long lasso, introduced by Powlison as a 'magic lasso' due to its phenomenal reach (Powlison 1969, p. 272). When Miguel told me the story, he explained that the mother extended the biting labia of her vagina to catch her son. The different versions of the story indicate that distinctions between human body parts and artefacts may be fluid. Later on, the protagonist steals a 'magic wand', hits it against the ground and thus tears apart his mother, accompanied by the sound of loud thunder (Powlison 1969, p. 280), which in Yaguan mythology and ontology is symbolically connected to enemy attacks (see also Chaumeil & Chaumeil 1978, p. 179, and Chaumeil 2000, p. 117). Yaguan myths are thus populated by powerful objects in the form of metal rods, flutes, blowguns, lassos, and wands.

The repeated mention of such artefacts suggests that they are more than lifeless objects in Yaguan ontology, in the same way that animals and plants are more than non-human beings. The reader may at this point of course object that we have so far only dealt with artefacts of mythical times and places, which are marked by their own logic and ontology. In mythic times, plants, animals, and humans conversed with each other and regularly performed miraculous deeds, for instance by transforming into each other or by growing up at incredible speed. Yet, the fluidity between species boundaries is nowadays drastically reduced, and only a handful of humans and animals are still able to transform into each other. More to the point, there is no *prima facie* reason to claim that artefacts have retained their animacy. And yet, I will show in Chapter 6 that the might and animacy of artefacts extends beyond myths and metaphors.

Becoming the Other

In the Yaguan language, the enemy is *munuñu*, where *mu* also means 'far away' (Chaumeil 1994, p. 191). At the end of the Story of Sisuro, the three brothers are indeed far away. Maybe they have turned into *munuñu*. After all, the different activities of subsistence and employment hint at drastic transformations.

There is a clear generational rupture in the Story of Sisuro, as their father is dead. This is a classic motif in Yaguan mythology (see also Chaumeil & Chaumeil 1978, pp. 177–8). Indeed, the rupture is even more pronounced in the Twin Cycle and in the Story of Musmuqui. In the Twin Cycle, the parents are killed by savages and it is the grandmother who removes them from the mother's womb and who rears them, and it is the tapir, who later turns into their grandfather, who tells them about the death of their parents and about their flutes. In the Story of Musmuqui, the mother is still alive, but she has eaten her husbands and only rears the protagonist to eat him afterwards, and it is the bushmaster who reveals the existence of the blowgun of Musmuqui's father. In the Story of Sisuro, on the other hand, the mother is alive and helps the sons to find first the blowgun, dart quiver, darts, and poison, and then the fishing rod. Even though she is unable to teach her sons how to hunt, they already know it, so the break occurs not in a failed transmission from father to sons but in a failed transmission from older brothers to younger brother. It is for this reason that the fishing rod enters the story, as it already indicates how Sisuro becomes the Other. The change of Sisuro is further marked by him contracting scabies, which leads to him having a different appearance – a different body – than his brothers. While they initially reject him because of his young age and inability to walk, they later reject him merely because he has wounds all over his body, because he is 'damaged', as they say.

Sisuro is early on marked as the Other. The exclusion by his brothers means that he is also unable to practise and hunt with the blowgun, which used to be the preferred hunting weapon among the Yagua, and the use of a fishing rod and hooks, while equally derived from his father, further contribute to his status as an outsider, not only in comparison with his siblings, but also with other Yaguan boys and men. Sisuro's Otherness becomes even more pronounced when he takes on the wage work offered at the plantation, and the acquisition of the metal removes him further from his brothers. Towards the end, the metal provides him with a horse, and he passes his brothers without them recognising him. The mounting of the horse shows how he has successfully tamed the Other. Apart from his early childhood, Sisuro sought in all exchanges with his brothers to join them, even after they had already refused him, yes, even after they had already killed him. The knightly joust is the first time in the story that Sisuro makes no attempt to join his brothers, even though he would certainly be old enough by now, having already proven his worth as fisherman and guardian. Instead, he passes his brothers and engages the king. His marriage and conviviality with the daughter of the king completes his transformation into an Other.

As already mentioned, the provision of food is a recurring and symbolically rich motif in the story. The mother shows her care for her sons by cooking and serving them. Sisuro becomes angry when not offered, and so do his brothers, who decide to leave the house because of that and break with their mother. Whenever Sisuro finds them on the pathway, they are described eating, and when Sisuro wishes to join,

they offer him blended faeces in an inversion of commensality. Against this background, it is important to observe how the metal provides food and by extension a kinship-like relation. Indeed, the horse even calls Sisuro *naño* (Spanish 'mate, brother') when it hands over the metal (l. 420), similar to how the brothers call him before changing to his nickname 'Sisuro' (e.g. ll. 145, 183), and the metal accompanies him like his brothers accompany each other.

An open question is whether the story has a happy ending. It is unclear whether Sisuro is content with gaining a princess as his bride, or whether he would have rather stayed with his brothers in their home. Secondly, and more importantly, there is a question as to whether the Yagua would identify more with Sisuro or more with the two brothers, and this question could not be of larger import. If Sisuro is the favoured protagonist, the metal is the saviour who protects and supports the Yagua against their adversaries. If not, however, if Sisuro is the anti-hero, the story ends on a sad note, and the horse and the metal can be blamed for catalysing Sisuro's transformation into the Other and for paralysing the brothers in their actions. The question 'Why do you follow me?' (l. 527) then also takes a deeper meaning, namely as reflection of the Yagua's unsuccessful attempt to flee and avoid the Other. When I asked Miguel for his interpretation, he evaded my question, and maybe the ambiguity of the story is an essential part of it.



Summary



Through mythology, this chapter has examined how the Yagua navigate encounters with alterity and tame technical artefacts. In the Story of Sisuro, the protagonist acquires a mighty wish-granting metal rod from a white horse. The metal rod helps him to survive the attacks of his brothers and to marry the princess of a faraway kingdom. His true wish, however – to join his brothers on their hunts and journeys – remains unfulfilled.

Building on this exploration of the provenance, agency, and impact of artefacts in mythology, the next chapter turns to shamanic practices and perspectives to show how machines and screens are integrated into Yaguan life.

Chapter 6



Modern Technical Artefacts in Shamanic Worlds



Overview



This chapter examines the role of artefacts in shamanic worlds and culminates in an analysis of Yaguan ontologies of life that illuminates the occult powers of modern technical artefacts. As we shall see, boat motors, chainsaws, and television sets possess life forces usually associated with animals and trees.

Shamanic knowledge is central to my thesis, as it offers a way to understand artefacts from an emic perspective and to approach domains of ontological difference.



Shamanic Artefacts



In the same way that medical doctors need stethoscopes, scalpels, and scrubs, Yaguan shamans rely on a whole range of artefacts. Most visible among these are the cigarettes or pipes, which are indispensable for the diagnostic process and cure. There are further small rattles, made of dried leaves, and special pots and bowls for the preparation and consumption of hallucinogenic beverages. The most powerful artefacts, however, are invisible to the uninitiated eye. Imperceptible darts are the identifying attribute of shamans. They may further employ invisible bullets, axes, keys, phones, and televisions. Mighty artefacts hence populate not only Yaguan stories but also their shamanic practices. In this section, I show how shamans use artefacts for their shamanic practice. Subsequently, I will focus on how the hidden dangers of artefacts

are navigated among the Yagua.

'Invisible' Artefacts

Both human and non-human shamans use invisible darts for their arts. Palm tree shamans such as the *chambira* or *huicungo* palm can employ their dart-like spines for shamanism and king vulture shamans their feather quills. Human shamans acquire their first darts during apprenticeship and gradually accumulate them within their bodies. A research participant of Jean-Pierre Chaumeil once boasted of possessing more than a thousand such darts (Chaumeil 2000, p. 119).

Darts are primarily a means of attack. In contrast to the hunters' blowgun darts, the invisible darts of shamans can be blown across long distances and can overcome all kinds of obstacle (Chaumeil 2000, p. 120). Günther Tessmann (1930, p. 467) describes how they transform into elongated spears once outside the body. Upon reaching and entering their victim, darts will inevitably kill the person, unless another shaman removes and neutralises them in time. The same holds true for invisible axes, machetes, and shotgun shells, which according to my information can be similarly used in shamanic attacks.

Whereas blowgun darts are manufactured, shamanic darts are obtained from powerful Others, thus paralleling Sisuro's acquisition of the wish-granting metal rod. Apprentices receive their first dart from their shamanic teachers and then later from their auxiliary spirits (Chaumeil 2000, pp. 48, 119). Once again, we see the complex ecology of Yaguan shamanism. Fearsome spirits are attracted and tamed with tobacco to afterwards receive darts from them. An additional relational element is celestial poison, which needs to be separately negotiated, since shamanic darts are useless without poison (Chaumeil 2000, pp. 119–20).

It should be noted that invisible darts also fulfil a defensive function. Once shamans possess enough, they can cover their body in a layer of darts and then deflect the attacks of enemy shamans (Chaumeil 2000, p. 119). Another way of blocking attacks is the use of invisible clothing, which prevents enemy darts from piercing the shaman's body and which shamans don during their sleep and whenever they feel threatened (Chaumeil 2000, p. 121). We can trace a series of exchange relations here, since shamanic darts, which auxiliary spirits traded for tobacco, are later further exchanged for invisible clothing. This clothing, provided among others by jaguars and anacondas, allows the wearer to effortlessly traverse aquatic and sylvan territories (Chaumeil 2000, pp. 121–2). King vultures may further provide shamans with part of their feathers and magic wings, enabling journeys through aerial space (Chaumeil 2000, p. 200).

Chaumeil mentions additional invisible artefacts. Magic gloves serve for a more targeted shooting of the darts, for example, and magic keys open the space of earth people, where illnesses can be neutralised

(2000, pp. 48, 123). For our present study, however, it suffices to note that Yaguan shamanism relies on powerful artefacts provided by and exchanged with non-human Others.

The Shamanic Use of Phones, Televisions, and Planes

In popular Western imagination, the world of spirit beings is frozen in time. It is assumed to be a world without innovation and progress, a world detached from the mundane technological pursuits of humankind. The Christian afterlife, for example, is rarely imagined to involve cinemas and *PlayStations*, even though that might provide paradise with an additional allure.[27] In the Yaguan culture, on the other hand, several spirit beings are known for their state-of-the-art technology, which includes phones and televisions.

In a famous case, Alberto Prohaño, whom I already mentioned in Chapter 3 in relation to the unsuccessful cure of a small boy, took out an invisible phone and called spiritual support for his client, whose business had been doing badly. Chaumeil shares the following conversation snippets:

> Hello! 1973, hello, 1, 2, 3, 4, 5 [the phone number] ... Solitario? Okay ... yes ... [he listens], change [expression that shows the change of interlocutors during radiophonic exchanges] ... the Pepelucho [name of businessman] needs help with the business. We're going to help him ... change ... Yes, for the business, you know it well ... he's here, do you want to get to know him? The quantity, we need to know the quantity [of the medicine], how many centimetres more or less? Two centimetres? Okay ...
>
> (Alberto Prohaño in Chaumeil 2000, p. 321, original parentheses, own translation)

After the call, Alberto gave the client a measured dose – two centimetres – of a hallucinogenic beverage and told him not to worry about doing business: the spirit of commerce had agreed to protect him.

As Alberto outlined, different spiritual services have different numbers. *142* is for instance the number of the communications officer, who can relay the call to the relevant entity; *51* connects to a radiographer for X-rays; *31* establishes a contact with an osteologist (Chaumeil 2000, p. 324). At times, the line needs some tobacco fumes to be re-established, indicating that phone communication similarly depends on tobacco and exchange relations.

Marie-Laure Schick was so fascinated by Chaumeil's description that she ventured on a seven-month odyssey to find Alberto and learn more about shamanic phone calls. She was thrilled when she heard that auxiliaries had in the meantime switched to portable phones. 'Calling spirit beings who have a

[27] The Wari' expect a lot of cake and sweets, though, alongside white clothes, footwear, and writings (Vilaça 2016, pp. 237–8). Even there, however, 'heaven is constituted as the place where the process of constant transformation in which the Wari' live finally reaches a conclusion' (Vilaça 2016, p. 240), which highlights the atemporal character of Christian afterlife.

portable phone and find themselves in the town, that's true high tech shamanism! That's an incredible jumble, a potpourri of shamanic tradition and technological modernity', she comments enthusiastically in her book *Le chaman qui téléphonait aux esprits* (Schick 2008, p. 120). She adds that Alberto makes *and* takes spiritual calls. In her specific case, an auxiliary spirit had called Alberto to reveal the identity of a manioc thief.

Yaguan shamans also adopt invisible televisions for their curative practices. Chaumeil describes in particular the development of 'surgical shamanism', which is primarily geared towards non-Yaguan people. Surgical shamanism involves the application of invisible scalpels and pliers, with the latter instruments acquired from doctors in town. During the surgery, the auxiliary spirits may use televisions 'like a scanner' to identify the underlying ailment (Chaumeil 2000, pp. 314–5). Chaumeil notes, however, that these technological innovations catered in particular to non-Yaguan clients and did not affect more traditional shamanic approaches.

During my own fieldwork, I have not directly heard of shamanic phones or televisions, except for when I met Alberto and briefly asked him about it. What I have heard of, however, was how shamans used visible phones and televisions for what might be called evil shamanism or witchcraft. As typical across the Amazon, shamanic activities are beyond good and evil among the Yagua. The only distinguishing criterion is the target (see also Chaumeil 2000, pp. 52, 66, and Tessmann 1930, p. 467). A good shaman cures and protects one's kinship group; an evil shaman attacks it. Harming another person by sending invisible darts is not necessarily an evil act. Quite to the contrary, it forms an indispensable part of shamanic practice. After all, the only way to stop an evil shaman from harming and killing people might be by way of a counterattack. To prevent an enemy shaman downriver from killing a woman in Tangarana, for example, one of my research participants shot darts at him, which incapacitated the enemy shaman, impeded further attacks, and opened the path for successfully curing the woman.

There are several ways to bewitch a person. A classic approach would be to steal a piece of clothing or any other personal belonging and place it in the bulbous trunk of a kapok tree. That action will make the victim's belly swell and, if the piece of clothing remains in the tree, will eventually kill him or her. Another way of bewitching a person is the manipulation of their photographs. Shamans may for instance place a photograph of their victim inside the mouth of a frog to make the victim's throat bulge. Such an attack cannot be immediately cured; the only way of helping the victim is to engage in negotiations with the enemy shaman, generally by a counter-attack that forces the shaman to remove the photograph from the frog's mouth.

Among the Yagua, there is a special connection between photographs and person, similar to the connection between a shadow and its owner. *J̲untu*, the Yaguan word for 'photograph', is the same word used for 'reflection', 'soul', and 'shadow', and whenever a photograph is taken, parts of the soul

are taken. For example, Richa Mutyasurya told me how he had once accompanied a group of biologists, who upon finding a boa took so many pictures that the boa fainted. A similar case happened when Erlinda Ramunurya's father Sixto (Richa's father-in-law) went to the next town. One of the last people to regularly wear a *champa* made of palm leaves, Sixto's arrival in Caballo Cocha gained much attention and people took many photos of him. *El champudito* (Spanish 'the *champa* wearer', often used to refer to the Yagua of earlier times) nearly fainted and never returned to the city after that traumatic experience. Given the close connection between bodies and photographs, a number of people from the Atacuari region preferred not to be photographed. 'I don't know', Anastasio Ramunurya once refused when I asked whether I could take his photo. 'Wouldn't it make me sick?', he asked back.

In fact, I was once punished for taking a vulture's photograph without prior consent. At that point I had already known that vultures are powerful shamanic beings that should not be meddled with. My hosts in Tangarana had dissuaded me in particular from shooting at them with a blowgun. I was told that the vultures would otherwise screw up my blowgun, so that darts would fly short distances only. What I had not known was that the prohibition also extended to shotguns, slingshots, and cameras. In El Sol, I thus innocently aimed my camera at a couple of vultures. The next day my camera was broken; its zoom function had been destroyed. My host Natalia immediately inquired whether I had taken a photo of a vulture, since her husband had once taken a vulture photo with his phone camera and thereby done lasting damage to his phone's camera function. As prophesied by Natalia, I was, despite my best attempts, unable to repair my camera. I had to take it all the way back to Iquitos, where a faulty camera part needed replacement.

When a photograph is placed inside a frog's throat, shamans exploit the connection between photographs and bodies, in the same way that they may in other situations exploit the vital connection between clothing and its owner. The proliferation of cameras and phones is therefore fraught with dangers. Julio Mutyasurya, a good friend of mine, was once accused of harming a person in the downriver community of Primero de Octubre. He had just moved there to join his wife Candida Ramunurya and his parents-in-law. In a drunk state, he had then made the mistake of threatening a man with witchcraft, and – how could it have been otherwise? – the man shortly after rammed his gun against his kneecap and had to be hospitalised. The reader might be able to imagine the man's anger at Julio, and the latter one, while innocent, was scared of the man's revenge. Interestingly for our present discussion, the victim claimed that Julio had bewitched him by taking his photo and editing it on the phone. When Julio explained shamanism by phone, it sounded as if one could change and distort parts of the victim's body to make them hurt. Shamans, then, can use phones and cameras to bewitch a person, at least if we believe the story of Julio and his adversaries in Primero de Octubre. As we will see now, they can also draw energy from modern artefacts, be it electricity cables, televisions or planes, and direct it against

other people.

Harnessing the Life of Artefacts

The reader may remember that shamans can tame the spirits of modern technical artefacts and add them to their group of auxiliary spirits. But this is not the only way they can harness the life of artefacts: José Mukatyu from El Sol, whose grandfather had been a shaman on the Putumayo River, told me that shamans can also 'suck' the spirit from electricity cables, which according to his grandfather takes the shape of an electric eel. After sucking the cable, shamans can create a small energetic ball and throw it onto the ground. Once their victims step on it, the cable spirit enters their bodies and harms them.

The same procedure can be followed with regard to televisions. Shamans suck out both *runtu* and *rajamï* from the television, its two life forces, thereby destroying the machine. 'Once they take the television's spirit, that television will no longer work. It's damaged.' If they only take *rajamï*, the television can be repaired; if they also suck out *runtu*, it is beyond repair and now worthless. Shamans can blow the energetic balls from the television like darts into the manioc beer of a victim and by doing so cause severe abdominal pain in the victim.

To my great surprise, shamanic power even extends to airplanes, or at least did so in the past. 'That's nothing', José's grandfather used to say. Blowing tobacco, he had seen that planes were borne by vulture spirits on the wings and swallow spirits on the tails. Occasionally, he removed the vulture spirit from a plane and made it crash. 'The vulture is what makes the plane go ... And once the shaman takes it away, the plane falls', José explained (José Mukatyu, 2023, personal communication).

The vital forces of *juntu* and *jamï* are key constituents of the Yaguan ontology. As we will see in the last section of this chapter, their distinction is not always clear-cut, and there exists regional variation in their conceptualisations. For now, however, let us turn to the couvade and its underlying rationale.

The Danger of Cutipation

We have in Chapter 3 already seen that the Yaguan life cycle is punctuated with at least two periods of heightened vigilance, where relations ought to be carefully managed to protect vulnerable people. Directly after birth, children are for instance at a high risk of being harmed by the life forces of certain plants, animals, and artefacts. Given that they are still too small to take care of themselves, the responsibility to prevent such harm falls to the parents. And if parents elsewhere are daunted by the range and complexity of perinatal dietary advice, so are Yaguan parents, who follow a range of dietary and behavioural restrictions to protect their newborn baby from harm. When children become adults, in the

case of boys by seeing the forest spirit *bayantu*, in the case of girls by having their first menstruation, they can no longer rely on their parents and must manage dangerous relations on their own. They for instance have to fast salt or the meat of howler monkeys. Similar patterns can be observed during the initial stage of shamanic apprenticeship, where the learner must reject fatty or gamey food as well as sexual intercourse (Chaumeil 2000, p. 99).

In order to understand these relational prohibitions, we have to place them within Yaguan shamanic perspectives. By homing in on the couvade after birth, I seek to demonstrate the spiritual dangers that emanate from plants, animals, and artefacts and to pave the way for analysing their ontological underpinning.

Cutipation and the Couvade

It is common to encounter the couvade as a time where babies can fall prey to *cutipa*, a Spanish word that I herein anglicise to 'cutipation'. Cutipation generally denotes the harmful contact with another being or the harmful transfer of its physical characteristics, which may happen upon the insult, kill, or touch of that being. The couvade, referred to as a period of fasting ('you have to fast', or *ya̲ra* in Yaguan), is closely linked to non-human beings who may cutipate, and the Yagua have amassed detailed empirical knowledge on the phenomenon.

I frequently asked about cutipation, whether in informal conversations, formal interviews, or focus group discussions. As an introduction to the topic, Isabel Margarita Cahuamari Santana, an elderly woman from Santa Ursula on the Orosa River once explained the following:

> Let's say, for example, you eat some animal or fish, a large one, like the *sungaro*. Either the father eats it or the mother eats it. It gives diarrhoea ... It gives the small baby diarrhoea. And to make the baby get better, you take a small bone of the fish. You burn it. And you put the baby right there. With that, it gets better. Because that's what had been cutipating.
>
> (Isabel Margarita Cahuamari Santana, 2022, personal communication)

The quote provides a helpful starting point for analysing cutipation and illustrates the connection between perpetrators, victims, and cures, which frequently features in discussions on the topic.

In Isabel's example, a *sungaro* (a large catfish) had harmed the baby by giving it diarrhoea. In other examples, the perpetrator may be a jaguar, a ficus tree, or a chainsaw, and symptoms may include insomnia, headache, gauntness, or abnormal body tension, depending on the perpetrator (see also Chaumeil 1987, pp. 104–5, for an exemplary list of perpetrators and symptoms). Once a cutipation symptom appears, parents need to correctly identify the culprit, potentially also with shamanic support, and then

cure the baby by burning parts of the harmful entity, generally fur or bones, or – as is often the case when artefacts cutipate – by washing the baby in the same water as the cutipating entity. A successful cure counts as evidence that the baby had indeed suffered from cutipation.

The anthropological literature rarely focuses on cutipation as such, and instead analyses its human flipside, namely the couvade restrictions that prevent cutipation harm. In anthropology, the term 'couvade' encompasses a wide range of customs that involve the father's participation in the 'hatching' of an infant. The couvade is variously interpreted as a measure to protect the child (e.g. Tylor 1865), as an institution to legitimise fatherhood (e.g. Tylor 1889, Rival 1998a), as a form of spiritual birth (e.g. Rivière 1974, Vilaça 2002), or as a way to build and foster social relations (e.g. Rival 1998a, Walker 2012b).

In his early analysis of the couvade, Edward Burnett Tylor observes that the phenomenon must be understood from within emic ontologies. He argues that the couvade presupposes a physical bond between a father and his newborn child, a form of entanglement where the father's diet may directly impact the child: The couvade 'shows us a number of distinct and distant tribes deliberately holding the opinion that the connexion between father and child is not only, as we think, a mere relation of parentage, affection, duty, but that their very bodies are joined by a physical bond, so that what is done to the one acts directly upon the other', he observes (Tylor 1865, p. 292). For Tylor, the belief in the couvade 'belongs, like Sorcery and Divination, to the mental state in which man does not separate the subjective mental connexion from the objective physical connexion ... in the same way in which most educated men of the higher races make this separation' (1865, p. 292).

In a seminal lecture on the couvade, Peter Rivière (1974) revisits Tylor's theory and its later development by James Frazer (1910). He finds it wanting: 'The objection to accepting this type of interpretation as universally applicable is that it depends on notions, i.e., animism and sympathetic magic, which are themselves highly variable and lacking in definition', Rivière (1974, p. 426) notes. He suggests understanding the couvade as a second birth instead, 'concerned with the creation of an independent spiritual being' (Rivière 1974, p. 433). He observes for example that among the Carib-speaking Waiwai the spirit of a newborn baby is weak and only loosely connected to its body. During the couvade, it may easily fall prey to spiritual perils, especially when it leaves the body to roam around with its parents. Couvade restrictions are thus in place to minimise the risk of exposing babies to spiritual dangers and to allow its growth to become a full person (Fock 1963; see Rivière 1974, pp. 428–9). Rivière then argues that the couvade should not be approached 'as something in its own right' (1974, p. 434), but that one should consider it instead 'as an aspect of something else' (1974, p. 434). He proposes in particular to approach the couvade as one among many institutions that deal with the problem of combining human body and soul, similar for instance to the Latin American institution of *compadrazgo* (Spanish 'godfatherhood').

Laura Rival comes to different findings during her fieldwork among the Waorani. She conceives the couvade as a 'second marriage' instead, which 'celebrates [. . .] women's and men's power to create new social beings (bodies and souls)' (Rival 1998a, pp. 633–4). In this context, she also persuasively contends that the couvade applies to both men and women, and that earlier anthropological studies on the male couvade reflected a problematic bias by taking for granted that the female couvade is a biological necessity while the male couvade is a cultural anomaly. 'The creation of a new life [. . .] is a joint project', she argues (Rival 1998a, p. 636), and not the prerogative of either gender.

Synthesising Rivière's and Rival's theories, Harry Walker argues that the couvade among the Urarina helps to strengthen both the baby and the conjugal bond. As he writes: 'Through their joint participation in the task of creating, and then "hardening" and "ensouling" the body of their offspring, the relationship between husband and wife is progressively consolidated' (Walker 2012b, p. 81). The couvade can in this light be conceptualised as a custom to build strength and cohesion within the family unit. While focusing on the couvade is of great merit, studying cutipation gives us important insights into Yaguan ontology, and arguably more so than if we merely studied the couvade. This is particularly true in the context of modern artefacts, whose spiritual depth for non-shamans predominantly surfaces in cases of cutipation.

Cutipation presents a pan-Amazonian phenomenon, with the term *cutipa* being well known across the region of Loreto, independent of ethnic identities. The term *cutipa* is only rarely mentioned in the academic literature, even though the term is widely used in the Peruvian Amazon. Jaime Regan (2010) treats the phenomenon in more detail in his discussion of different Indigenous religions in the Peruvian Amazon. He translates *cutipar* as 'to repeat what has been made or done' (Regan 2010, p. 452, own translation) and shows that the term can also apply to the way that manioc is planted at the same time that it is harvested or to the way that a man might marry the sister of his brother-in-law. He claims a phenomenological connection between these two cases and the *cutipa* harm done by animals and plants on newborn babies (Regan 2010, pp. 98–9). According to Regan, the term is of Quechua origin, and one can trace its original meaning in all these instances as being related to 'giving', 'returning', and 'exchanging' (2010, p. 169).

The regional prevalence of the phenomenon points to previous inter-ethnic exchanges of ontological knowledge. It is thus valid to ask whether cutipation constitutes a more recent phenomenon among the Yagua or whether it existed prior to the intensification of contact with non-Yaguan people. The earliest written accounts of the Yaguan couvade date from the beginning of the twentieth century. Missionary accounts indicate that couvade restrictions have already been well established at that time. Father Laurentino Alvarez reports that after the birth of the child, the father 'goes and lies down to "heal the birth", as the Yagua say' (paraphrased in Sierra de la Calle 1993, p. 18). The Augustinian missionary observes that the father remains in bed until his wife has regained her strength; the wife, meanwhile,

continues in her everyday work, as if nothing had happened.

While the account provides evidence on the history of the couvade, its description is to be taken with a grain of salt. As Rival (1998a) reminds us, the often-encountered focus on the male couvade likely reflects an observers' bias. Missionaries may have assumed that mothers are the primary caregivers, naturally involved in the childbirth process, whereas fathers form only initially part in the pregnancy. The male couvade would have in any case been more apparent, since the absence of hunting is more visible than the rejection of certain foods.

The Yaguan language suggests that knowledge of cutipation is not of recent origin. The Spanish-Yaguan dictionary lists *p̲adyee*, *jïnu*, and *jip̲ay* as possible translations for *cutipar* (Powlison 1995, p. 669), words that can also be translated as 'to cause harm' or 'to damage'. Another word, used in examples throughout the dictionary, is the word *c̲osiy*, which was the one I encountered in the Atacuari region. The term *c̲osiy* specifies that an entity causes a certain behaviour or harm. 'The tiger cutipates the baby' translates for instance as *nibi c̲osiy s̲un̲ay vadinu*, which literally means 'the baby cries because of the tiger' (Richa Mutyasurya, 2022, personal communication), and *sapudee jasay pedotac̲osiy* literally means 'the belly swells because of the ball' (Powlison 1995, p. 207). The word *c̲osiy* is according to my research contacts specifically used for cases of cutipation during the couvade, sometimes including, sometimes excluding the fasting period during adolescence rites. It cannot be used to express cases of shamanic harm.

While cutipation phenomena have likely been observed before the rubber boom and the intensification of contact with other ethnic groups, we may assume that the term *cutipa* was taken up as an umbrella term for formerly disparate phenomena. It is probable that *cutipa* did not fully map onto pre-existing Yaguan concepts, as it has since also been introduced as a loan word into the Yaguan language. In the Orosa region, speakers translate *cutipa* simply as *kutipa* (in Yaguan), so that 'the tiger cutipates the baby' translates for instance as *nibi kutipani vadinu*. Some speakers in the Atacuari region, including Richa Mutyasurya, fervently oppose such a translation; others, such as Juvencio Mutyasurya, confirm its legitimacy.

The linguistic evidence for the historic prevalence of cutipation knowledge can be supplemented by ethnographic evidence of current knowledge. During my fieldwork, the topic of cutipation recurrently came up in everyday conversations. Older Yagua gave for instance advice to younger parents, solicited or not, warning them to avoid certain food or commenting on the illness of a newborn baby. Women scolded their husbands for eating or touching beings that may cutipate, and people would also joke about it. When we once found ourselves an hour upstream from Tangarana, having just carried peccary carcasses, a man in our group ate weevil larvae. These larvae, regionally known as *suri*, can be eaten raw, cooked, or fried, and are in fact delicious. Since that man was expecting a baby, another man warned that he

better not eat *suri*, lest his child be born without arms. The remark was met by cheerful laughter.[28]

There is a diverse body of knowledge on cutipation harm, specifying possible perpetrators, symptoms, and often also encompassing numerous empirical examples. In some cases, information drastically differs from village to village, or even from household to household. One research contact told me for instance that deer cutipates. Babies would then suffer from insomnia, since deer have their eyes wide open at night, and burning deer hair in the vicinity of the baby cures the problem. Another research participant, however, told me that deer does not cutipate. He had killed and eaten deer while having a newborn baby, and everything had been fine. The cutipation dangers of chainsaws, boat motors, and television sets are also differently evaluated and observed. We are now going to turn our attention towards harm from these modern artefacts.

Cutipating Chainsaws, Motors, and Televisions

I was initially surprised that modern artefacts can cutipate at all. Cutipation, I had been told, results from the contact of animal or plant spirits with the newborn child. But when did modern artefacts become home to spirit beings? And why would such spirit beings do harm?

There are many case studies and examples that provide evidence towards the fact that artefacts can cutipate, raising the question of whether this risk should be included in the machines' user manuals. Cutipation can be fatal. In a focus group discussion in Comandancia, I learnt for instance that a motor had killed the brother of Rocio and Elias Pano Cahuamari. Rocio told me that her brother had died when he was a month and fifteen days old. She then described what had happened, with Luisa Ramirez Santana live-commenting the account:

> Rocio: He was cutipated because of his father.
>
> Luisa (overlapping): When you don't know ...
>
> Rocio: [inaudible] began to cry, to cry, and he got really black, and his blood left everywhere, through his nose, through his eyes, through his ears ...
>
> Luisa (overlapping): So much tension, that's why.
>
> Rocio: ... through all his nails. He died, my little brother.
>
> (Rocio Pano Cahuamari and Luisa Ramirez Santana, 2022, personal communication)

Rocio's brother had died fifty years ago. He had died before Rocio was born, and yet, the cause of his death and the symptoms were still vividly present in the family's memory. The boat motors had been

[28] It is bad practice to explain a joke, but I should add that cutipation happened only rarely during pregnancy among the Yagua, and then only in the case of specific animals and actions. The idea that someone could be born without arms just because his parents ate – limbless – *suri* during pregnancy was therefore considered ridiculous.

different back then, but everyone confirmed that current *peke-peke* motors and newer outboards are just as dangerous.

The symptoms of motor cutipation make sense in the Yaguan animist-analogist framework. A boat motor is known for its energetic tension, which needs to be controlled by the helmsman. When I first learnt how to steer a *peke-peke*, a friend prophesied that the motor would 'dominate' me, and there were indeed motors whose jerks I could not control over an extended period of time. This strength and tension can be transferred to newborn babies and then lead to severe bleeding.

Luisa's remark of 'When you don't know . . . ' points to the inherent tragedy of the death: Fifty years ago, motors had only recently been introduced, and people had still been unaware of their ability to cutipate. Without empirical knowledge, it is difficult to judge whether an entity is able to cutipate or not. In any case, it is widely known nowadays that boat motors cutipate and how such cutipation can be cured.

Isabel once explained how to deal with motor cutipation. We were talking at that point about cutipation symptoms of different entities, ranging from monk sakis to otters and river turtles, and she had just stated that many 'animals' cutipated, including 'large animals, boas, even the shotgun, the chainsaw, and motors'. Asked about how motors cutipate, she and Olga Romañola Cahuachi simultaneously answered that the baby cried.

> Isabel and Olga: It cries.
>
> Isabel: How do you cure it? [inaudible] the engine exhaust. You empty the water. This, you collect in a small bowl. And with this water you wash it [the baby]. You wash it. With this, the baby gets better. The chainsaw is exactly the same.
>
> (Isabel Margarita Cahuamari Santana and Olga Romañola Cahuachi, 2022, personal communication)

The simultaneous answer by Isabel and Olga concerning the symptom of motor cutipation shows that the fact is well established in the community. Isabel further provided authoritative guidelines on how to cure the ailment, indicating that she has experience with such cases. Interestingly, cutipation by modern artefacts is typically cured by connecting them to the baby via water, whereas cutipation by animals or plants would normally be cured by establishing a contact via fume. In the case of peke-peke motors, one collects water from the engine exhaust and then washes the baby with it. In the case of outboard motors, I was told by another research participant, the cure is even easier, because one gathers the cooling water that the motor continuously spouts.

As Isabel's statements further indicate, motors and chainsaws are grouped together in the case of cutipation, since both lead to a tensing of the baby's body, which can result in crying or bleeding and

would without treatment lead to death. Isabel continued her elaborations with a brief discussion of how to treat cutipation by a chainsaw, and upon my question Olga explained that her grandson had been thus cutipated:

> Olga: My small grandson. He's going to be a month old. Him, the chainsaw cutipated, and he also tenses up, and it doesn't heal. [inaudible] And, also, as my cousin [Isabel] said, he cries. Right? All that, well, he was cutipated by the chainsaw, and that's it.
>
> (Olga Romañola Cahuachi, 2022, personal communication)

Olga continued by reporting that her grandson had also been cutipated by a worm normally used as a fishing bait. In the case of cutipation, boas, motors, chainsaws, and worms are equivalent, insofar as they may all cutipate, in contrast to entities like manioc, banana, or phones, which do not cutipate. Cutipation thus yields a categorisation of beings that transcends naturalist distinctions between living and non-living entities.

Within the group of cutipating beings, boat motors, chainsaws, power generators, and grasscutters form a sub-group, as they lead to similar symptoms. Both their analogist explanation and their cure are largely identical. Let me relate another case of cutipation, this time by a grasscutter:

> Olivia: My son-in-law here, when he [his baby] was three days old . . . went to cultivate with a grasscutter. And my daughter told me: 'Mom', she told me, 'Mom, he's cultivating with a grasscutter.' Cultivating [inaudible]. And then, in the afternoon: the small baby. How it was crying! Crying.
>
> Isabel: It doesn't take long [inaudible].
>
> Olivia: 'Why do you touch that over there', I said. 'Well, go, then, search for the grasscutter. [The baby] no longer wished to drink. How he was crying! How he was crying. He struggled, he struggled. 'The grasscutter, take water [inaudible], wash (what I call) the grasscutter's shin. [laughter] Wash the metal, nothing else. In a bowl. Bring it quick, put it in.' With that, we bathed him, we bathed him, we gave him two, three drops to drink. – Silence. That's why I say: Some people don't believe. They don't believe. But it's true, it's true.
>
> Olga and Isabel: True it is.
>
> (Isabel Margarita Cahuamari Santana, Olga Romañola Cahuachi, and Olivia Huayori Cahuasa, 2022, personal communication)

The grasscutter had cutipated Olivia's grandson within less than twelve hours, and washing the baby and the grasscutter's metal tube (its 'shin') with the same water immediately cured the symptoms.

While motors and chainsaws were widely agreed to cutipate, there was disagreement about the impact of grasscutters on newborn babies. I hypothesise that the reason is that grasscutters are a relatively new artefact. In some communities, I presume, there have not yet been clear cases to prove its danger. Disagreement similarly prevails when it comes to television and batteries. In Tangarana and the wider Atacuari region, my research participants confirmed that television and in some cases even batteries cutipate. The son of a powerful shaman in Palo Seco, himself a shaman-apprentice, explained that television cutipates more strongly than speakers, and that it gives the newborn baby nightmares. 'It cries then', Richa threw in at that point. 'Some turn crazy.' (Richa Mutyasurya, 2022, personal communication) To cure it, the shaman can blow tobacco and remove the antennae that come out of the baby's head. In the Orosa region, my research participants rejected the idea that televisions may cutipate.

Radios do not normally cutipate, not even in the Atacuari region, and neither do smartphones and tablets. Batteries, however, can cutipate, as an anonymous research participant explained, especially the large ones, which are used for storing energy from the solar panels. As with motors, battery spirits smother the child: 'They smother it ... The baby cries. Because it doesn't endure the weight of the battery. It smothers it, and then the baby cries again.' In order for it to be cured, the child needs to be taken to a shaman, who can determine the cause of the illness. 'He will tell you: "That's what is cutipating."' And once the perpetrator is seen and known, the baby can be cured. For that, one 'rasps the battery' and smokes it in the vicinity of the baby. Once more then, it is a part of the perpetrator itself that is used for the cure.

This last remark shows that fire and fumes can also be used as a cure for modern artefacts – footballs have been similarly burned in Tangarana to cure a child, rather than bathing the child in their water, as had been done in Comandancia. Parents in the Atacuari region are more likely to go to a shaman for help; in Comandancia, this would not be an option, since there are no more shamans around. Those emic explanations also demonstrate the importance of spirit beings for cutipation, a link that I will shortly return to. For now, however, let me discuss the wider epistemology of cutipation.

Epistemology of Cutipation

Ideas and observations on cutipation form a large body of empirical knowledge among the Yagua. The provided evidence is in my view sufficient to classify circulating theories and data as a 'knowledge system' rather than as a 'belief system', where the former term implies a significantly higher degree of certainty. Following William James' pragmatist understanding of truth (see Chapter 2), we can even affirm the validity of cutipation knowledge, since it is useful for successfully navigating the world and for managing relations with potentially harmful beings. Most research contacts are confident in their cutipation

knowledge, which prompts the question of how cutipation is empirically validated.

There are two principal pathways of ascertaining whether a baby has been cutipated by a particular entity, namely either by induction or by direct observation. The first option entails analysing whether contact with a particular entity can be linked to the illness of a newborn baby and, if so, whether the respectively needed cure is successful. It is no coincidence that my research participants, when asked about cutipation, almost always added information on how the ailment can be, or was, cured. The cure proves the act of cutipation by a specific cutipator. As I for instance asked Isabel about how the monk saki cutipates, she told me:

> This makes the little baby really thin. Really thin. And as you know, every parent knows what things you have touched, what you have eaten, even if a lot don't believe [in cutipation] ... They don't believe, but it is true. True it is. My daughter was cutipated [by the monk saki], and we searched its [the saki's] hair, and we smoked it. [The baby] got better with that. It got better.
>
> (Isabel Margarita Cahuamari Santana, 2022, personal communication)

As the reader can see, the woman was certain of her knowledge about cutipation and emphasised its truth. Such certainty was widely prevalent among my research participants, because they themselves had observed cutipation and its cure, or they had at least learnt about it from trusted kin.

Cases of cutipation are shared with each other and transmitted over the generations. The reader may remember how Rocio knew about her brother's cutipation, even though it had happened before her birth. When I asked her about how she knew which things cutipated and which did not, she answered that her grandparents had always told her. Another research contact likewise reported how her parents had taught her the different cutipating animals and plants. However, knowledge shifts over time and is only partially transmitted across the generations. Most of the knowledge on cutipation is generated by careful observation. Rocio reflected: 'When I ate something, the next day, my child became sick. That's also how I know which thing cutipates.' (Rocio Pano Cahuamari, 2022, personal communication) Lilibeth Saboya Manoyama agreed with her, adding that 'with the first child you don't know what cutipates, what doesn't. Sometimes our mothers, our fathers don't know how to teach what cutipates. Because with our first child we sometimes don't know what has cutipated, how we can cure it. That's why we sometimes ask. Because one doesn't know what has cutipated. And they say: "What have you eaten? Which things have you touched?" Based on that you learn. That's it.' (Lilibeth Saboya Manoyama, 2022, personal communication) Accidental experiments and personal experience are, as one can see, at times more important than warnings from older kin.

Without a nearby shaman, induction is the most straightforward way of knowing about cutipation.

During the couvade, parents take meticulous note of their food, of the things they touch, and if by any mishap their baby falls sick, they seek to cure it, for instance by smoking some hair of the assumed perpetrator or by bathing their baby in the same water. If symptoms disappear, they reasonably assume that they have correctly identified the perpetrator. One research participant explained for instance with regard to cutipating footballs: 'With the football, you bathe it in warm water. And if it's the football, then it immediately gets better ... But if it's not the football, it continues, of course. It's another thing.' (Olivia Huayori Cahuasa, 2022, personal communication). Only in cases of successful cures, parents know what has cutipated their child. Otherwise, they have to continue searching.

Symptoms sometimes do not disappear. In that case, people can either search for another potential cutipator or, if they are unsure whether their baby is sick due to cutipation or due to another cause, they can try remedies like lemons, honey, or pills. These latter remedies, however, will not help in the case of cutipation. Manuel explains that smoking hair or bones is not always successful. '[It works] only if it was cutipated! It's possible that the person was not cutipated. It could have been a virus, born from the blood', he suggests. In that case, one has to use different cures and go for instance to the health post to get an antibiotic or an injection. But one has to remain vigilant: 'If it is cutipated, neither the antibiotic nor the injection [works]: nothing heals it. One has to remember what one has eaten' (Manuel Ramirez Lopez, 2022, personal communication). In the worst case, if one does not find the cause of cutipation in time, the baby will die. When I asked the three women in Santa Ursula what happens if one does not cure a football cutipation in the required manner, they answered *unisono*: 'It will die' (Isabel Margarita Cahuamari Santana, Olga Romañola Cahuachi, and Olivia Huayori Cahuasa, 2022, personal communication).

In the Atacuari region, people may cure babies themselves, especially if the symptoms point to an obvious perpetrator. However, they may also decide to seek shamanic help, especially if there is a nearby shaman. That shaman would then blow tobacco towards the child to directly observe the spirit being that torments the child. They can thus see, know, and heal the baby. Chaumeil's triad of *Voir, savoir, pouvoir* (French 'to see, to know, to be able'; Chaumeil & Chaumeil 1978) still holds.

Explanations for Cutipation

When I asked about the underlying reasons for cutipation, several research participants readily admitted that they were unsure about the specific causal mechanism. Observing cutipation is one thing, explaining it is another. To a certain degree, the development of cutipation symptoms depends on the constitution of the babies' bodies. Weak babies are more likely to suffer from cutipation. With increasing age, babies gain strength and harden. The first few days after birth are the most dangerous ones. Almost anything can

cutipate the baby at that point. The situation gradually improves. Once the baby is a month old, only a few animals, plants, and artefacts constitute a danger for the baby. However, some babies are susceptible to cutipation up to their third year, and – as one research participant added – even beyond that 'when they are feeble [*delicados* in Spanish]' (Lilibeth Saboya Manoyama, 2022, personal communication). As the babies grow, so does their resistance. Their bodies harden similar to the bodies of the twins vis-à-vis the powerful flute. The susceptibility to cutipation does not solely depend on age, though: Some babies are born strong. A two-day old baby from El Sol was for instance not cutipated, even though her father accidentally used a chainsaw[29], and her parents found out that the girl was immune to a wide variety of cutipators.

The question remains how and why animals, plants, and artefacts cutipate newborn babies. Luisa explained with respect to the transmission mechanism: 'It cutipates the children more when they suckle. When you eat, and the child draws here [pointing to her breast]. Then, the child gets cutipated, all that you eat, it's the same diet.' The diet of the father apparently also plays a role, but not via breast milk. As Luisa explained: '[It cutipates] through the blood. The blood, of course, their blood. It shocks the child [*choca al niño* in Spanish]' (Luisa Ramirez Santana, 2022, personal communication).

The idea that cutipation happens via the baby imbibing the milk from its mother is widespread in the Orosa region, where animist-analogist ontologies are often mixed with naturalist ways of thinking. In a mestizo village on the Orosa, roughly twenty minutes upstream from Comandancia, the participants of a focus group discussion all confirmed the existence of cutipation, along very similar lines as my research participants in Comandancia and Santa Ursula, but they argued that cutipation occurs only through the mother's diet, and only through her breast milk. They had heard of cutipation cases via the father, but they were unable or unwilling to provide an explanation for it. In Yaguan villages, on the other hand, several people hypothesised that cutipation occurs via the father's and child's blood link.

Other people explained that it is the 'smell' (*humor* in Spanish) that cutipates. In Spanish, the latter word generally refers to body humours, but in my region of fieldwork, the word also indicated a form of vapour (*humo* in Spanish), smell, spirit, or soul. One woman had just reported how her grandson was cutipated because his father had killed an otter, so I asked how the otter can harm the baby. 'Above everything else, it's the smell', Olivia explained. 'Don't you see that he [the father] touches it? ... And his father comes with this smell, and it cutipates ... It shocks the small baby' (Olivia Huayori Cahuasa, 2022, personal communication). The baby is similarly cutipated if the father kills the animal elsewhere, even if he does not immediately return home. 'Enough. It's enough that he touches it', Olga said (Olga

[29] There are various reasons for breaking or ignoring couvade restrictions, including lack of knowledge or belief, emergency situations, or forgetfulness. Fathers possess less knowledge about cutipation than mothers, and women often complained about their husbands touching entities. The women then observe that their babies have sickened, but they are unable to determine its cause.

Romañola Cahuachi, 2022, personal communication). When I asked how the humour would be able to travel, the women in the focus group told me that they did not know either.

At times, people along the Atacuari River also took recourse to the concept of smell. José told me the transmission of cutipation was via *sunuwachi*, which means 'its smell' or 'its vapour' in Yaguan. 'It's not *suntu* [Yaguan 'soul']. It's *sunuwachi*, it's vapour. It enters the body and makes the child crazy [in case of monkey cutipation]' (José Mukatyu, 2023, personal communication). However, not all research participants attributed cutipation to bodily smells. A man in Comandancia for example told me that spider monkeys cutipate. He explained with words and gestures how the monkey spirit gives the small baby a bang on the head, making it cry. And Manuel Ramirez Santana resolved the phenomenon of cutipation in the following way:

> For example ... the paca, it is, like, following the baby, right? A spirit following the baby. Or, to put it differently: When the paca sees at night, the boy will be the same. The mother ate it, or the father ate it, okay, and it will shock the baby, namely this, the spiritual force [*fuerza espiritual* in Spanish] that the animal has. And then, what will it do? It will not let it sleep at night, it will make it cry. It makes it cry. But: The same also cures it.
>
> (Manuel Ramirez Santana, 2022, personal communication)

References to invisible spirit beings are also often found in the Atacuari region, where shamanism is still widely practised. Many research participants knew more details about the ontological base of cutipation, since shamans informed worried parents about the spirit beings they had seen. As I was told, the spirits appear to the baby and often attach themselves to it. Richa vividly demonstrated how a jaguar spirit turns up in the baby's dream, paws held high, the claws extended: 'raah.' The baby is then unable to sleep. Other research participants have for instance told me how the spirit of a dead monkey jumps up and down the baby's head, driving it crazy, how piraña fish bite the baby's belly button, or how battery spirits smother babies to death.

In the Atacuari region, there is a widely agreed link between cutipation and spirit beings. When I once asked a Yaguan man how to translate 'The football cutipates.' into Yaguan, he translated my phrase as *Pedota bayunu vañi*, literally meaning 'The football *spirit* touches [the baby].' I asked in surprise whether footballs also have a spirit. 'Yes, of course. That's what cutipates', he replied.

At first, I hypothesised that spirit beings cutipate out of revenge, but it soon turned out that cutipation is not an intentional act, starkly contrasting with shamanism in this regard. Shamanism involves a high degree of volition. This is true for human shamanism as much as it is true for non-human shamanism. King vultures are for instance known for their shamanic abilities, as mentioned before, and they are in particular known for their ability to damage blowguns whenever a person is imprudent enough to take

aim at them. In that case, the act is clearly one of revenge, and while a research participant once said that vultures 'cutipate' the blowgun, another one disagreed, arguing that vultures 'bewitch' the gun. In another case, a research participant had killed a pauraque bird, a species of nightjar. The research contact had been annoyed by its large eyes, which deceptively looked like paca eyes, and had on impulse taken first his spear and then the bird's life. He was punished for his misdemeanour by pain in his limbs and nightmares. Once more, there is a non-human entity that acted out of revenge. A third example of this is the harmful action of a kapok tree. When a menstruating woman passes nearby, the tree owner might get upset over her smell and shoot darts at her, again with a clear motive of revenge. The situation is different in cases of cutipation, however.

A kitten may for instance cutipate a baby, even if the family treats and feeds it well. A cutipating spirit can be compared to a gust of cold wind (*choca del mal aire* in Spanish), which makes us sick without intentionality. The Yagua argue that such sickness comes from the spirits of dead people, regionally known as *tunchi*, in the Yaguan language called *bayantu*. It is for fear of these spirits that the Yagua, as many other Amazonian peoples, leave their house and sometimes even their whole village in the case of a death. The spirits of the dead appear both in dreams and in reality, and they can greatly torment people (see also Chapter 3). Yet, they generally wander around aimlessly. While their touch and breath are harmful, they are not assumed to have malicious or vengeful intentions, unlike shamans or kapok tree owners.

Cutipation must be clearly distinguished from shamanism, even though the two phenomena are linked via the shaman, who is able to see through attacks and harm done by both cutipating beings and shamans. Manuel Ramirez Lopez, as mentioned in Chapter 3, does not believe in modern shamans. When he once got accused of having killed a mestizo man in the neighbouring town, he told me that he considered current shamans fraudsters and that shamanism no longer exists. 'That which cutipates – yes, that exists', he added (Manuel Ramirez Lopez, 2021, personal communication). His comment, which by the way was the first time that I had ever heard of cutipation, showed that the phenomena are separate, yet connected. Both phenomena can cause harm, but shamanism involves a higher degree of volition and can harm adults, whereas cutipation only affects weak persons and is done unintentionally.

Overall, most entities are assumed to have life forces. Indeed, if my interpretation is correct, all beings can theoretically have life forces, since all beings can theoretically cutipate. A brief conversation snippet may substantiate this point, in which Miguel, the narrator of the Story of Sisuro, made an interesting remark. Earlier that day, a woman had told me how beer had cutipated her son, and since I had never before heard about someone being cutipated by an alcoholic beverage, I asked Miguel to confirm the given information. Initially, he outright dismissed the idea. Shortly after, however, he added: 'Or maybe it does cutipate. Why not?' (Miguel Panaijo Saboya, 2022, personal communication) His afterthought

suggests that even beings who are not normally known to cutipate may, at least theoretically, cutipate. As a more general rule of thumb, however, less domesticated entities seem more likely to cutipate. Jaguars and snakes, for example, are classic cutipators, and are more likely to cutipate than dogs and cats (even though the latter ones can also cutipate); the fact that fathers should not venture into the forest during the couvade period adds a further pointer in that direction.

The vast number of potential cutipators means that it is not always possible to distinguish cutipators from their surroundings. Used pots cutipate, for instance, and mothers with newborn babies are advised to buy a new pot for cooking. According to some informants, however, it is the spirits of dead animals who cutipate, and not the pot itself. The same phenomenon can be observed with respect to motors where opinions diverged on whether it was the motor itself that cutipated or merely the involved fluids. In the Orosa region, my research contacts were adamant that it is the machine itself that cutipates. For that reason, for example, one can heal the baby from a grasscutter cutipation by washing it in the same water as the grasscutter. The idea that the heavy machine spirit smothers the baby to death points into a similar direction. José, on the other hand, was very clear that it is either the gasoline or the oil that cutipates, both known to be potent substances. Their *nuwachi* (Yaguan 'smell, vapour') enters the baby, as he explained. His explanation matched well with the one given by Alberto in Eden de la Frontera, who had actually seen the spirit of the gasoline with babies and thus knew the cutipator with certainty. In Las Palmeras, a Yaguan village close to Iquitos, the participants of a focus group discussion similarly argued that it is either the gasoline or the oil that cutipates. The gasoline's *madre* is a powerful being, they explained, which for example also attacked workers during oil exploration. However, as they added, the metal of the apparatus could likewise cutipate, so a chainsaw without liquids is still not to be taken lightly.

The preceding discussion of artefacts and their relation to the shamanic world of the Yagua indicates that phones, chainsaws, planes, and batteries are more-than-things. Among the Yagua, modern artefacts teem with life and agency, which becomes for instance apparent when handling a camera to take a picture or when operating heavy machinery during the couvade. The next section analyses how animacy is emically conceptualised and what this implies for the ontological status of artefacts and socio-technological relations.

The Animacy of Modern Artefacts

My thesis is premised on the idea that machines and screens can be alive among the Yagua, not only in a mythical or metaphorical, but also in a material way. We have already encountered some of these life forces in the form of chainsaw and battery spirits. In this section, I discuss a range of vignettes to

demonstrate that we can speak of the 'life' of modern technical artefacts among the Yagua people.

Grammatical Animacy

The Yaguan language generally distinguishes between animate and inanimate entities. Clitics for subject reference differentiate for instance between *ra* for an inanimate subject and *sa* for the third person animate subject in the singular (Payne 1985, p. 42). *Sa-yanuma carroja̲mï* is for example used to say that 'the motorcar owner is going', while *ra-yanuma motocarro* takes the leaving motorcar as its subject.

In theory, grammatical animacy could also relate to the agency, sentience, or volition of entities. In the Yaguan case, however, a research informant once explained that the grammatical classifier changes with death, indicating that Doris Payne's interpretation holds, namely that grammatical animacy maps onto material animacy. Before death, an animal has *sa-nuwachi* (Yaguan 'its smell'); after death, when it is meat, it has *ra-nuwachi* (Yaguan 'its smell'), marked with an inanimate clitic.

While classifying the given grammatical feature as a marker of animacy, Doris Payne (1985) highlights that animate entities in the Yaguan language do not fully map onto animate entities as conventionally understood in naturalist ontologies. While grammatically animate beings generally include humans and animals and exclude things such as hammocks and houses, there are several anomalous cases. Payne notes in particular 'such things as stars, the moon (and months), motors, mirrors, photographs, brooms, fans, manioc beer strainers, rocks, pineapples, and watering holes', all of which she found to be grammatically animate (1985, p. 182). Payne advances two hypotheses to explain these anomalies. Firstly, grammatical animacy might derive from the entities' association with animate beings. Mirrors and photographs were for instance used to reflect people rather than objects (Payne 1985, p. 182), and the moon and at least one star are mythologically linked to human beings. As a second hypothesis, their animacy could be explained by their connection to movement. The sun, the moon, stars, and motors appear to move of their own accord, and the use of brooms, fans, and manioc beer strainers is linked to rhythmic movements. In the case of rocks, pineapples, and watering holes, Payne merely remarks that 'their animate status appears to be idiosyncratic', possibly derived from past beliefs (Payne 1985, p. 183).

Unfortunately, I could not confirm this fascinating linguistic data. My Yaguaphone research contacts in the Atacuari region used inanimate classifiers for motors, brooms, rocks, and manioc beer strainers, and they clearly rejected the use of animate classifiers for these things. I concur with Payne's observations concerning the mythology-based animacy of celestial beings; as for her explanations on other things, I hypothesise that their animacy goes beyond a mere association with living beings or movements.

When reading through the list, it immediately struck me that several items can cutipate and thus demonstrate strong vital forces. Motors can cutipate, as we have seen, and so can whet stones and

pineapples. As for the other items, photographs carry parts of the vital forces of the photographed person, and mirrors presumably do so as well, since *j̲untu*, apart from 'soul' and 'photograph', also means 'reflection' according to Paul Powlison (1995). The animate status of other entities is more difficult to explain. Watering holes are significant for their attraction to animals, and they are known for being guarded by powerful masters. The bristles of brooms, and possibly also the bases of fans, have medicinal qualities and are therefore connected to *j̲amï*. Yet, being connected to a life force such as *j̲amï* is in other cases insufficient for being grammatically classified as animate. As Payne already points out: 'Many natural objects such as trees, vines, streams, and pools are said to have spirits ... but this does not result in classification of all these items as animate.' (1985, pp. 183–4) Indeed, even *ayahuasca*, dart poison vines and the dangerous kapok tree, all of which cutipate, are grammatically classified as inanimate. The different categorisation of brooms and pineapples in terms of animacy thus remains difficult to explain.

Our brief discussion of grammatical animacy suggests that the Yaguan classification of living and non-living entities does not map onto common naturalist classifications and that we should consider the possibility that Payne's informants have indeed seen motors as 'alive', or at least as more alive than kapok trees.

The Circulation of Life

In an early article on the Yagua, Chaumeil highlights the central importance of *j̲amï* (or *hamwo*), which he considers as 'the vital substance or cosmic energy' (1985, p. 153). According to his research participants, *j̲amï* 'emanates from the celestial fire ... to spread and infuse life in the different worlds', just like blood is pumped from the heart to animate the rest of the body (Chaumeil 1985, p. 153). *J̲amï* is transmitted via the sun: The sun leaves the different layers of the world charged with potential energy as it moves through them. Upon dusk, the sun enters our world and instils *j̲amï* into the soil. Plants can access that energy with their roots and accumulate it in the form of *madres*. Now part of the food chain, *j̲amï* also becomes the life force for the five souls, bones, and teeth of human beings. Upon death, one part of the *j̲amï* returns to the sky and is reinserted into the energetic cycle; another part transforms into animals and thus re-enters the energetic cycle at a different point.

In a recent re-interpretation of Chaumeil's writings, Fernando Santos-Granero argues that the Yaguan ontology exhibits characteristic features of what he calls 'Amerindian political economies of life', which includes 'a struggle for vitality' involving all living beings (2019, p. 471). 'Since *hamwo* is unequally distributed, all living entities strive to accumulate as much vitality as possible. This is true of the relations between humans, plants, animals, and the spirits of the dead, as well as between different human collectivities', he writes (Santos-Granero 2019, p. 478). Santos-Granero's principles of 'limited

vitality' and 'generalised predation' mean that there is a pervasive competition for scarce life forces.

While scholarly fascinating, Santos-Granero's interpretation of Chaumeil's elaborations matches ill with my own experience of everyday Yaguan life. At least nowadays, it is more oriented towards cooperation and sufficiency than towards competition and maximisation of life forces. The figure of the shaman, who negotiates the release of game animals and darts (e.g. Chaumeil 2000, p. 121), illustrates this well, in my view. While it is true that life forces can be stolen by cameras, shamans, and possibly even warriors, predation is from my point of view not the general relational principle in Yaguan ontology. On the contrary, my data indicates that most non-human beings harm humans in self-defence or exasperation only, not in greed for scarce life forces. Assaults by kapok tree *jamï* result for instance from anger about disturbances, and the *jamï* of waterholes similarly attack only when they smell shotgun powder or when a hunter has misbehaved. They certainly do not seek to take the hunter's life to add his soul to their animal stock and vitality. Modern technical artefacts also do not fit into Santos-Granero's picture. While chainsaws may feed on gasoline and the general stock of artefacts may increase (see Hornborg 1992), I have among the Yagua never heard of this trend being intended or willed by artefactual life forces. Their vitality is dangerous, and we have to be wary, but it is of a different quality than the vitality of an enemy warrior. If *jamï* engaged in a competitive political economy of life, as suggested by Santos-Granero, our planet would presumably look very different.

In any case, Santos-Granero's political economy of life centres around one commonly shared and transferable vital substance, which among the Yagua he identifies as *jamï*, in line with Chaumeil (1985). In my own fieldwork, however, I have been unable to confirm Chaumeil's observations in this regard. What I have instead found were at least two major life forces in non-human beings. According to my own research data, the term *jamï* is used to refer to particular meta-persons, such as 'plant mothers' or 'animal spirits', whereas the term *juntu* refers to life forces that pervade the whole world of being.

The Life and Personhood of Machines

Earlier in this chapter, I mentioned how José's grandfather could 'suck' the spirit from electricity cables and television sets. José had in this context explained that shamans can suck both *rajamï* (*jamï* with inanimate third-person singular clitic) and *runtu* (*juntu* with inanimate third-person singular clitic) from television. If they only take the former one, the television is damaged but can still be repaired, but if they also take the latter one, the television is gone for good.

From my point of view, both *jamï* and *juntu* are important vital forces within the Yaguan ontology. In the Yaguan language, *jamï* means 'owner' or 'person.' *Roríjamï* is for instance the owner of the house and *nudijamï* is the owner of the garden. In regional Spanish, *jamï* is often translated as *madre*, even

though *ja̲mï* can also refer to a man, a woman, or a couple. Akin to human beings, *mïkadija̲mï* are the owners of the earth, who live underground and rear wild peccary as their pigs and *pucacunga* birds as their chicken, and *jaja̲mï* are the people of the water.

When Chaumeil's research participants drew *ja̲mï* on a piece of paper, they generally depicted a human-like being with legs below, arms on the side, and a head on top. *Mïkadija̲mï* appears as a very long and thin person next to his dwelling; *jaja̲mï* has a wider body, darts along his arms, neck, and head, and a penis (Chaumeil 2000, pp. 171–2). The *ja̲mï* of gasoline sticks its head and small arms out of a gasoline can; the perfume *ja̲mï* is not dissimilar to a perfume flask, with its arms forming round handles (Chaumeil 2000, p. 79). Given these depictions and elaborations, I deem it more fruitful to think of *ja̲mï* as a person, rather than as a cosmic energy, even though this does not have to be mutually exclusive.

Ja̲mï is an animating force. When I once asked my host whether grass has a *madre*, he said: 'Of course. Don't you see how it is growing?' (Richa Mutyasurya, 2022, personal communication) The *ja̲mï* cares for the entities under its tutelage. Beings without *ja̲mï* die. In contrast to *ja̲mï*, the term *ju̲ntu* describes an essential part of every entity. This is particularly obvious when considering that *ju̲ntu* can also be translated as 'shadow' or 'photograph'. Indeed, the concept of *ju̲ntu* could also be described as a form of cosmic energy and I consider it possible that Chaumeil's research participants did not always distinguish between *ja̲mï* and *ju̲ntu*, or else that the words are generally used differently in different times and places. In the case of cutipation, for example, it was for instance not always clear whether it was the entity's *ja̲mï* or *ju̲ntu* that harmed the baby.

'The Chainsaw Lives'

To make the question of animacy even more complex, my research participants would in Spanish often classify a wide variety of entities as alive, including motors, notebooks, and pens. When I asked my host about whether a chainsaw was alive, he told me matter-of-factly: 'It lives. That's why it cutipates' (Richa Mutyasurya, 2023, personal communication). However, when he afterwards translated 'to live' into the Yaguan language, I could not help but notice that he used different verbs for the life of deer and chainsaws. Deer *ju̲nu̲da*, but chainsaws *jasanu*. The difference, I was told, is that 'living' in the case of chainsaws merely meant 'working well.'

The idea of living artefacts was also echoed by Juvencio when he explained that my notebook and pen were alive. As for my notebook, I would be unable to access its knowledge otherwise. He explained that its *ja̲mï* helps me to study and learn, for instance by appearing in dreams (see also Gow 2001, p. 209, for a similar reasoning among the Piro people). As for the pen, I would otherwise be unable to write. Even once the ink terminates and 'you don't need it any longer and throw it away [into the forest]', it will

continue to live: 'It doesn't die. You leave it there [in the forest], just like that, and it doesn't rot ... You can bury it, and it stays there, because it still has life within' (Juvencio Gomez Noriga, 2023, personal communication). One can refill the ink, and the pen keeps on living.

Juvencio's remark on the life of pens brings to the fore that the living and non-living cannot always be separated. Like Schrödinger's cat, the pen is not alive when the ink ends. And at the same time, it is alive, since it can be refilled. For the Yagua, life is not a binary category, and it cannot be pinpointed by animate clitics or cutipation. It exists in different guises, and potentially everywhere.

In *The New Science of the Enchanted Universe*, Marshall Sahlins already notes that '[a]lthough it may be said that "all that exists, lives", it need not be supposed, even of societies characterised as "animist", that personhood is necessarily universal, internal to all perceptible phenomena' (2022, p. 77). Even if trees have their owners, for instance, we cannot expect the same for their individual branches, twigs, and leaves, not to speak of their ants, fungi, and bacteria.

All in all, we are left with a categorical quilt of animacy and agency among the Yagua, which challenges the classic life and death binary of naturalist ontologies. My findings suggest that different dimensions and degrees of animacy exist. While human beings for instance have several life forces and do not need a *ja̲mï* to live, trees and chainsaws only survive as long as they have a caring *ja̲mï*. Once the *ja̲mï* leaves, the tree dies and the chainsaw breaks. However, even the dying tree and broken chainsaw contain residual life forces, at least until they decompose or are broken beyond repair.

Interestingly, smartphones and tablets were generally excluded from the realm of the living. This could be due to them being inanimate, in the same way that they are inanimate in naturalist ontologies. However, it is also possible that they are in fact animate but that the Yagua have not yet been able to observe this. This latter hypothesis seems more plausible, since there are historical precedents to this. For example, the Yagua did not immediately know about the life of boat motors, which is now a well-established fact. Similarly, there were still discussions on the question of life concerning fuel-based grasscutters, which had only recently arrived. If Eduardo Viveiros de Castro is correct in his assertion that the subjectivity of non-human beings is a 'nonevident aspect' of these beings, and that '[i]t is necessary *to know how* to personify nonhumans, and ... to personify them in *order to know*' (Viveiros de Castro 2004, p. 469, original emphasis), we may surmise that the Yagua do not yet properly know smartphones and tablets. Possibly, the reported demise of shamanism (see Chapter 3) could have contributed to diminishing Yaguan knowledge with regard to the personification and knowledge of non-human beings.

Summary

Shamanic knowledge provides important insights into the material lives of machines and screens, as this chapter has demonstrated. Among the Yagua, modern technical artefacts are understood to possess at least two major life forces, *ja̲mï* and *ju̲ntu*. Shamans can perceive and manipulate these forces, for instance by sucking them out of electricity cables or television sets to harm others. For lay people, the life forces of modern technical artefacts are most apparent during the couvade period, when a wide range of beings, including artefacts, can cutipate and harm babies. This provides key evidence that machines and screens may be ontologically alive.

The next chapter turns to the broader ramifications of the entanglements of humans and modern artefacts within Yaguan relational ecologies.

Chapter 7



The Ramifications of Modern Technical Artefacts



Overview



This chapter explores the repercussions of machines and screens within Yaguan relational ecologies. The first part highlights their positive contributions to communication, work, and education, while the second part critically examines their 'revenge effects', including the development of dependency structures, the disruption of kinship patterns, and the flight of animals and forest masters. Overall, the chapter argues that modern technical artefacts are both enabling and disruptive in Yaguan life.



Needs, Hopes, and Desires



'With these machines of great technology, I believe that one can achieve something', Gerlin Ramirez Santana once told me with reference to the school tablets I helped to distribute (Gerlin Ramirez Santana, 2022, personal communication; see also Chapter 4). His optimism about machines and screens is common among the Yagua, and there is widespread trust that technological changes will make life better and easier. In this section, I highlight the perceived importance of machines for effective work, communication, and study. As such, the section contrasts with my later elaborations on the revenge effects of machines and screens.

Convenience and Ease

In Comandancia's recent past, the air during communal work sessions was filled with the swish and sweep of machetes. The work sessions began at dawn. Workers slowly advanced in parallel to the sidelines of the football pitch, swinging their machetes in a continuous motion to release a whirl of grass snippets and stalks into the morning air. Periodically, they stopped to exchange a joke or two, or walked over to the whetstone to sharpen their machetes. Between twenty-five and thirty men and women participated in the one-hour toil of clearing the football pitch and its surroundings of undesired herbage, an activity regionally referred to as *cultivar* (Spanish 'to cultivate') or *limpiar* (Spanish 'to clean').

Cutting grass with a machete is hard labour. The constant bending down causes discomfort in the thighs and the back, and the tight grip of the machete, combined with sweat, produces painful blisters. However, having a sprawling vegetation would be perilous for play, since it could hide snakes, and it would cast a bad light on the whole community. After all, '[t]he pitch is the face of [the] village', as Manuel Ramirez Santana once explained in a community meeting (2021, statement in a village assembly).

When I first joined a communal work session in Comandancia, there was only a single fuel-based grass trimmer (see Fig. D.23 in Appendix D). It appeared last on the pitch, almost like an afterthought upon completion of the main work. A year later, the tables had turned. Almost from the beginning, the morning air was filled with the roaring racket of trimmers. Those who had provided sufficient fuel stood at the sideline and watched. As for myself, I swung my machete back and forth but felt disheartened. Fuel-based grass trimmers were faster and more efficient than human beings. Why should I toil when I could simply provide half a gallon of fuel instead?

When I later asked Gerlin, the leader of the community, about the grass trimmers, he told me the following:

> At the end – as the technology advances – I believe that all of us also have to adapt ourselves, right? ... I believe that we greatly exert ourselves with the machete. We may even harm our hands. When the thicket is high, it harms the hand. With the grass trimmer, in turn, that doesn't happen. And with the grass trimmer, you don't have to exhaust yourself; the one that exhausts itself is the motor. You only have to operate it. Obviously, it consumes fuel, yes. That's already part of the daily expenses ... Having a grass trimmer is practically like having a child. You have to feed the child every day, and the same holds for the motor. You want to use it? You have to feed it.
>
> (Gerlin Ramirez Santana, 2022, personal communication)

According to Gerlin, then, machines are like children – an analogy that is easy to understand: Machines

need care, attention, 'food', and they are indeed treasured members of the household unit, which take over arduous work, just like children would for their parents.

Gerlin explained that operating a grasscutter is better than wielding a machete because it reduces the risk of injury and is less exhausting, and what is true for grasscutters also holds for other modern technical artefacts. The shotgun, for example, allows hunters to shoot animals from a larger distance, and the spread of shotgun pellets makes it easier to hit and wound an animal. Hunting with a blowgun needs greater skill and patience, on the other hand, as hunters have to ambush animals, carefully aim at vulnerable body parts, and then follow the mortally wounded animal until it dies. The availability of torches further means that hunters can go for nocturnal animals such as paca, whose large reflecting eyes give them away to the hunter. Boat motors also ease work, and they allow access to more distant ponds, creeks, and forest areas, making hunting and fishing activities more yielding, and chainsaws come into play during the clearing of the forest and the preparation of gardens. This latter activity is labour-intensive, either done communally in a *minga* or over a longer period of time by a single household, and the availability of chainsaws enables owners to focus machete work on smaller trees and lianas and to leave larger trees to the chainsaw. Chainsaws similarly help to build houses and boats more quickly. It is thus unsurprising that most Yagua consider modern technical artefacts a blessing.

Communication

One can sometimes hear the mellow 'caw, cah-cah, caw' of red-throated caracaras in the rain forest. My friend Julio Mutyasurya once said that these birds, called *tono* in Yaguan, used to be the phones of his forebears, since they announced the arrival of visitors and friends, just like a doorbell. A poster at the bilingual school in Palmeras, a Yaguan community located three hours downriver from Iquitos, similarly explained that the bird is a 'communicator of events ... Every call of the *tono* carries a new message about events. Thanks to the announcements of this bird, our ancestors and descendants remain informed' (poster in the bilingual school in Palmeras Zona II).

There are of course other means of long-distance communication and information in the forest. Human hollers, drumbeats, tracks, and dreams all form part of a rich Yaguan semiology and contribute to the successful transmission of information. But all these pale in terms of efficiency when compared to modern information and communication technologies. Most Yagua who possess screens, and who can access internet and phone networks, appreciate the opportunity to stay in touch with distant kin, to connect with the world outside the forests, and to fulfil personal and communal aspirations. Gerlin, for instance, considers enhanced communicative capacity the greatest benefit of phones:

> Earlier, we didn't know how to communicate with them [phones]. Before, we had radiophones.

> That was the only way to communicate, or else with written cards. Now, then, in the first moment that we had phones, they served us a lot. And now we're getting network access. We're going to adapt ourselves immediately and make use of these–, these devices, which greatly help us to talk with many family members who are far away. They may be in Peru, but they are in different towns. And that's why it has helped us a lot. And I hope that the new generation that is going to come – I believe that it's going to serve them a lot, because they are going to know more.
>
> (Gerlin Ramirez Santana, 2022, personal communication)

Most research participants shared Gerlin's positive attitude towards phones. As elsewhere, new communication technologies help to keep friendship and kinship bonds alive over long distances, 'to communicate from time to time when a family member is far away', as Rocio Pano Cahuamari put it (2022, personal communication). The majority of Yagua in the Orosa River have family members in Iquitos or even Lima, and transportation costs make it impossible to see each other regularly. In Santa Ursula, Olivia Huayori Cahuasa draws attention to the cost effectiveness of phones:

> Now you connect yourself here with, well, your family, if you find them, and that's it ... You can talk, but it's not like earlier, when you were unable to communicate from here to there. You had to go to Yanashi, all the way, in order to talk. And do you know how much it is from here to Yanashi? ... A gallon of fuel.
>
> (Olivia Huayori Cahuasa, 2022, personal communication)

An improved communication network also makes it possible to help each other when medical information and treatment are needed, as family members in the city may provide financial support.

As elsewhere, an important role is played by social media (see also Virtanen 2015). In Comandancia and Santa Ursula, for example, residents have access to internet, but not to phone networks, making WhatsApp and Facebook the go-to media of communication. As Pirjo Kristiina Virtanen points out, '[s]ocial networks are ... significantly changing the routines and practices of indigenous peoples, enabling them to see the world on many different levels' (2015, p. 354). She notes that the new communication platforms offer more agency to their users. Women can share their perspective without mediation via their husbands, artists can sell their goods without intermediary merchants, and Indigenous activists can inform about ongoing problems and fights. 'For many Amazonian Indians, having command of, or rather mastering, social media is about avoiding further marginalisation', Virtanen (2015, p. 360) notes.

Political Organisation and Conservation Efforts

Linked to communication, another promising area for modern artefacts is Indigenous activism. As is well known, the success of activism depends on whether it reaches the right audience, and the widespread use of phones, tablets, and the internet among Indigenous populations now opens new platforms. The success of integrating new technologies has already been widely discussed (see Graham 2025; Pace 2018). Terence Turner (1992) has for example early on pointed to the successful use of Indigenous films for raising awareness of their struggle. The success of recent Indigenous uprisings in Ecuador, Bolivia, and Chile can be partly attributed to a savvy application of modern technologies, including smartphones, facebook, and twitter, which combine with more traditional activist measures to yield positive outcomes (Lupien 2023; see also Nenquimo & Anderson 2024). Improved communication can thus support the Indigenous struggle and the protection of Indigenous rights and livelihoods.

Related to these advocacy efforts are also activities that support the conservation of resources and the environment. Illegal logging constitutes a major environmental and socio-economic challenge in the Peruvian Amazon (see also Chapter 4), and digital artefacts partially promise to provide a solution (Lynch, Maslin, Balzter, & Sweeting 2013). When I visited Manuel Ramirez Santana at the office of the regional Indigenous organisation ORPIO (*Organización Regional de Pueblos Indígenas del Oriente*), a poster on the use of remote sensing for the prevention of large-scale deforestation caught my attention. It showed how different organisations and individuals collaborated with satellites, phones, and drones to alert authorities to illegal logging. According to ORPIO (2019), more than 120 human monitors in Kichwa, Maijuna, Yagua, and Ticuna villages guarded their forests, validated satellite alerts, and reported their findings to the respective authorities. A study collaboratively carried out by scholars and the Rainforest Foundation US found that the training of such local community monitors and the provision of access to remote-sensing early alerts significantly reduced forest cover loss, but that they also lessen interest in collective action in the community, as community members delegate the task of forest patrolling to an incentivised monitor (Slough, Kopas, & Urpelainen 2021).

Manuel Ramirez Santana, who for a while presided the regional indigenous organisation, also adeptly used his phone to coordinate political affairs and campaigns. When we co-organised a workshop on the depletion of aquatic resources (see also Chapter 3), the phone connection allowed us to coordinate the transportation and accommodation of speakers as well as the acquisition of food. And when two guest speakers from Iquitos cancelled at the last minute due to untoward weather conditions, they were able to at least join remotely, with a microphone held to the smartphone speakers to amplify their voices.

Educational Aspirations

If phones are considered a wonderful way of staying in touch over long distances, tablets are presented as useful tools for learning. In Santa Ursula, Olivia explained: 'These tablets, now, they use them in school. That's where they work ... That's also a great help. Because they don't have to write so much' (Olivia Huayori Cahuasi, 2022, personal communication). Isabel agreed and drew an analogy to my voice recorder: 'The way you said that you record us: [it's because] you don't want to write. It's the same ... It's easier' (Isabel Margarita Cahuamari Santana, 2022, personal communication).

The digitisation of education is hoped to provide cheaper access to education and to improve learning through novel techniques of teaching. Indeed, the discursive bulk of international digital development has aimed at improving education, for instance by endorsing the One Laptop Per Child project (see Ames 2019). This narrative was strengthened by pandemic-related school closures, which highlighted the importance of impersonal digital teaching, including via the aforementioned *Aprendo en casa* initiative, the multi-media educational strategy, whose emissions via radio and television began in April 2020 and whose software application eventually found its way to the tablets in Comandancia. A study on schooling in rural Peru thus concludes that information and communication technologies are no longer 'auxiliary tools in the learning process' but have instead gained 'a central and protagonist role, as main medium to enable learning processes' (Anaya Figueroa, Montalvo Castro, Calderón, & Arispe Alburqueque 2021, p. 28, own translation).

The educational use of smartphones and tablets goes far beyond the school setting. During my time in Peru, there was for instance a non-governmental organisation that distributed tablets to help aspiring community health workers in their studies and prepare them for an exam. Another example would be how, when I once returned after a year of absence, several households in El Sol proudly showed me their Proclaimers, radios gifted to them by foreign missionaries. The radios were well suited to the Amazonian environment. They were for instance solar-powered, so that people left them charging over the day and then congregated in the evening to listen to biblical stories, missionary interpretations, and Christian songs. The Yagua treated the Proclaimers with reverence and great care. I noticed this when I once suggested to temporarily change the memory card, so that we could listen to Yaguan songs on the radios; the Proclaimers are only for listening to the word of God, I was told, and they cannot be used for other purposes.

The gospel, or at least versions thereof, also reach the people via smartphones and tablets. When talking about his Christian beliefs, Anastasio Ramunurya from Primero de Octubre once told me how Satan tried to kill God. When I followed up on this, it transpired that he had seen this episode on the phone of his granddaughter. 'She has it', he told me. 'What does she have?', I asked back. 'She has that

[video about] how God did it. She showed me the video in the village over there [referring to Primero de Octubre]. There, he hit him.' Anastasio slapped his fist into the other hand's palm to demonstrate it. 'He [God] killed him [Satan], he battered him. How could God have died? He's God, after all' (Anastasio Ramunurya, 2023, personal communication).

Rocio from Comandancia also noted that her children could watch the films and teachings of the church when she still had a television. 'My children always watch the songs of adoration', she told me. Shortly after, however, she also complained about the evil ideas promulgated by modern technologies. She argued that some movies were devilish: 'Because they were a lot with the videos ... this devil entered, it possessed them. They possess them. They possess the children when they watch devilish [contents]' (Rocio Pano Cahuamari, 2022, personal communication). Rocio's comment points to the double-edged nature of artefacts, which we have already noted in the Story of Sisuro and their use in shamanic activities. Machines and screens might ease communication, improve health and education, protect the forests, and bring faith, but they might also have negative side-effects, albeit more hidden. This is particularly problematic in light of an increased dependency, and the following section is going to delve into the relational shifts and rifts that modern technical artefacts create in the wider Yaguan ecology.

Revenge Effects

In Yaguan narratives, the initial adoption of modern artefacts is linked to necessity. Boat motors serve to bridge distance in case of urgent medical attention; smartphones are used for communicating with distant relatives and for organising support in the case of medical emergencies; and tablets help students to do their homework. When I asked people about their use of these different devices, I would often hear these rationales and explanations. It was only when I pressed further that people reflected on the significant difference between the intended and actual use of modern artefacts.

Edward Tenner (1997) has called the unforeseen negative changes which often accompany technological innovation 'revenge effects'. One of his examples is antibiotics, which successfully fought diseases but also led to the proliferation of more resistant bacteria. The same is true with technical artefacts. Grasscutters may make it easier to clean the football pitch, but they create new questions on how to acquire them and how to regularly feed them with fuel, and they also change expectations and standards. It is essential to study these wider effects of modern technical artefacts and to avoid a one-sided focus on the artefacts' affordances. To that avail, this section gives an overview on the 'revenge effects' of modern technical artefacts among the Yagua.

From Homo Faber to Animal Laborans

'We control the world with technology, but do we control ourselves?', the philosopher Andrew Feenberg (2017, p. 5) asks. In this context, Hannah Arendt's distinction between *homo faber* and *animal laborans* is useful, as she explores how *homo faber* is able to develop tools and then form and build the world, while *animal laborans* blindly works. Tools listened to the human body, whereas machines led and commanded the human body, Arendt observes (1958; see also Ingold 1997 for a similar line of reasoning). To give an example from my field: A paddle follows the movements of the human hand, arm, and body, whereas a boat motor curbs and controls the human body. 'Unlike the tools of workmanship, which at every given moment in the work process remain the servants of the hand, the machines demand that the laborer serve them, that he adjust the natural rhythm of his body to their mechanical movement', Arendt (1958, p. 147) writes. We thus lose our relative control over our body as we move from tools to machines. What is more, there seems to be no saturation point, as Hans Jonas (1979) already notes. While we first sought to make production technologies more efficient, we now seek to make consumer goods more efficient, increasing the need for ever more technologies (Jonas 1979).

When one compares the use of machetes and grasscutters, the quality of work is notably different. As Gerlin pointed out, it is no longer the human being who provides strength and power: '[T]he one that exhausts itself is the motor.' The introduction of machines replaces human energy with fuel energy. The human merely operates the machine – holding it, steering it, repairing it, feeding it. The skilled worker, who carefully cuts the grass, ensuring neither to hit the sod nor to miss removing the stalks, becomes an operator. Tim Ingold once described that process when analysing the conceptual shift from *tekhnê* to technology: 'The image of the artisan, immersed with the whole of his being in a sensuous engagement with the material, has given way to that of the operative whose job it is to set in motion an exterior system of productive forces, according to principles of mechanical functioning that are entirely indifferent to particular human aptitudes and sensibilities' (Ingold 1997, p. 131). Using a machete involves more of your body and perceptual apparatus than using a grasscutter. By distinguishing the artisan from the operator, Ingold stressed the emerging hiatus between design and implementation, thought and action. A grasscutter serves a very specific purpose, and its operation is limited; a machete, on the other hand, can be used in many contexts, and its operation necessitates great ingenuity and skill.

If Amazonian peoples are fascinated by Others – and by becoming Others – this should also be taken into account in relation to machines. When a friend once felled a tree, he called out with happiness: 'I'm a machine.' He was clearly joking, referring to his power and endurance in hitting the tree. Yet, machines arguably render human beings machine-like. Ingold argues that technologies 'capture the skills of craftsmen or artisans' (2011, p. 62), and de-skilling in certain areas proves to be a major consequence of

using machines. New skills may be gained, for instance skills of repairing motors, and Ingold is optimistic that life finds its way to develop attention and skills. '[S]kill is destined to carry on for as long as life does', he writes (Ingold 2011, p. 62).

The Disruption of Kinship Patterns

In Chapter 5, I presented the Story of Sisuro, in which the eponymous protagonist receives a powerful metal that he hopes to use to reconnect with his brothers. Alas, this is the only wish that the metal cannot fulfil. It can provide him with food and shelter and bring him back from the dead, but it cannot mend his relationship with his kin. By offering him blended faeces instead of food, Sisuro's brothers clearly indicate that they do not consider him kin, and in the end, Sisuro marries the princess of a foreign land and loses all ties to his brothers. The Story of Sisuro shows that modern technical artefacts are not all-powerful, and that they might be particularly ill-suited to sustaining meaningful relations. While modern technical artefacts such as boat motors and phones may serve important functions for keeping in touch with kin, they may also profoundly change the Yaguan ecology and rupture relations.

Kinship patterns are for instance impacted by the wage work people have to engage in to acquire modern technical artefacts as well as by richer villagers employing their kin to work for them. During communal work in Comandancia, for instance, Dimitrio did the hard work of trimming the lawn, while the teachers merely provided the fuel; they still joined the work session but did not physically work. In another village, I observed how richer community members employ their kin to cut lumber. One person, who had a chainsaw, employed for instance his uncle as a normal day labourer. Neighbours would further charge each other for transporting goods or people, and small village shops sold goods from town for two or three times the price. The process of individualisation, which Chaumeil (1987, p. 128) already highlights, is thus ongoing.

One woman also spoke frankly about the disruptive effect of educational tablets, which I introduced at the end of Chapter 4, on her family life:

> In reality – why should I lie, right? – my small boy sometimes only wants to be there, watching videos. I sometimes tell him: 'Go and take care of your baby brother. Go and help in the kitchen before school.' But because he is on the tablet, he doesn't want to listen.
>
> (Lilibeth Saboya Manoyama, 2022, personal communication)

Her remark mirrored Gerlin's experience in the school in Fujimori, where parents had complained that their children lacked obedience because of their tablet addiction and asked him to take the tablets away again.

Rocio reflected on the actual use of educational tablets in a concurring fashion: 'Mostly, they have used it for videos and music, nothing else [another woman chips in: 'for games']. And games, because they don't know how to enter other apps or how they are going to handle it' (Rocio Pano Cahuamari, 2022, personal communication). Several parents worried that the content of television may harm their children's character and well-being. 'It makes them bad', one woman told me in reference to television. 'Don't you see that movies mostly contain evil? How they kill each other, for example ... When I lived on the upper Nanay, the boys, all the boys walked around with slingshots ... And where did this come from? From the movies! They have learnt by watching them ... Ninja Americana, that's it, Ninja Americana. That's why I don't buy that movie' (2022, personal communication). There is even a risk of physical harm when children reenact movie sequences. 'When they were younger ... my brothers had a movie where they cut each other with the machete. I don't know how it was. And they acted it out between themselves. They took an old machete, and ding, ding, ding, they cut each other' (Rocio Pano Cahuamari, 2022, personal communication).

Adverse Digital Incorporation

Several research participants complained that their children became immersed and swallowed up by digital artefacts. In psychology, this might be called 'digital addiction' (Christakis 2019; Meng et al. 2022). Globally in 2021, the typical internet user spent an average of 6.7 hours per day online, and pandemic-related measures have further increased that number (Meng et al. 2022). Findings suggest that more than a quarter of smartphone users are addicted to their devices and that roughly 15% face a social media or internet addiction, with addiction rates higher in lower- and middle-income countries (Meng et al. 2022), which highlights the importance of critically re-thinking calls for digital inclusion and development. There is further evidence to suggest that digital artefacts are harmful for our neurological development, a phenomenon Manfred Spitzer (2012, 2014) dubs 'digital dementia'. In this sense, smartphones and tablets appear to have effects similar to alcohol, and digitisation processes produce new spirits and liquors that create dependencies and contribute to mental problems. As with spirits, however, most people appreciate their consumption and do not necessarily reflect on their wider impact.

Like boat motors, digital devices and other technical artefacts cause ripple effects in their wider relational ecology that go against their initially intended purpose. Bridges over the digital divide can be crossed both ways. While they allow less privileged groups to access new resources, they also enable more privileged groups to colonise human beings by extracting data and information (Couldry & Mejias 2020). Richard Heeks described this phenomenon as 'adverse digital incorporation' (2021) and highlights that the digital world enables new forms of exploitation and commodification.

Anita Say Chan (2014) shows how the digital has reached the capitalist periphery in rural Peru. She outlines how the state encourages producers and artisans to become part of the global creative classes, which in parts compete for authentic indigeneity. Déborah de Castrol Leal and her co-authors (2021) further analyse how riverine settlers in the Brazilian Amazon use their digital artefacts for selling products. They find that mobile phones and the internet allow local producers to bypass middlemen and thus increase their profits, for example, but that these digital developments also increase the commodification of resources and knowledge and lead to the incorporation of peri-capitalist systems (*sensu* Tsing 2015) into the capitalist order. '[D]igital technologies exert pressure on individuals around the globe to have the same specific knowledge and skills and have access to specific infrastructures', the authors argue (Leal et al. 2021, p. 27).

Quite apart from that, digital development also increases the legibility of human beings through datafication, a problem that becomes especially acute in the context of surveillance capitalism (Zuboff 2019; see also Masiero & Bailur 2021). Connected to datafication is also the problem that decisions are increasingly based on digital data, as is happening in the educational sector (Hartong 2016). In the context of developmental governance, there is a trend to rely on consumer data collected by corporations, thus diminishing the role of state-collected data and the influence of state actors in the process (Taylor & Broeders 2015). Reflecting on the emerging D4D (data for development) paradigm, Laura Mann drily observes that '[i]t should come as no great shock that corporations like Facebook, IBM, Google and Orange are building infrastructures and lobbying for regulation that will allow them to extract maximum profit and maximum strategic advantage' (2018, pp. 28–9). She suggests that it is necessary to uncover the global value chain of data and return control of data infrastructures to states and local associations.

The Flight of the Forest Masters

Martin Heidegger (1977 [1954]) observes that technologies transform our perspectives and engagements with the world. According to him, they remove us from the world's essence by enframing it in mechanistic, measurable, and calculable terms. In the case of digital artefacts, they 'enframe' our world quite literally. One child told me that she's afraid to go into the forest because of grizzly bears; another child told me of a huge anaconda and its offspring, which he had seen on television; yet another child was worried about swimming in the river because of sharks. Such beliefs indicate that digital artefacts change the relationship between humans and their river and forest environment, not only by focusing children's attention on digital media, as opposed to their non-digital environment, but also by telling them different stories about the world.

The operation of non-digital machines also changes our perception and involvement with the surround-

ings, as Ingold's (1997, p. 131) distinction between the artisan and the operator has already highlighted. With a grasscutter or a chainsaw, one merely pushes a button and pulls a string to start the machinery. Felling trees or cutting grass consequently requires less deliberation. I once observed how research participants felled a tree with massive buttress roots, merely because they had seen honeybees and wished to sell the honey. In the past, they would not have chopped down that tree, they explained, because it would have taken too long. Such difference can also be found as a consequence of proliferating axes, which allow gatherers to quickly chop down a *pihuayo* tree, freeing them from the need to climb an elongated pole. However, the primary responsibility of an operator lies in handling the machine, and working with machines thus draws our attention from the non-technical to the technical environment.

The use of motors and other modern artefacts also changes the non-human environment itself. When hunting for paca, people would for example still rely on paddling, since the noise would otherwise make the animals flee. In the same context, people observed that shotguns, boat motors, and chainsaws reduced nearby fauna. When the community of Comandancia admitted a lumber company in their territory, which entered with two tractors to remove economically valuable timber (see also Chapter 4), the villagers quickly noticed that the lumber activity also meant a decrease in forest products. The tractors ran through old gardens, destroying *pihuayo* trees in their wake without even noticing, and the noise of the activities led to the flight of animals, so that hunters had to go further and further before encountering animals.

Indeed, modern artefacts do not only drive away animals, but also their forest masters. In Tangarana, an anonymous research participants explained that the forest masters flee because their houses and gardens are destroyed and the sound of chainsaws is ubiquitous. In El Sol, José Mukatyu told me that the smell of shotgun shells made forest masters hide their animals, and he confirmed that the same happened in the case of using chainsaws and other motors: 'They go. This smell of fuel, of oil, it makes animals run, and their forest masters hide them' (2023, personal communication). Ultimately, the forest masters themselves sought new places to dwell, he explained, taking their creatures along. However, as another research participant told me, this was not necessarily bad. As he explained, the forest was now a lot safer, and it was unlikely that a hill-dwelling earth owner would get their revenge on trespassers, since most hills were already despirited.

The Spread of Waste

A final revenge effect I wish to focus on is waste, since the disposal of artefacts that are not biodegradable poses a major challenge across the Amazon region. While some things are landfilled or burnt, it is equally common to see them being thrown into the river or just around the house. Municipal waste services do

not exist in rural communities, and rivers are one of the easiest ways to dispose of rubbish, at least as far as individual households or communities are concerned. In Comandancia, for example, the road was littered with plastic cups and bottles, and when I asked someone about it, he explained that the flood season would solve the problem, carrying all the waste away.

To illustrate how the spread of waste is connected with modern technical artefact: Thanks to torches, the Yagua can hunt at night and kill paca and caimans. But a typical torch in the Amazon needs two large batteries, and once these batteries are dead, they are thrown away. Their toxic liquids then slowly seep into the environment. When the torches, which are prone to breaking down, are thrown away, they are similarly discarded. Some parts of modern artefacts can of course be recycled. I have in one case observed how the metal of a torch was used to make a fish hook, but that was an exceptional situation, in which we had been on a longer hunting trip and had forgotten to take fish hooks along. The liquid of batteries can, for instance, be collected in a small bottle with a string and then used to mark timber. When the string is extended from one end of the wood to the other, the ink creates a straight line, but after that, it still eventually finds its way into the wider ecology.

Even though it seems to proliferate without end, people do not like waste. A group of women strongly complained about its stench and unsightliness, for example, and one man expressed his disapproval of the lack of waste management because his children had to go through rubbish to attend school, and being barefoot this was not without danger. I was once present when a boy from the neighbourhood jumped from our balcony and landed on an old tin can, which cut into his foot and led to heavy bleeding. This is one of the clearly unintended consequences of things.



Summary



Modern technical artefacts have diverse impacts on Yaguan ecologies. This chapter highlighted the positive contributions of machines and screens to work, communication, political activism, conservation, and education. At the same time, it showed that these artefacts have 'revenge effects' that create dependencies on the market system, reduce autonomy and control, disrupt kinship patterns, and bring about drastic transformations of forest environments.

As machines and screens keep growing, so too do their consequences. The next chapter brings these threads together, offering conclusions on how modern technical artefacts are integrated into the relational ecologies of the Yagua people.

Chapter 8



Conclusions:

Among Machines and Screens



Overview



This chapter summarises my key findings on the entanglements and lives of modern technical artefacts among the Yagua people. Connecting my findings to debates within Amazonian anthropology, it suggests that the Yagua seek to domesticate modern technical artefacts, treating them as analogous to pets and adoptive children. It further links my findings to discussions in international development by highlighting the inflation of desires, needs, and dependencies and arguing for developmental trajectories that move beyond material growth.

The chapter also offers a glimpse into possible futures, highlighting the growing importance of roads, electricity, and satellite internet and pointing to directions for further research. As a final thought, I propose that my thesis may serve as a looking glass for broader reflection on human entanglements with modern technical artefacts.



How Modern Technical Artefacts Live



Yaguan society has sometimes been portrayed as separate from machines and screens. Julio Oliveira Valles (2009), for example, imagines in his short story *El indomable curaca* how a group of Yagua caps all connections with the non-Yaguan outside and returns into the seclusion of the forest. This reproduces the trope of a 'pure' Yaguan society, which we also encounter in the travel writings of Bertrand Flornoy

(1953). As my thesis shows, however, this romanticism is misplaced. Modern technical artefacts are deeply entangled with the Yagua people. They are integrated into stories and songs, embedded in shamanic practices, and incorporated into everyday Yaguan life.

After briefly reviewing the lives of modern technical artefacts, this section suggests that their integration into Yaguan society resembles a process of domestication.

The Lives of Machines and Screens

The machines and screens interwoven into the complex relational ecology of the Yagua people are alive. Shamanic knowledge indicates that they are imbued with life forces, namely *jam̲ï* and *ju̲ntu*. Shamans can remove these life forces from modern technical artefacts such as planes and television sets, thus rendering these artefacts broken and inanimate, and they can also employ these forces to harm other people.

During the couvade period, when the weakness of newborn babies makes them vulnerable to cutipation, the life forces of machines and screens are particularly relevant. As discussed, television sets can cause babies nightmares and insomnia, batteries can suffocate babies, and boat motors and grasscutters can lead to higher body tension, nosebleed, and even death. Cures for cutipation generally involve the artefacts that caused it. For example, to cure a baby cutipated by a boat motor, it should be bathed together with a boat motor.

Not all theories are equally suited for understanding the life of things. For example, the life forces of machines and screens among the Yagua people are a far cry from new materialist concoctions of 'vibrant matter' or 'intra-actions'. They are not only plural and complex but they also do not translate into any ethical obligations towards the artefacts. We need not cherish and fetishise machines and screens only because they are alive. If anything, their being alive carries risks and dangers, and we need to be as vigilant around them as around wild animals.

Note that it could be argued that machines and screens are not truly alive but merely believed to be alive. According to William James, however, on whom I draw in my thesis, truth is 'any idea that will carry us prosperously from any one part of our experience to any other part, linking things satisfactorily, working securely, simplifying, saving labour' (1907, p. 58). Modern technical artefacts truly possess life forces among the Yagua people, in this sense, and such life forces can be true, or become true, in other contexts as well.

Artefacts and Wild Animals

My ecological approach focused on relational shifts and rifts in an open, dynamic, and complex local system. This framework allowed me to study the integration of machines and screens from a holistic perspective without separating 'nature' and 'culture'.

As shown, the potential agency, animacy, and personhood of artefacts requires humans to carefully manage and tame relations with them. The mythological twins, for instance, before stealing the powerful flute of their mother, had to harden their bodies by repeatedly listening to its shrill sound. They then had to wrestle not only with their parents but also with the flutes themselves, which pugnaciously changed their shapes and temperatures. Sisuro likewise had to learn how to call and command the wish-granting metal before being able to use it to his advantage.

Modern technical artefacts play an ambiguous role in the Yaguan relational ecology. Phones can be used by shamans to establish spiritual contact, but they can also be used to manipulate and harm other people's bodies. Televisions can be used to screen a patient for illnesses, but their energy can also be sucked and used to kill somebody. Similar to shamanic darts, which can serve as a projectile to attack as well as a layer to protect against attacks, modern technical artefacts can thus be used for both curing and killing.

The double-edged nature of modern technical artefacts also matters in everyday life. While chainsaws help to fell trees and to cut boards for houses and boats, they also increase the owners' dependency on money and fuel, drive away game animals and forest masters, and pose dangers for newborn babies. Social relations with chainsaws and other modern technical artefacts therefore have to be carefully tamed. From my point of view, such taming involves the domestication of artefacts, herein understood as a dynamic process in which selves seek to establish relative autonomy vis-à-vis other entities.

Both the Twin Cycle and the Story of Sisuro suggest that artefacts always already have an owner. The flutes belong to the twins' dead parents, whom they ambush, and the *fierrito* belongs to the flying white horse that Sisuro forcefully captures. In order to domesticate artefacts, then, their ownership by other entities has to be overcome. This is also the case with home-made artefacts such as hammocks, drums, and manioc beer sieves. Philippe Descola highlights that the production of such artefacts constitutes 'a later stage in the socialization of nature' (1994, p. 6).

Yet, previous owners can remain dangerous. In case of drum heads made of fierce animals, for instance, playing drums during a gathering can lead to fights because of their previous owners. I was also forbidden to touch a drum made of a howler monkey hide, lest I might develop a festering wound and die. Generally, however, home-made artefacts are comparatively tame. I have not heard of any babies being cutipated by hammocks or manioc beer sieves, for example. Machines, in contrast, are comparatively dangerous,

not least during the couvade period.

I wish to herein suggest that there is a homology between modern technical artefacts and wild game animals among the Yagua people. That a S/20 note was used as new target for blowguns (Fig. D.83 and D.84; see also Chapter 4) may thus not only indicate that the Yagua sell their 'culture' in creative ways but indeed point to the possibility that their venatic logic extends to the market sphere (see Penfield 2023 for a similar observation among the Sanema people), and that the targets of the past – monkeys, birds, peccaries, and other wild animals – have been replaced with money, television sets, chainsaws, and other modern technical artefacts.

Machines, Screens, and Pets

The homology between modern technical artefacts and wild animals, which I surmise to exist in the Yaguan case, appears in other Amazonian contexts as well. Philippe Erikson describes that foreign goods such as 'metal tools, cotton clothing, flashlights, or shotguns' were initially stored in separate houses among the Matis, outside the domestic sphere (Erikson 2009, p. 178). As he elaborates, this may suggest that the Matis sought to tame these artefacts in the same way that they tamed animals to become their pets, with the difference that pets could be tamed within a few days or weeks, whereas the process took several years for foreign artefacts (2009, p. 179). Among the Urarina, Harry Walker (2013) similarly finds that modern artefacts are treated 'akin to ... pets' given to wives for domestication (2013, p. 58). Observing that both industrial goods and game animals are used by men to attract and tame wives, he establishes a homology between these entities.

By suggesting that the Yagua seek to tame modern technical artefacts similar to how they tame animals, I wish to continue Erikson's (2009) and Walker's (2013) line of thought. As already mentioned in Chapter 2, the taming of animals is frequently presented as a form of 'adoptive filiation' or 'familiarising predation' (Fausto 1999, 2007, 2008) within Amazonian anthropology, and likened to processes of socialising adoptive children, women, auxiliary spirits, war captives, and ritual objects (see also Santos-Granero 2009c; Taylor 2001), and this also makes sense in the Yaguan context. Feeding is particularly important in this context, since it establishes control and ownership (*sensu* Fausto 2008; see also Costa 2017; Fausto 2007). And yet, to my knowledge, feeding relations are in the literature generally restricted to animals, plants, spirits, and humans. For example, Luiz Costa acknowledges that "'[f]eeding" connotes a rather heterogeneous assemblage of acts and events' (Costa 2016, p. 84) and subsumes anything from breastfeeding to chanting under the concept, but he does not mention the 'feeding' of machines and screens. There is a clear homology between feeding a pet with fruits and feeding a modern technical artefact with fuel or electricity, however, and I regularly encountered feeding metaphors applied to machines.

Gerlin Ramirez Santana even argued that a grasscutter is like a child, because it needs to be regularly fed (see Chapter 7), a remark that points to a relation of adoptive filiation with modern technical artefacts.

The homology between modern technical artefacts and pets needs to be qualified, however. In my view, there is a qualitative distinction in the Yaguan treatment of machines and screens that runs along similar fault lines as the distinction between hunting dogs and pet monkeys (see also Chapter 3). In their relation to human beings, machines seem to be more akin to hunting dogs, whereas screens seem to be more akin to pet monkeys. Sometimes, in particular with respect to *peke-peke* motors, this distinction is spatially visible, as boat motors often rest underneath the house, next to the hunting dogs, while smartphones, tablets, and televisions stay inside the house. The difference in the domestication of machines and screens becomes even clearer if we take gender and age into account. Among the Yagua, both hunting dogs and machines are more widely associated with men, while pet monkeys and screens are more often connected with children. I have found several cases where parents gave their children a smartphone for entertainment purposes, but I have not found any indication that children ever received a chainsaw or a boat motor in like manner. The distinction between machines and screens also applies to their longevity. Hunting dogs and machines survive significantly longer than pet monkeys and screens, perhaps connected to the relative age of their owners. Pet monkeys generally died within four weeks after their capture (see also Zuppi 2022), and smartphones and tablets would likewise quickly break. Two of the ten school tablets in Comandancia broke within a year, and the smartphone of a neighbour of mine did not last even two months. Boat motors and chainsaws, in contrast, remained functional for years.

Intrigued by the way that children nowadays receive not only pet monkeys but also smartphones and tablets from their parents, I once asked a research participant whether he would agree that smartphones are the new pets for children. He rejected that idea. This underscores the tentative character of the homology between modern technical artefacts, game animals, and pets. I still consider it fruitful to take my hypothesis one step further and suggest that the constitutive incompleteness of the domestication of game animals similarly finds its equivalence in the domestication of modern technical artefacts.

The Limits to Domestication

In Chapter 7, I mentioned how a friend once warned me that the *peke-peke* motor could 'overpower' me. Interestingly, the word *dominar*, which she used, was on another occasion also used by her husband when a pet paca had just escaped from my hands. As I was told amidst everyone's laughter, the paca had 'overpowered' me. These cases illustrate that the control and ownership over another entity are inherently unstable.

In the Amazon, the relative autonomy of pets is often an expressed aim of raising them. As Carlos

Fausto finds, 'to be powerful, shamans and warriors [in the Amazon] must ensure that the subjectivity of their wild pets is preserved, which means they can never be entirely tamed and domesticated' (2008, p. 343, translation by David Rodgers). Among the Yagua, most pets would be physically able to leave their owners but choose not to do so. The toucan in Figure D.28, for example, could easily fly away, physically speaking, but it instead sleeps in a nearby tree and always returns for food, and the woolly monkey (Fig. D.35), the agouti (Fig. D.33), and the *trompeteros* (Fig. D.32) could similarly escape from their owners but prefer to be fed by them.

I wish to suggest, then, that modern technical artefacts, just like pets, can never be fully tamed. Put differently, owners may lose control over 'domestic' machines and screens. This is especially evident in the case of *peke-peke* motors, which require a strong hand, arm, and body to keep them on track. After operating a *peke-peke* motor of nine horsepower for a whole day, I felt exhausted, and my hands shook as if still fighting the violent jerks of the steering helm.

Machines and screens remain dangerous, no matter how long they have been domesticated. The reader may remember how parents must not touch machines during the couvade period (Chapter 6), or how children on the Orosa became 'sick' upon using the school tablets (Chapter 7). Manuel Berjón and Miguel Ángel Cadenas (2018) describe similar issues with respect to motorcars among the Kukama people in Peru. As the authors describe, the loss of control over a motorcar reveals itself through unfamiliar sounds or through dreams in which the motorcar invades its owner's sleep. 'If the person ignores the signs, the motorcar can rise up and turn into the master of the relation', the authors explain (Berjón & Cadenas 2018, p. 601, own translation). The motorcar then drains the owner's strength and can even kill him. Berjón and Cadenas refer to this phenomenon as 'reversible familiarising predation' (2018, p. 606, own translation).

My discussion on the domestication of modern technical artefacts shows the merit of integrating machines and screens into our thinking (see also Erikson 2009, p. 188). Humans live with modern technical artefacts across the Amazon region. Social relations with enemy warriors, shamans, *tunchis*, and pets are well explored in the literature. It is likewise worthwhile to study social relations with machines and screens in greater depth. As my thesis demonstrates, unpacking these relations also helps to reveal more general features of local mythologies, ontologies, and relational ecologies.

In the Aftermath of Development

The *fierrito* offers Sisuro opportunities that he had never even dreamt of. It provides food and shelter within the blink of an eye, repeatedly revives him from the dead, and helps him to marry the princess of a faraway kingdom. It cannot fulfil Sisuro's desire to be with his brothers, however. There is an inherent

ambiguity as to whether Sisuro is content with marrying the princess or whether he would have preferred good kinship relations with his brothers.

In this section, I argue that a similar ambiguity is an inherent part of the development efforts that have been pushed by the state, international organisations, and not least also the Yagua themselves.

The Inflation of Needs

A look at previous ethnographies shows that the Yagua have in the past been more reluctant in the adoption of modern technical artefacts. In the mid-twentieth century, Paul Fejos (1943) reports that the Yagua were primarily focused on acquiring salt and machetes and less interested in other goods. The Yagua 'cannot be tempted easily to forsake their own culture', writes Fejos. 'They show remarkably good sense in selecting only those things in which they can perceive direct utility or improvement on their own methods' (1943, p. 108). They accepted mats and mosquito nets for their nightly comfort, for example, but refused shotguns because the loud noise of the guns made the animals flee and they further wished to retain their relative autonomy. As Fejos elaborates with regard to this last point: '[N]ot the least consideration in their rejection of firearms was the knowledge that they could supply their own darts for the blowguns whereas they could not supply their own ammunition for firearms' (1943, p. 108).

Fejos is indeed puzzled by what he considers the Yaguan 'failure to assimilate western culture' (1943, p. 109). The Yagua skilfully used the hammers, saws, and chisels he brought along, and 'Pirico, a lad of eleven or twelve, learned how to switch on our combination radio transmitter-receiver set within ten days, simply by observing our actions' (1943, p. 109). And yet, the artefacts did not bedazzle and beguile them, as they would other people. Fejos attributes this to their 'lack of sustained curiosity' (1943, p. 109). He describes in this context how the Yagua, rather than finding out more about the working of a light bulb, merely used it as a source of light entertainment and cracked jokes about it, or how 'when a vacuum cleaner pulled away their skirts, they howled with delight and repeated the experiment again and again but sought no explanation' (1943, p. 109). However, Pirico's detailed observations on the handling of the radio seem to be at odds with this purported lack of curiosity. Most likely, the Yagua were curious about the things Fejos had brought along but did not see how they could adopt or use them. Light bulbs and vacuum cleaners depend on electricity, for instance, which the Yagua might have lacked. It is also questionable whether vacuum cleaners are more useful than brooms and floorcloths for cleaning the boards in Yaguan houses. Julio Mutyasurya further told me that his grandfather still preferred wearing his *champa* over wearing shoes, shorts, and shirts. Likewise, many research participants told me about their preference for palm-thatched roofs over tin roofs. Not because of lacking curiosity, but because of differences in preferences and needs.

Jean-Pierre Chaumeil writes with respect to the uptake of missionary consumption goods that '[t]hese "needs" have been obviously created, be it by the missionaries themselves, or by the patrons, mestizos, travellers, and anthropologists' (Chaumeil 1981, p. 84, own translation, original emphasis removed). This highlights the historical change in Yaguan preferences and needs.

A woman from Comandancia once complained that her husband only cut firewood when there was fuel for his chainsaw; a lack of fuel thus led to a lack of firewood. A similar situation arose in our household in Tangarana, where hardwood was the preferred firewood, since it burnt longer, and where we sometimes needed a chainsaw (rather than an axe) to chop the firewood, so that we needed fuel to make firewood. What is more, the higher quality of the firewood did not translate into a reduced consumption of firewood, since people simply left the fire burning for longer, so that we needed to collect the same amount of firewood. The situation thus turned into a version of Jevon's paradox, whereby the higher production efficiency of a good translates into higher demand and consumption of resources.

The changing production of firewood illustrates that the 'inflation of needs', which Steven Rubenstein (2004, p. 157) observed across the whole Amazon region, is an ongoing phenomenon. Another example is how the availability of boat motors leads to people desiring more trade goods, money, and wage labour. People were now too 'lazy' to paddle, as a woman told me, as 'everything is by motor'. She added jokingly that people would not even cross the river without a motor. Indeed, I experienced more than once how a lack of fuel to feed the boat motor resulted in a lack of food, as a motorised boat and fuel were prerequisite to go fishing. The availability of boat motors is in many aspects a boon, of course. Thanks to boat motors, the journey from Tangarana to the next town took 'only' ten hours. Residents could thus trade meat, manioc, and money in town without having to rely on patrons, and their children could attend secondary school. But boat motors and other modern technical artefacts also cause ripple effects, including an inflation of needs, desires, and dependencies.

The philosopher Hans Jonas observes that '[e]very new step in whatever direction of whatever technological field tends *not* to approach an equilibrium or saturation point of fitting means to ends' (1979, p. 35). He goes on to ask: 'Who had ever wished to have in his living room the Philharmonic orchestra, or open heart surgery, or a helicopter defoliating a Vietnam forest? or to drink his coffee from a disposable plastic cup?' (Jonas 1979, p. 35) Similar questions can be raised in the Yaguan context. From the descriptions of Fejos, it seems that the Yagua did not ask for disposable plastic cups in the 1940s. And yet, their descendants have them.

The Ends of Development

Chaumeil (1987, p. 128) lists different effects of including modern artefacts into Yaguan ecologies. According to Chaumeil, the introduction of the shotgun led to an individualisation of hunts, a reduced production of blowguns, and a tendency to not share the spoils of the hunt; the introduction of kerosene lamps led to the abandoning of copal lights and a dependency on kerosene; and the introduction of fish hooks and spear points replaced the collective fishing with *barbasco* poison by an individualised fishing endeavour. His analysis gives a flavour of the relational shifts and rifts that accompany technological change and that I have discussed in my thesis. Chaumeil concludes:

> [T]he Yagua do not need the whites to subsist, and they could even perfectly ignore them. But three centuries of contact have not passed without changing the nature of these relations and have, as a consequence, put into danger the relative autonomy of this society.
>
> (Chaumeil 1987, p. 127, own translation)

The reliance on shotguns, chainsaws, and grasscutters means an ever-increasing dependency on the capitalist economy, and it forces men and women to engage in wage work, and so does the desire for smartphones, tablets, and televisions. As Ian Hodder observes, '[w]e think we are in control of things, and we fail to see the extent to which they control us' (Hodder 2018, p. 134). Even if machines and screens do not 'grow' like pets, they certainly proliferate, and this might make it increasingly difficult to tame relations with them, and machines and screens can thus lead to a loss of autonomy and control.

Among the Yagua, technological developments are generally framed in positive terms. As Gerlin Ramirez Santana argued: 'At the end – as the technology advances – I believe that all of us also have to adapt ourselves, right?' While he saw some of the negative effects of machines and screens, he had an optimistic outlook towards the future, as did most other Yagua I spoke with.

'Why do you follow me?', Sisuro's brothers ask at one point (l. 527). Their question could as well reflect the wider colonial context of the Yagua people, who have in their history been pursued, captured, and exploited by missionaries and patrons alike, despite episodes of successful resistance. By focusing on the character of Sisuro, however, rather than on his two brothers, the story may suggest Other-becoming as a way forward. It might not yield good kinship relations, but it helps at least to survive and to acquire the riches of the colonisers. These desires do not arrive *ex nihilo*, however, but are created, be it by a flying horse that offers a magic metal, by patrons that watch television, by commercial advertisements in Iquitos, or by a state that distributes computers and tablets.

When smartphones or tablets malfunctioned, my Yaguan contacts often pointed to the overaccumulation of video and music files on them. For me, however, the danger of running out of space is not so

much an issue on digital artefacts, if at all, but rather an issue on the global level.

The Limitations of Our Planet

'We are heading for a crash. We are in a performance car that has no driver, no reverse gear and no brakes and it is going to slam into the limitations of the planet', writes Serge Latouche (2009, p. 2) almost twenty years ago. Against this backdrop, I contend that we need what is variously called post-growth or degrowth, a 'transition ... to a quantitatively smaller and qualitatively different economy that respects the environment, increases human well-being and aims at social equity' (Petridis, Muraca, & Kallis 2015, p. 176).

As Nicolas Georgescu-Roegen (1971) points out, it is important to reduce industrial activities in order to curtail the planetary increase of entropy. Other authors warn to prevent the cowboy-like exploitation of our planet (Boulding 1966) and not to overshoot the carrying capacity of our planet (Catton 1982). Alf Hornborg (1992) compares technomass to an ever-growing monster that spreads its tentacles all around the globe – and perhaps we should think of technomass as a living organism, metaphorical or otherwise, and try to tame it.

The recognition of planetary boundaries does not necessarily correspond to Yaguan worldviews. The tropical rainforest, after all, provides a wide gamut of affordances, is more conducive to a 'cowboy' economy than to a 'spaceman' economy. When reminiscing about the past, my Yaguan research participants often highlighted how game animals used to walk close to settlements and how manioc beer was produced in large quantities. Clearly, there are stories that warn against overhunting and various practices ensure the regrowth of animals and the reproduction of plants. Yet, the prevailing logic is one not of scarcity and storage, but of abundance and consumption, which also makes sense regarding the circular energetic ontology that Chaumeil (1985) observed among the Yagua. The regional and global scarcity of food, fish, and other resources, however, nowadays also slowly emerges among the Yagua.

While degrowth will be the eventual consequence of our current trajectory – namely when our performance car hits the wall – we should ideally not wait until there are no further alternatives and our hands are tied, but instead explore alternatives to the growth paradigm while we still can.

Glimpses into Possible Futures

The explorer and film maker Lewis Cotlow wrote in the 1960s that 'the Yaguas ... are so isolated in a dense jungle that civilization will never reach them before they die out, as they will in another decade

or two' (1966, p. 238). He was wrong, of course. Quite to the contrary, the Yagua people have not only survived but are, I believe, well prepared to meet the challenges of the twenty-first century and beyond.

This section discusses possible technological futures and concludes with recommendations for further research.

Roads, Solar Panels, and Satellite Internet

Road and energy infrastructures are spreading unabatedly across the Amazon region, including into Yaguan households and territories. On my last visit to Comandancia, the trees on the path to Yanashi had already been felled in order to build a road and a power line, and in El Sol, residents were waiting for the installation of new solar panels. The consolidation of road and energy networks will likely be accompanied by additional modern technical artefacts. For example, the spread of roads will provide incentives to obtain motorbikes and auto rickshaws – I have already seen a teacher who used a motorbike within a Yaguan village to bridge distances of less than a kilometre – and enhanced energy sources will make it more attractive to acquire televisions, fridges, and loudspeakers.

I expect technological developments to continue at a fast pace. When I arrived in Comandancia in 2021, for example, residents had to go upriver for a phone connection, but when I returned a year later, there was an internet antenna next to the school, and people gathered around it to watch video clips and exchange text messages. It seems to be only a question of time until the residents of Tangarana are also able to access the internet in their community; I have already heard of nearby patrons who use satellite internet and would be surprised not to find someone with internet access upon my return.

These technological developments will also impact social issues such as ethnic identities, kinship structures, mobility patterns, and income and wealth disparities, and an open question is how modern technical artefacts will be integrated into Yaguan relational ecologies. Will there be stories of wish-granting chainsaws and tablets in future? Will phones be found to possess dangerous life forces, just like chainsaws and boat motors do nowadays? Or will chainsaws and boat motors instead be found to not possess dangerous life forces after all? And where will the agglomeration of modern technical artefacts end?

On my last visit to the Peruvian Amazon, I saw a shop in Iquitos that advertised leaf blowers. I wonder whether Yaguan people will eventually use leaf blowers around their houses. And maybe, in a not-too-distant future, Yaguan football pitches will no longer be 'cleaned' by machetes or grasscutters but by mowing robots.

Further Research

More research will be necessary to gain a comprehensive understanding of the role and impact of modern technical artefacts in the complex relational ecologies of the Yagua people. After all, my results are specific to particular times, places, and people. In the following, I wish to sketch five areas that seem particularly promising for further research.

Firstly, differences between households, communities, and regions merit closer attention. For example, an exploration of the integration of machines and screens into Yaguan ecologies in Caballo Cocha, Iquitos, or Lima might reach conclusions different from mine. Comparing differences across space will aid in gaining a more holistic picture of Yaguan ecologies.

Secondly, a more meticulous analysis of differences across entities seems worthwhile. Using broad categories such as 'machines', 'screens', 'animals', 'plants', and 'humans' helped me to provide a wider perspective but did not do credit to the complexity of Yaguan relational ecologies. For example, the same way that the Yagua differ in their treatment of hunting dogs and pet monkeys or ticks, humming birds, and peccary, they also differ in their treatment of *peke-peke* motors and outboard motors or chainsaws, power generators, and grasscutters. A more fine-grained analysis will also provide further insights into Yaguan life forces.

Thirdly, a thorough study of Yaguan aesthetic and ethical attitudes towards modern artefacts might also be fruitful. For example, it will be helpful to study which moral guidelines exist concerning the acquisition and use of chainsaws and how such guidelines are created, enforced, and implemented. This could then also lead to an inquiry into the value of animist ontologies for environmental ethics at large (e.g. see also Descola 2015; Kohn 2022). For example, Hodder (2018, pp. 70–4) specifies the objectification of things – namely the disconnection of things from their context of production – as a central reason for the destruction of our planetary ecosystem. It might be rewarding to assess whether the subjectification of things among the Yagua people may provide an antidote. An indication for that is a conversation I once had about the *madre* of football spirits, during which my research participant mentioned that the *madre* stems from the oil fields, and that he had heard of three oil workers whom the *madre* had killed because of their work activities.

Fourthly, it might be beneficial to widen the remit of research beyond technical artefacts to modern artefacts in general. Plastic toys from *piñatas*, clothing, and painkillers lead to complex consequences that deserve further scholarly attention. In this context, it should also be noted that waste management is a comparatively understudied topic in the Amazonian context, especially given its widespread everyday relevance.

Finally, the political organisation of the Yagua needs more exploration, as the representation of

Yaguan perspectives is fraught with difficulties. During my fieldwork in the Atacuari region, a group of teachers sought to create a local Yaguan federation, for example, but their efforts were critiqued by village leaders, who felt overlooked. The problem of political organisation came further to the fore, as there was a proposal to create an Indigenous Reserve that my research participants generally rejected but that the regional Indigenous organisation endorsed.

Apart from these research areas, it will be important to keep abreast of technological change and development. Future ethnographic studies will be in a better position to diachronically analyse the entanglements and consequences of modern technical artefacts. I wonder how Yaguan futures will unravel, and how the Yaguan situation in ten, twenty, and a hundred years will compare to current hopes, dreams, and desires.

Redirecting the Gaze

My thesis has focused on the integration of modern technical artefacts among the Yagua people. But while observing the complex entanglements between machines, screens, and humans in northwestern Amazonia, I often noticed how familiar these entanglements appeared to me. For example, while serving a round of *masato*, I once came upon a Yaguan boy playing a video game called *Minecraft*, in which players till the virtual earth, mine resources, and build tools and machines. His immersion into the world of *Minecraft* voxels immediately reminded me of my oldest nephew, who at that time was similarly enthralled by it. The familiarity of these entanglements points to the possibility that my research may have relevance beyond the Yaguan case and may reveal underlying features of the modern *conditio humana*.

In his *Ideas to postpone the end of the world*, the philosopher Ailton Krenak emphasises that the expansion of the market system is perilous for the human condition, as it weakens our relationships with human and non-human beings and reduces the quality of our lives:

> We, humanity, are going to end up living in artificial environments produced by the very same corporations that devoured all the forests, rivers, and mountains. They keep turning out all this junk, integrated into super-interesting kits of TV, internet, video games, social media, just to keep us in the bubble, alienated from everything, and, ideally, popping heaps of medication, because they keep coming up with that too. So it's a steady stream of new toys and new pills to keep us entertained.
>
> (Krenak 2020, pp. 25–6)

His warning aligns well with Hornborg's metaphor of technomass as an ever-growing monster. Against this backdrop, it seems paramount to find pathways to a future in which human autonomy vis-à-vis

modern artefacts is reclaimed and the forests, rivers, and mountains are restored (see also Krenak 2020, pp. 37–8). I agree with Hodder when he writes that '[h]umans get drawn deeper and deeper into the lives of things' (2018, p. 104), and I believe that we must be wary not to be drawn *too* deeply.

As such, I hope that my thesis encourages a critical engagement with our approaches to modern technical artefacts – be they laptops, smartwatches, chainsaws, *peke-peke* motors, or mowing robots – and that it may serve as a looking glass to reflect on our entanglements with modern technical artefacts. The question remains whether we will be able to domesticate our machines and screens.



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Glossary of Yaguan Terms

Yaguan term	**English translation**
bayantu	forest spirit
buya	manioc beer
ja	water
jamï	owner, spirit
junuda	to live
juntu	spirit, shadow, photograph
mïkadi	land
mununũu	enemy, savage
nïmara	shaman, healer
nuwachi	smoke
nudi	forest garden
ñijamï	people, Yagua
rorï	house, roof
tiwi	salt
tojamï	forest owner

Further annotations, connotations, and illustrations of Yaguan terms can also be found in the dictionaries published by the Ministry of Education (Ministerio de Educación 2021) and the Summer Institute of Linguistics (Powlison 1995). For plant and animal terms, see also Appendix A.



Glossary of Spanish Terms

Spanish term	**English translation**
apu	a village leader
ayahuasca	a shamanic beverage
barbasco	fish poison
capillejo	basket for carrying prey
chacra	forest garden
champa	Yaguan palm-fibre dress
chapo	a banana drink
curaca	a village leader
curare	a poison used for blowgun hunting
cutipar	to transfer harmful features
fierro	metal
madre	mother, spirit, owner
maloca	long house
masato	manioc or *pihuayo* beer
minga	communal work
motosierra	chainsaw
padre	father, priest
parlantes	speakers
patrón	patron, employer
peke-peke	a boat engine
purga	purgative beverage
pusanga	luck charm
shindaya	grasscutter
teniente	a village leader
tunchi	soul of the dead

Appendix A: Animals and Plants

List of Animals

Spanish name	**Yaguan name**	**English name**	**Latin name**
anguilla	*datï*	electric eel	*Electrophorus spp.*
añuje	*mutu*	agouti	*Dasyprocta spp.*
boa del agua	*ja̲mu kodi*	green anaconda	*Eunectes murinus*
boquichico	*kirimyata*	black prochilodus	*Prochilodus nigricans*
bufeo colorado	*ja̲ntu*	pink river dolphin	*Inia geoffrensis*
bujurqui	*kade*	cichlid	*Bujurquina spp.*
caballo	*kawañu*	horse	*Equus ferus*
carachama	*wa̲ya*	pleco	*Loricariidae spp.*
carachupa	*mïdatu*	armadillo	*Dasypus novemcinctus*
cashacushillo	*narasi*	porcupine	*Coendou spp.*
charapa	*puka*	Arrau turtle	*Podocnemis expansa*
chibi	*ja̲nu̲tyu*	silky anteater	*Cyclopes didactylus*
chorro	*kachunu*	woolly monkey	*Lagothrix lagothricha*
chosna	*ramï*	kinkajou	*Potos flavus*
comején	*wa̲juja̲mï*	termite	*Isoptera*
cóndor	*mïku*	king vulture	*Sarcoramphus papa*
coto	*kana̲*	howler monkey	*Alouatta spp.*
cunchi	*kantyuchi*	catfish	*Pimelodus spp.*
fraile	*mïyu*	squirrel monkey	*Saimiri spp.*
gato	*mïchi*	cat	*Felis catus*
gallina	*tuwariy*	chicken	*Gallus gallus*
gallinazo	*pa̲chori*	vulture	*Coragyps atratus*

Spanish name	**Yaguan name**	**English name**	**Latin name**
guacamayo rojo	*japa*	red-and-green macaw	*Ara chloropterus*
huangana	*jaun*	white-lipped peccary	*Tayassu pecari*
huapo	*wacha*	saki monkey	*Pithecia spp.*
huasaco	*murï*	wolffish	*Hoplias malabaricus*
huayhuashi	*mïkatyu*	squirrel	*Sciuridae*
jergón	*jayanu*	lancehead	*Bothrops atrox*
lagarto blanco	*nurtu papase*	white caiman	*Caiman spp.*
lagarto negro	*nurtu wadaku*	black caiman	*Melanosuchus spp.*
lechuza	*wuwasiy*	owl	*Strigiformes*
lisa	*bañu*	headstander fish	*Leporinus spp.*
			Shizodon spp.
lobo del agua	*janibi*	otter	*Pteronura brasiliensis*
locrero	*warajonu*	smooth-billed ani	*Crotophaga ani*
majas	*wañu*	paca	*Cuniculus paca*
mono araña	*kawota*	spider monkey	*Ateles spp.*
mono blanco	*wata*	capuchin monkey	*Cebus spp.*
motelo	*nityu*	tortoise	*Geochelone denticulata*
murcielago	*richatu*	bat	*Chiroptera*
musmuqui	*micho*	night monkey	*Aotus spp.*
oso hormiguero	*sutyu*	giant anteater	*Myrmecophaga tridactyla*
paiche	*samu*	arapaima	*Arapaima gigas*
paña	*jadityasi*	piranha	*Serrasalminae*
paujil	*mïtyu*	curassow	*Cracinae*
pava	*richu*	guan	*Penelopinae*
pelejo	*jate*	three-toed sloth	*Bradypus spp.*
perdiz	*pasatu*	tinamou	*Tinamus spp.*
perro	*nibi*	dog	*Canis familiaris*
picaflores	*muchi*	hummingbird	*Trochilidae*
pihuichu	*kasityu*	parakeet	*Brotogeris versicolurus*
pucacunga	*puwa*	Spix's guan	*Penelope jacquacu*
sábalo	*mïsantyu*	South American trout	*Brycon amazonicus*
sacha vaca	*nicha*	tapir	*Tapirus terrestris*
sajino	*jutï*	collared peccary	*Dicotyles tajacu*
shushupe	*jiryonu*	bushmaster	*Lachesis muta*
sungaro	*surï*	shovelnose catfish	*Brachyplatystoma spp.*
			Pseudoplatystoma spp.
			Zungaro zungaro
suri	*kantï*	palm weevil	*Rhynchophorus palmarum*
tatatawa	*tono*	red-throated caracara	*Ibycter americanus*
tigre	*nibi*	jaguar	*Panthera onca*
tigrillo	*kano*	ocelot	*Leopardus pardalis*
trompetero	*musaday*	trumpeter bird	*Psophia spp.*
tuhuayo	*kamoyotu*	pauraque	*Nyctidromus albicollis*
uakari	*wakari*	uakari monkey	*Cacajao spp.*
venado	*janariy*	brocket deer	*Mazama spp.*



List of Plants



Spanish name	**Yaguan name**	**English name**	**Latin name**
achiote	*kik̲a*	achiote	*Bixa orellana*
aguaje	*desi*	moriche palm	*Mauritia flexuosa*
anona	*j̲atyu*	anona	*Annona spp.*
ayahuasca	*rumun̲u*	soul vine	*Banisteriopsis caapi*
bacaba	*t̲onchi*	turu palm	*Oenocarpus bacaba*
banana	*sabojo*	banana	*Musa spp.*
barbasco	*tatyu̲*	barbasco	*Deguelia utilis*
cacao	*paricha̲*	cacao	*Theobroma cacao*
caimito	*r̲ajo*	abiu	*Pouteria caimito*
camote	*jatïsiy*	sweet potato	*Ipomoea spp.*
caña de azúcar	*sabodu*	sugar cane	*Saccharum officinarum*
chambira	*s̲amu*	chambira palm	*Astrocaryum chambira*
guaba	*ramuya̲*	guaba	*Inga spp.*
huasaí	*mïsadasiy*	açaí palm	*Euterpe oleracea*
huicungo	*tïtosiy*	starnut palm	*Astrocaryum spp.*
huito	*j̲awe*	genipa tree	*Genipa americana*
lupuna	*micha̲*	kapok	*Ceiba spp.*
machimango	*nupacha*	machimango tree	*Eschweilera spp.*
mame	*mame*	rose apple	*Syzygium malaccense*
mango	*mankuwa sabora*	mango	*Mangifera indica*
papaya	*papayajo*	papaya	*Carica papaya*
pihuayo	*p̲urï*	peach palm	*Bactris gasipaes*
piña	*nïntyu*	pineapple	*Ananas comosus*
piripiri	*jawatyat̲a*	aquatic sedge	*Cyperus spp.*
pucuna caspi	*rudasiñu*	blowgun tree	*Iryanthera tricornis*
shapaja	*puwojo*	urucuri palm	*Attalea phalerata*
toé	*m̲arikya*	angel's trumpet	*Brugmansia spp.*
ungurahui	*simïsiy*	patawa palm	*Oenocarpus bataua*
yuca	*jasuche*	manioc	*Manihot esculenta*

Appendix B: The Story of Sisuro

Notes on Transcription and Translation

Miguel is a wonderful storyteller, and a proper re-enactment of Miguel's story on paper is impossible. His bodily movements and gestures, his intonations and breaks cannot be captured; nor can the singing of birds or the croaking of frogs in the background be rendered in written form. The following transcript and translation therefore pale in comparison with the actual story. In both transcript and translation, I have sought to remain as close to the original story as possible.

Ideophones are marked in italic writing. An en dash and a comma (–,) mark indicate incomplete words or phrases. Since there is no grammatical authority on the Charapa Spanish spoken in the Peruvian Amazon, I have otherwise not marked any syntactical inconsistencies. Translating diminutives proved particularly challenging for me, since they are as a form of endearment less usual in the English language. I have generally translated them by either using the word 'little' (e.g. *Sisurito* becomes 'little Sisuro') or by using the term 'my dear' (e.g. *mamita* becomes 'my dear mummy').

Transcript

Una vez, había una señora. Han quedado tres varones, sus hijos. Se murió su marido. Quien llamaba–, un menudito–, su menudo–, un menudo, que ha quedado chiquitito; y dos jóvenes, ya más grandecitos ya, ya ha sido–, sabían montear.

Entonces, cuando ya estaban grandecitos los dos, dicen que–, han conversado con dos hermanitos:

'Naño, ¿con qué será que monteaba papá cuando estaba vivo?'

'No sé. Vamos a preguntar mamá. Mamá sabe.'

Se ha ido ya a contar a su mamá, avisar.

'Mamí, este–, cuando estaba vivo mi padre, ¿con qué mataba animal?'

'No–, tu papá que ha sido–, que ha tenido su pucuna.'

'¿Y dónde está su pucuna?'

'No–, acá está. Acá, ¡cómo está metido! Ahí está.'

Entonces dice su mamá: 'Sube. Ahí estará. Porque ya me acuerdo, ahí, hasta ahí ha metido, cuando estaba–, comenzaba enfermar.'

Verdad. Ha subido más mayor. Sube. Buscando ahí. Encuentra. Como estaba su pucuna. De ahí ha sacado.

'Bueno, mamá, este–, ahora sí vamos a comer carne, ya, mamá.'

'¿Qué vas a hacer, hijo? ¿Sabes–, vas a matar animal? ¿Sabes pucunear?'

'Sí, mamá. Mañana voy a traer chorro.'

'Ya, pues, hijo', dice–, contesta su mamá.

Anochece. Han dormido. Amanecido.

'Ya, mamá, me faltan su cargajo, este–, virotes. ¿Dónde está?'

'Acá. Aquí lo he guardado, de tu papá.'

Él lo ha sacado. Con todo su virote ya. Con todo algodón ya. Ha desatado este virote. ¿No ves que está tejido? Hasta–, está secando [inaudible] candela. Ha metido su cargajo de virote.

'Yo [inaudible], mamá, y tarde voy a traer carne. Chorro. Vamos, nañito.'

Ha llevado, ya, su hermanito ya.

'Vamos.'

Se larga. Pucha, se encuentra una manada de chorros, que estaban brincando, comiendo huayo. *Po.* Entonces llegan, dice–, abajo de chorros esos dos varoncitos.

'¿Cuántos vamos a virotear?'

'Vamos a virotear veinte chorros. Y–, diez tú vas a cargar y yo también voy a cargar diez. Ya, veinte.'

'Ya, pues.'

Ahí estaba pasando [chorro]. *Wa. Cha.* Caíba. Otro, caíba. Están viroteando ya. Ahora ha completado veinte. Ha cortado hoja ungurahui para capillejar ese–, cada uno diez chorros. Saben amarrar su carga ya. Se levanta su cargazo.

'Vamos ya, naño.'

Llegan, en su casa ya de su mamá. Pucha ...

At this point, my recorder ran out of battery, and I had to quickly fetch new batteries. Miguel then began anew.

Pues que–, ha quedado esta señora, viuda. Ha tenido tres hijos varón. Ya, cuando estaban grandecitos dos varoncitos, ya:

'Mamí, ¿con qué mantenía [inaudible] mi papá? ¿Con qué mataba animales para que come?'

'No–, que tenía su pucuna.'

'¿Y dónde está su pucuna, mamí?'

'No–, ahí se ha guardado cuando ya comenzaba enfermar. Ahí está metido en la cumba.'

'A ver, voy a subir.'

Entonces pregunta su mamá:

'¿Sabes pucunear? ¿Tú ya sabes pucunear, hijo?'

'Sí, mamí, yo sí, yo sabe pucunear.'

'Ya, pues, a ver, ahí, como está metido la pucuna de tu papá.'

'Ya.'

Ha subido. Ya, buscando.

'Ahí está, mamá.'

Ha sacado su pucuna, we. Ha bajado. Y ahora:

'¿Su virote?'

'Ahí está su virote, ahí lo he guardado yo, con todo su cargajo, con todo algodón, todo. Completo está.'

'A ver, trae, pues, mamí, voy a mirar.'

De verdad, ha traído.

'Aquí está, hijo.'

Ha su–, desatado. Y está con veneno. Con veneno estaba ya.

'Ya, voy a secar.'

Ha secado, envolvió otra vez, y dice su hermanito, estaba parado en su nalga:

'¿Qué vas a hacer, naño? ¿Vas a montear mañana, para comer mañana carne? Yo quiero comer ya.'

'Ya, pues, nañito', dice.

Ya. Y ha quedado más chiquitito, huinchito, su hermanito. Él estaba mirando su casa, sus hermanos, en [inaudible] dos.

'Nañito', dice, '¿dónde están yendo?'

'No–, voy a montear. Hoy día vamos a comer carne de chorro.'

'Ya, ya, nañito.'

Se ha quedado con su compañera, su mamá, ya. Se larga. Montea.

Pucha, encuentra una manada de chorro, we. *Choo. Choo.* Están comiendo huayo, we. Pucha, donde–, está abajo ya, chorro ya, esos dos.

'Oy nañito, ¿cuántos chorros va a pucunear?'

'No–, veinte. Diez tú vas a cargar, y diez también voy a cargar.'

'Ya, pues, nañito.'

Ha comenzado pasar chorro, we. Ahí mete. *Chaa. Bu.* Siguiendo pucunear. *Baa. Ta.* Cayendo chorrito. *Bum.* Pucha, cuanto que completa veinte chorros, ha comenzado ya juntar ya. Pucha, así montón, veinte chorros. Ha comenzado buscar hoja ungurahui. Encuentra hoja ungurahui. Ha cortado, para su capillejo pues. De ahí ha tejido su capillejo, bien tejidito. Y ha puesto ahí. Ahí han puesto diez–, diez cada uno. *Bum, bum, bum, bum, po.* Ha comenzado amarrar en su capillejo, we. Así. Montón de chorros, y otro está comenzando amarrar su capillejo ya. Se terminaba amarrar, y su hermanito también estaba amarrando su capillejo también. Ya. Ya terminaba amarrar. Ya.

'Vamos ya, nañito. Vamos, a comenzar cargar, we.'

Pucha, llega tarde allá en su casa, ya, y su mamá está preparando chapo. Estaba batiendo su chapo, para que, se–, viene tomar sus dos hijos. Y conversando con huinchito, con su hijito.

'Ahorita va a venir nañito con chorro.'

Este rato viene de su atrás.

'¡Ahí viene! ¡Ahí viene! Hijito, mi hijito, de verdad ya sabe pucunear. ¡Como están traendo capillejazo!'

Han venido botar en su cocina, ya. *Buum.*

'Ahí está chorro, mamita. Ya, [cha]múscala.'

'Ya, hijito.'

Ese ratito le ha dado su comida.

'Come ya, hijito. Tú sabes: Todito día Ustedes han hambreado. Come allí chapo.'

'Ya, mamita.'

Comenzaba tomar. Y mirando [long vowel] su huinchito ahí, sentadito [long vowel] ahí. Ya, terminaba comenzar chamuscar su mamá, we. *Pu.* Ha terminado chamuscar veinte chorros. Y ahumadera, we. Comienza hecho su ahumadera, we. Comienza, [inaudible], como quiere–, como–, como ahumaba antiguos. Amarraban. Enterito amarraban. Su rabo acá; su cuello, allí amarraba. Así ha hecho pues esta señora. Allí comienza ahumar. *Che.*

'Mamí, ya no va a faltar comida, ya mamí. Mañana voy a traer otro veinte más.'

'Ya, hijito.'

Ha tardado. Y anochece. Han quedado dormir otra vez. Ya amenecido.

'Mamita, hoy día nosotros vamos a traer veinte chorros.'

'Ya pues, hijito.'

Se larga otra vez. Encuentra otra vez su manada de chorros, otra vez.

'Ya, veinte vas a virotear.'

'Ya, nañito', dice.

Comenzaba virotear. *Too. Byaa.* Caíba. *Bum.* Otra vez, chorro. *Cha. Bum.* Para complementar veinte chorros otra vez. Comenzaban buscar hoja de ungurahui otra vez.

'Ya.'

Ha comenzado amarrar su capillejo.

'Vamos ya, nañito, vamos.'

Cada uno diez chorros, cada uno, cargando [long vowel]. Llega otra vez. Estaba su mamá. Y su hijito estaba en su lado, y mira su hermanito.

'Mamita, mamita, mira, nañito está traendo otro [long vowel] poco chorro.'

'¿Dónde está?'

'Ahí.' *Puu.*

'Pucha, yo pensaba mi hijito que no sabe pucunear. ¡Sabe!'

'Mamí, aquí está el chorro.' *Poo.*

Montonaba otra vez.

'Ya, mamita.'

'Hijito, ahí está co–, ahí comida.' –

No: Ella mismo le ha servido.

'Hijito, ¡come!'

Servido. Y el huinchito estaba mirando [long vowel]. Ya va estar grandecito ya.

'Ya, mamí, no va a faltar comida ya. Mañana voy a traer otro veinte chorros. Que chorro hay.'

'Ya, hijito.'

Pucha, vete, ahumadera, así, we. No faltaba comida ahí. Y huinchito estaba mirando [long vowel]. Y cuando ya estaba monteando una–, una semana ya–, ya ha crecido, este huinchito, Más grandecito ya, este–, ya–, ya hablaba.

'Nañito. Yo también me voy.'

'No, no. No, naño, no, no. Tú no sabes andar todavía. Quédate, acompaña, no más, a mamá.'

Sentaba otra vez. Se larga otra vez.

'Ahora va a traer veinte [long vowel] chorros otra vez.'

De ahí otra vez se encuentra otra vez manadón de chorros otra vez. Ahí han viroteado [inaudible]. *Chaa.* Caí chorro. *Bum. Cha. Bum. Chaa. Bum.* Ya completaba veinte chorros otra vez. Ya comenzaba buscar hoja de ungurahui. Se ha ido a cortar. Otra vez ha tejido su capillejo. Comenzaba–, montonaba otra vez, diez cada uno. *Bum. Bum. Bum.* Amarrado otra vez. *Trum. Ta.*

'Ya, vamos, ya, nañito, otra vez.'

Ya estaba una semana, estaban monteando. Llega otra vez. Y entonces, cuando miraba su mamá:

'Hijito, hijito, están traendo otra vez chorro.'

'Sí, mamí, aquí está.' *Bum.*

Pucha, en un ratito servido su mamá comida. Ah. *Pum.*

'Toma, hijito, come. Tú estás hambreando.'

Ya servido, ya.

'Hijito, come.'

Han comido bien. Y mirando [long vowel] su–, eso su huinchito de ahí. Entonces, ese huinchito dice:

'Mamí.' Ya sabía hablar, ya. 'Mamí. Y yo–, a mí Usted no me da mi comida, mamí. ¿Por qué?'

'No–, porque no te quiero dar comida rapidito. Porque tú no monteas todavía. Cuando tú vas andar, como dos hermanitos, por eso [inaudible] su comidita. Después tú vas a comer, hijito.'

'Ya, mamita, ya.'

Bueno. De ahí, otra vez.

'Mamí, voy a traer otra vez veinte [long vowel] chorro mañana.'

'Ya, hijito', dice.

Ahí, [inaudible] contesta este huinchito ya:

'Nañito, yo también voy acompañarte. Yo también quiero cargar también chorro.'

'No, no, no. No, nañito, no, no, no.'

'¿Por qué? Yo puedo andar también.' Ya conversaba ya huinchito, ya. 'Yo también quiero andar en monte.'

'No. Acompaña, no más, mamita', dice.

'No, pues, nañito.' Ya comienza llorar ya. 'Nañito, yo también me voy. Nañito, yo también me voy. Yo también quiero cargar chorro, pucha, nañito', dice.

Entonces: 'No. Usted no puede cargar chorro todavía. ¡Que crece más! Más grandecito.'

'No–, yo quiero aprender cargar ya ahorita.'

'No, nañito, no, no.'

Bueno. De ahí, se ha ido esos dos. Encuentra otra vez chorro.

Otra vez, 'Veinte–, veinte–, veinte chorros vamos a virotear.'

Después han viroteado veinte chorros otra vez. Tremendo. *Tsak.* Caíba chorro. Caíba chorro. Caíba chorro. Caíba chorro. Completaba veinte. Ya, listo. Han comenzado juntar otra vez. Ya comenzaban cortar hoja de ungurahui otra vez para que hacen su capillejo. De ahí, ya, han tejido su capillejo otra vez. *Te. Tete.* Ahí comenzaba montonar encima de su capillejo esos chorros, ya. *Bum. Bum. Bum.* Ahí, comenzaban amarrar otra vez. Listo. Y su hermanito también.

'Vamos, ya, nañito, su–, mamá está esperando.'

Pucha, se larga otra vez. Ya estaba grandecito, este hermanito, su huinchito ya. Pucha, se va mirar.

'Mamí, mamí, mamí, ahí viene nañito otra vez con su carga.'

'¿Dónde está? Oh, verdad: Ahí está.'

Pucha, viene. *Bum.* Viene a botar su carga otra vez. Ese ratito se servía su comida.

'Hijito, aquí está tu comida.' Le daba su chapo. 'Come ya. Come ya. Come.'

Y huinchito estaba mirando.

'Mamí, yo también tengo hambre, mamí. ¿Por qué no me quieren dar comida? También yo–, yo quiero comer juntos con mi nañito.'

'No, no, hijito. Cuando tú vas a montear, ahí te voy a dar más rapidito tu comida.'

'Ya, pues, mamí.'

Allí ha comenzado a salir su herida todito su cuerpo . . . Todito herido. Chupa, chupa. Todito. Todo su cuerpo. Pucha, dice este:

'Nañito, yo sí me voy contigo. ¿Ya nañito? Yo voy a acompañarte cargar chorro.'

'No. ¿Qué vas hacer tú, naño? Tú eres Sisuru.'

Comenzaba ya a reñir su hermano, el Sisurito. Por eso es que se llama esta cuenta: Cuenta Sisuru . . .

'No, no, yo no quiero [que] me sigue este Sisurito. No. Quédate con mamá.'

Pucha, se mira este cuerpo. 'Ah, por eso que me llaman Sisuro.'

Todito su cuerpo, pura chupa, herida. Todito comenzón, que raspaba así.

'Ah, pucha, [inaudible] también quiero saber cargar también. Mi naño no quiere llevarme.'

Bueno. ¿Cómo será? Ya estaba grandecito. Se va a mirar la quebrada. Se va a la quebrada. Un rato viene Sisurito.

'Mamí, mamí, mamí. ¿Con qué agarraba mi papá pescado? ¿Con qué agarraba?'

'¿Qué cosa?'

'Pescado. Ya he encontrado abajo un pozo. Bruto sábalo, cantidad, así sabalazo.'

'¿Y dónde está?'

'Ahí está el pozo. Yo quiero anzuelar, mamí. ¿Con qué, tú–,' – No. – '¿Mi papá no tenía anzuelo?'

'Sí, hijito, aquí tengo. Aquí está guardado.'

'A ver, trae, mamita.'

Ha comenzado buscar su hicra.

'Aquí está, hijito.'

Anzuelo, así, anzuelazo, grandezazo, grande. Ya. Con todo su soga, ya. Eso tiempo no utilizaban nylon. Puro ... chambira, pues. Y un rato, se va. Comienza anzuelar. *Va. Bum. Bum. Bum.* Agarra veinte sábalo. Una hicraza que llena. De allí viene cargar, we. *Poo.* Viene botar a su lado de su mamá.

'Mamita, aquí hay pescado. Sábalo, puro sábalo he agarrado.'

'Hola, hijito. ¿Ya sabes pescar, hijito? Oh, tú–, si–, no va–, vamos a hambrear. Ahorita va a venir tu hermano otra vez.'

Ha comenzado cocinar. Ya no tocaba ya chorro [inaudible], pescado [inaudible] ha cocinado su mamá. Ha comenzado. Ha terminado cocinarlo.

'Hijito, vamos a comer ya.'

'Ya, pues, mamita.'

Este rato viene dos hijos.

'Mamita, ahí viene naño, esos dos. [inaudible] está cargando otra vez.'

Viene a botar. *Bum.* Ya no servía su mamá su comida ya. Esperen esos dos hijos.

'¿Qué hora va a servir mamá comida?'

Un rato levanta.

'Hijito, hay comida en la olla. Ustedes van a servir.'

Ahí, pues, se rabian pues, los dos hijos, ¿di?

'¿Por qué va [inaudible] mamá? ¿Por qué no sirve comida?'

Pucha, viene, Sisurito, de allá.

'Ah, allí está viniendo mi hijito. Se ha ido anzuelar.' *Pu.* Trae, hicrazo, sábalo, puro sábalo. Viene botar. *Pu.*

'Pucha, ese ratito voy a servir su comida [inaudible] ya.' Pucha, va. 'Hijito, come. Aquí está comida.'

Y dos están mirando.

'Pucha, entonces mamá no quiere dejar comer [inaudible]. ¿Por qué? Deja comer su hijo, Sisuro, dañado.'

Y dicen esos dos:

'Mejor: ¿Qué vamos a hacer, naño? Mañana largamos. Y mamá está rabiando. Porque queda aquí solito.'

'¿Qué están diciendo, nañito?'

'No digo nada. Yo no tengo madre aquí', dice dos hermanos ya. 'Como Usted tiene mamá, por eso te está dando comida. Nosotros no tenemos mamá, ya. Mañana nosotros vamos a largar.'

'En mañanita yo también voy contigo, nañito. Yo también me voy.'

'No, no, no. Yo no quiero llevarte, Sisuro. Sisuro, quédate con tu madre. Si Usted vas seguirme, yo también voy a matarte.'

'No, nañito, yo te voy a seguirte, nañito.'

'No. Si tú–, Usted vas a seguirme, por ese mismo camino voy a matarte, Sisuro, dañado.'

'No, no, yo te voy a seguir, nañito', le decía Sisurito. 'Yo tengo pena.'

'No. A mi, nadie no me quiere seguir. No me sigues. Porque Usted va, yo te voy a matar medio camino.'

Ya. Atardado. Amanecido. Se alistan sus cositas dos, dos varón. Han dejado su pucuna allí, en su lugar mismo. Bueno.

'Como yo no tengo madre, por eso nosotros vamos buscar mi trabajo.'

Cho. Sisuro, dañado. Han dejado reñir su hermanito.

'Nañito, yo también me voy.'

'No, no te vas. Si te vas, donde tú vas, yo también voy a matarte.'

'No.'

Pu. Se largan esos dos, dos jovencitos, ya, por camino. Se va, se va, se va, se va, se va, se va, se va. Llega una casa. Tre–, cuatro señoritas y una madre; viuda también ha sido. Por allá han pasado el mismo, la misma su [inaudible] que comenzaba parar esos dos. Allí han dicho–, han mirado su atras.

'No viene Sisuro. Donde se va–, si viene Sisurito, allí nosotros lo vamos a matar.'

Oyendo cuatro señorita.

'¿Cómo van a matar su hermanito? Porque es–, Sisuro, eso su hermanito.'

'¿Será que va a matar su hermano?'

'Sí, pues, así están diciendo aquí.'

Ya. Comienza pasar. Anochece. Amanecido.

'Mamí, yo me voy seguir mis hermanos, esos dos.'

'No, hijito, ¿tú–, Usted no has oído? Donde tú vas a encontrar esos dos hermanos, a ti te van a matar.'

'No, mamí. A mi, no me van a matarme. No. Puro mentira que habla mi naño. Él no va a matarme. Yo voy a seguir.'

'No, hijo. No te va, hijito, no te va.'

'No, no, mamí. Yo me voy buscar mi trabajo también. Ya me voy trabajar. ¿Qué voy a hacer aquí yo? Yo también necesito algo.'

'No te vas, hijito. Dicen tus hermanos, te van a matar por allí.'

'No. No van a matarme. Yo me voy, mamá.'

Agarra su hicrita, allí se enllena champito, por decir champito, enllena toda su ropita allí. Comienza cargar.

'Ya me voy, mamá.'

Pucha. Queda solito esa señora allí en su casa.

Se larga Sisurito, siguiendo esos dos hermanos. Se va, we. Está yendo [long vowel]. Siguiendo esos dos hermanos. Se va, se va, se va. Ya, será a las tres de la tarde, viene a salir una chacrún. [inaudible] mirar plátano, maduro, colgando maduro cantidad en la chacra. Se va por camino. Entre medio platanal estaba yendo ya. Viene a salir una casa.

'Joven, joven', llaman las cuatro señoritas. 'Joven, joven, ¿a dónde estás yendo?'

'Estoy siguiendo mis hermanos, estos dos hermanos que han venido ayer.'

'Ah, eso lo que han pasado ayer - sí.'

'¿Qué hora han pasado acá?'

'Wa, temprano que han pasado ayer. ¿Es que estás seg–, tú estás siguiendo?'

'Sí.'

'Mira, este, joven. Yo te voy a contar. Aquí han venido parar ayer, estos dos–, dos–, tus hermanos. Aquí. Aquí estaban hablando. Han mirado su atras. "Ahorita va a venir Sisuro. Si que parece, yo voy a matar." Y a ti, te van a matarte. Así han venido hablar aquí.'

'¿Sí? Bueno. No van a matarme. Voy a seguir, no más.'

'No. Mejor que: ¿Por qué no quieres trabajar aquí? Yo necesito.'

'Mamí', llama pues esos cuatro señorita. 'Mamí [long vowel], aquí está pasando este joven. Está buscando su trabajo.'

'¿Dónde está?'

'Aquí está.'

'A ver. ¿Dónde está yendo, joven?'

'Estoy siguiendo mi–, esos dos hermanos que han pasado ayer. Esos mis hermanos.'

'Ah, mira, joven. Aquí han venido parar, y que dicen que hablaron: "Donde tú vas a encontrar ese Sisurito, yo, nosotros vamos a matar." Así que hablaron. Joven, ¿por qué no quieres trabajar conmigo?'

'No, no, no. No quiero trabajar. Yo quiero encontrar este mis hermanos, esos dos.'

'No. Mejor quédate trabajando. Yo necesito uno. Para que trabaja esta noche, no más. Esta noche, no más. Si no quieres, aquí tengo cuatro hija. Eso es para ti, ya. Yo te voy a entregar ahorita.'

'No, yo no venía buscar mujer. Yo estoy yendo buscar mi trabajo, donde voy a encontrar mis hermanos.'

'No. A ti, te van a matar. No sigues. Mejor quédate aquí, joven. Quédate aquí.'

'No, señora, no voy a quedar aquí.'

'Mejor que voy a entregar mis hijas, cuatro hijas que tengo.'

'No, no, señora.'

Ya va estar la cinco de la tarde, ya.

'Mira, ya está tardando. Así, ¿toda la noche tú vas a seguir esos dos hermanos?'

'No, por allí voy a dormir.'

'Mejor quédate aquí. Mejor que–, trabaja esta noche. Yo te voy a pagar. ¿Cuántos sacos tú vas a necesitar plata? Yo te voy a dar cinco bultos, plata, ¿ya? Yo quiero que–, yo necesito un joven para que trabaja esta noche, no más. Si yo tengo una–, mira, we: tu trabajo–, tú vas a hacer este, we. Ven, vamos, joven.'

Se van.

'Ya te voy a hacer mirar que vas a trabajar esta noche.'

Se van, llevando ese Sisurito, ya. Entre medio platanal. Pucha, allí, a media chacra, así una brazada, un racimo maduro. Tremendo racimazo, bien maduro mismo.

'Mira, joven. Ese racimo de plátano, yo quiero que amanezca como está ahorita. Ni uno plátano comidito. Nada, nada. Porque yo busco–, harto jóvenes yo me voy a buscar. Amanezca. Ni un madurito no amanezca. Yo quiero que amanezca como está ahorita. Ya. Sin tocar ni un maduro. Yo–, que amanezca como está así.'

'Ah, ya señora. Ya, está bien. Lo único que yo te voy a decir, señora: Consígueme una tabla, pero no es ancho, una tabla, dos metritos, no más. Ya. Y un paña aguja.'

'Ya, ya, joven.'

'Y, una cien metro cable.'

At this point, I asked Miguel what he meant by 'cable', and he explained that it was a form of lasso. Possibly in order to facilitate my understanding, he subsequently used the word 'soga' instead of 'cable'.

'Ya, joven.'

Se ha ido allá, a esa casa de esa señora. Ha comenzado traer tabla, y una paña aguja, y soga.

'Ahí está, joven.'

'Ya, señora. Este–, señora, el único que puedo decirte: Ese racimo maduro, ese va a amenecer igualito. No va a comer ni que clase de zorro ese maduro. Nada. Igualito va a amenecer.'

'Ya, joven. Ahorita voy a pagarte. Cinco bulto plata ... Y más, voy a entregarte mi hija, cuatro hija. Eso es tu mujer ya.'

Bueno. Ayer–, por decir, esta tabla, ni, aquí va a sentar este joven [Miguel knocks on a board]. Aquí está sentadito, ya. Y comienza prender aguja aca, we [points to the board]. Aguja todito prendido. *Ta. Ta. Ta.* ... Todito prendido aguja. Todito esto, we. Todito. Por eso que ... Y ya. Ahí está cuidando [long vowel]. Once, no parecía nada. Mira así, abajo platanal. No hay nada. Puto, cuando ya sera así a la una, a la una de la mañana. Puto, de allá, ataca sueño ya. Y querría echar, picaba aguja en su espalda.

'¡Aah!' Allí despertaba.

Otra vez que ataca sueño. Otra vez, querría echar. *Chang.* Todito picaba su espalda, pues. Eso no dejan dormir, pues. Donde estaba sentado, mirando [long vowel]. Ya, ahí otra vez atacaba sueño otra vez. Querría echar otra vez. *Chang.* Picaba todito su espalda aguja. Pucha, lo ha dejado despertar, cuidando ese racimo de maduro, ahí, ya. Y un rato viene–, mira arriba. Blanco baja así, we.

I asked what Miguel meant, and he specified that it was 'blanco, de arriba, en el cielo'.

Baja un blanco, un bulto, así, we.

'Qué está bajando allá?'

Bien derechito donde está, donde está racimo de maduro. Bien derechito baja. *Wiim. Pum.* Encima de maduro. Pucha, esa–, mira tremenda caballo. Ah, pucha, ese ratito que ha agarrado su soga, di, antes que no come todavía ni un maduro. Ha comenzado lasear así. *Chao.* Su cuello. *Po.* Comienza patalear.

'Me-memememe, meee-me, mememememe', gritabando allí.

El amarra bien. Ya, allí. Y no ha comido ni un maduro. Comienza patalear el caballo allí. Un caballo blancazo. Pataleando ahí. Pataleando.

Ya, dos de la mañana. Nada.

A las tres de la mañana, comienza ya a hablar.

'Joven, joven, suéltame, suéltame.'

'No, no te voy a soltar. Tú vas a manecer aquí.'

Caballito hablaba: 'Suéltame, suéltame, joven, suéltame.'

'No. No te voy a soltar.'

Pucha, ya a las tres de la mañana. Pucha, ha comenzado a patalear. Comienza patalear, comenzando.

'Joven, suéltame, mememememememe.' Pero caballo, pues.

Ya a las cuatro de la mañana, ya querría regresar ya, de donde ha bajado también. Por eso estaba queriendo largar. Y por eso estaba diciendo:

'Suéltame. No voy a comer maduro, ya.'

'No. No te voy a soltar. Aquí tú vas amanecer.'

Ya a las cinc–, a las cuatro y medio ya, comienza hablar:

'Mira, naño, suéltame. ¿Y dónde tú estás yendo?'

'No, yo estoy siguiendo mis hermanos.'

'Mira, yo te voy a contarte. Tus hermanos han dicho así. Ese dos hermanos, que están yendo, y que tú estás siguiendo, a ti, te van a matar. Yo le he escuchado, eso lo que estaban hablando esos dos hermanos. "Si que viene Sisuro, donde que va a encontrar, nosotros vamos a matar." A ti te va a trozar, y van a botar tu cabeza por acá, y tu cuerpo por otra parte. Y así que estaban hablando.'

'¿Así?'

'Sí. Y donde–, donde–, donde tú vas a encontrar tu hermano, comiendo, y a ti te van a dar mierda, mierda chapeado. Mira, mejor, we, yo te voy a acompañarte. ¿Qué dice, naño?'

'Sí.'

'Yo te voy a acompañarte. Mira, ese de aquí ese fierrito, ese fierrito tamañito. Mira, él de aquí, este–, dígale "fierrito" así, we. Ahorita, ¿quiere mirar? Mira, a ver, dígale: "Fierrito, fierrito, yo necesito buena comida." Ese ratito va a aparecer buena comida. A ver, diga.'

'Ya, pues.'

Ha entregado ese fierrito. Entonces ya en su mano de Sisurito ya.

'Fierrito, fierrito, yo necesito casa.'

Tsaa. Una casa.

'Oy, verdad, di. Fierro, fierro, yo necesito comida.'

Ba. Mesa así [Miguel stretches his hands], we, para [inaudible] comida.

'Así yo también voy a apoyarte. Suéltame. Mira, yo te voy a contar. Si–, tu hermano, no está muy lejos. Usted va a encontrar mañana. Acacita está. Aquí está yendo, está yendo. Dígale. Mira, we, pone [en] tu bolsillo tu fierrito. Eso va defender donde tú vas a encontrar esos dos hermanos. Ahí te van a cortarte, la mitad tú vas trozar y tú vas a botar tu pedazo por acá y tu pedazo por acá. Ese fierrito, si no está muerto tu cabeza, llámale: "Fierrito, yo necesito besearme." Un ratito te va a besearte.'

'Ah, ya.'

'Cuando se necesita comida, diga: "Fierrito, fierrito, yo necesito comida." Ahí va para de escoger comida.'

'Ah, ya.'

'A ver. Llámale ese fierrito.'

Ahí comienza llamar otra vez.

'Fierrito, yo necesito comida.'

Ta. Puh, está para escoger, we, buena comida. Ha comido.

'¿Ya? Así te va.'

Ya.

'Ya, suéltame.'

Ha soltado, recién ha soltado, ya, entregado ese fierrito, ya. [inaudible] lo mete en su bolsillo. Ya.

'No deja botar ese fierro. Cuidado, ese te va acompañarte.'

'Ah, ya. Está bien.'

Se larga, we, se fue caballo. Y en ratito viene señora ya, cuando ya está casi–, casi ya de día ya, viene ese señora dueno ya–, dueño maduro, es de que su racimo estaba cuidando. Viene.

'¿Ya, joven?'

'Sí, señora.'

'¿Cómo está el racimo maduro?'

'Ahí está, we. Está entero.'

'Pucha, joven. Tú, sí, verdaderamente sabes trabajar. Ese clase yo necesito para mi yerno. Ahorita ya, tú es mi yerno ya. Yo te–, yo voy a encontra–, voy a entregarte mis cuatro hijas.'

'No, no señora, yo no me–, yo no venía buscar mujer. Yo estoy siguiendo mis dos hermanos.'

'No, joven, no, tú no vas a seguir, porque a ti te van a matarte, esos dos.'

'No van a matarme, no.'

Ya, pucha, lleva allá a su casa, ya.

'Joven, ya te vamos a dar tu desayuno. Va allá en la casa.'

Se va. Que–, ya avisa cuatro hija.

'Hija, pucha, ese joven verdad sabe trabajar. No deja comer maduro. Está bien entero de verdad. Ahí está colgado bien enterito. Ni uno, ni uno comidito. Ni uno maduro no han comido. Ese–, ese joven sabe trabajar. Baja [inaudible], vamos pagarle.'

'Bueno, señora. Yo no necesito plata. ¿Para qué voy a necesitar plata?'

'No–, tú–, como tú has trabajado.'

'No, no, señora.'

'Ya, si no necesita plata, yo te entrego cuatro hija. Ese es tu mujer ya. Hijita, ven, abraza tu marido.'

Están viniendo cuatro señorita ya.

'Ya, joven, tú es–, tú es marido de nosotros, ya.'

'No, yo no quiero mujer. Yo estoy siguiendo mis dos hermanos que pasaron ayer.'

'No. No te vas a seguir. A ti te van a matar.'

'No. No van a matarme.'

Se larga joven–, joven–, Sisurito otra vez. Se va, se va, se va, se va, se va, se va, se va. Pucha, encuentra, medio camino, dos hermanos estaban almorzando. Comiendo ahí, we. Pucha, mira el mayor.

'Mira, naño, ahí está viniendo Sisuro. Vamos a matarle.'

Mira, we, ni siquiera en buena mente que ha recibido, we.

'Pucha, ahí viene, we.'

Poo. Han trozado en la mitad. Han dejado botar por allá otro pedazo, y otro pedazo, we. Ya, queda muerto ya. Se largan esos dos, dejando matar ese Sisurito ya. De ahí, como su cabeza no estaba muerto, le llama, pues:

'Fierrito, fierrito, besearme.'

Un ratito. *Ba.* Otra vez–, eh, se levanta otra vez. Est–, ya vivía otra vez. Se va. Se larga otra vez. Se larga, se larga. *Boe.* Se va alcanzar otra vez, y que están comiendo otra vez. Se van mirar otra vez.

'Mira, ¿y cómo–?, pero nosotros hemos dejado matar [inaudible] Sisurito. Mira, está viniendo. ¿Qué vamos a hacer?'

'Vamos amarrar, vamos amarrar con tamishi.'

Comienza sacar tamishi [inaudible]. Encima de palo amarrado allá, bien amarrado, we. *Ta. Ta. Ta.* Bien ahorcado. Bien amarrado. Ahí han dejado, bien amarrado.

'¿Cómo va a salir de ahí?'

Se largan esos dos hermanos otra vez, dejando amarrando Sisurito. Bueno. Cuando ya calculaba ya están lejitos ya esos dos hermanos, de ahí llama otra vez:

'Fierrito, fierrito, desátame.'

Un ratito. *Tsa.* Ha desatado otra vez. Ya está yendo otra vez. Se larga otra vez. Se larga, se larga. Pucha, encuentra otra vez que estaban tomando su chapo. Tomar. Se van mirar otra vez.

'Mira, pero ahí está viniendo otra vez Sisurito. Pucha, ¿cómo puedo hacer ese de ahí? Nosotros han trozado, nosotros hemos dejado amarrado. Ahora, ¿qué vamos a hacer?'

'¿Qué vamos a hacer?'

Se va, como hacer broma: 'Nañito, yo también quiero comer. Yo quiero tomar chapo.'

Pucha, ahí comienza cagando, dice–, su mayor, dice–, adentro, ese tiempo que tomaba, una-, un pate, di. Ahí empieza chapear, a mover su mierda, we.

'Ya, acá está chapo.'

Están dando su mierda chapeado. Pucho, lo han dejado botar Sisurito ya. Ahí, lo dejan matando. *Po, po, po.* Wa, queda Sisurito otra vez ma–, muriendo. Se larga esos dos. De ahí ha dicho–, llama otra vez ese fierrito:

'Fierrito, fierrito, sana–, deja sanarme.'

Un ratito, Sisuro, levanta otra vez, muerto otra vez. Se va yendo. Se va yendo, se va yendo, se va yendo. Por ahí [long vowel], se alcanzaba otra vez, se va mirar otra vez:

'Mira, ahí está viniendo otra vez Sisuro. ¿Cómo se puede matarle?'

'Mira, ¿qué se puede hacer?'

Y había un barrancazo. Bien barrancazo verdad. Ahí esperan. Viene Sisurito.

'Nañito, no me matas, pues.'

'¿Por qué me sigue? Ya venga, ya.'

Pucha, agarraba, we, han botado barranca ya, Sisurito, ya. *Wao. Hiw. Bum. Woa.* Se jodió Sisurito. Ahora sí, ¿cómo va a subir de allá? ¡Ni como! Bien barranco, do-, algunos trescientos metros ha sido. Pucha, gritaba. Tiempo que se larga ya. Ahora se va, agarra su bolsillo. *Ba.* Se perdía su fierro de su bolsillo, ya no hay.

'Ahora sí. Aquí creo que voy a morir verdad, ya.'

Pucha, ha comenzado gritar ya.

'Fierro, fierro, ¡Levántame!'

Nada [long vowel].

'Fierro, fierro, ¡levántame!'

Nada [long vowel]. ¿Qué van escuchar? Pu–. Tanto gritaba, gritaba.

'Fierro, fierro, ¡levántame de aquí!'

¿Cómo será ha escuchado? Total ese fierro ha caído el mismo en la loma. En la loma ha quedado ese fierrito. Ha comenzado gritar fuerte:

'Fierro, fierro, ¡levántame!'

'¿Qué?'

'¡Levántame! No puedo levantar porque: ¿Cómo para levantar? Yo estoy aquí.'

'¿Cuánto metro tiene?'

'Yo cayó–, una–, trescientos metros estoy adentro.'

Pucha, y ahora: ¿Cómo? Pensando fierro arriba: *¿Cómo vamos a levantar?*

'Mira, que vas a hacer. Voy a probar a sacar mi–, mi lengua. Tal vez puede llegar allá. Si sale mi lengua, we, tresciento metros, ahí te voy a levantar.'

'Ya, pues.'

Ha comenzado sacar su lengua, fierro, ya ... Ha sacado su lengua.

'¿Y ha llegado?'

'No, no llega todavía.'

Comienza sacar otra vez su lengua.

'¿Ya ha llegado?'

'Nada. No llega todavía.'

Pucha, comienza dosciento metro ya ha sacado.

'¿Ya?'

'¡Nada!'

Pu–. Tresciento metro.

'¿Ya ha llegado su punto de mi lengua allá?'

'Sí, ya ha llegado ya.'

'Ya, agarra–, agarra mismo su punto mi lengua.'

'Ya.'

Ha comenzado agarrar ese joven, ya, ese Sisurito, ha comenzado levantar otra vez su fierro, we. Allá en la loma otra vez. Ya está allá en la loma otra vez, ese Sisurito.

'Ya, vamos.'

Ha metido ese fierrito en su bolsillo otra vez. *Ta.* Se larga otra vez. Se va, se va, se va, se va, se va, se va. Ya. Y escucha:

'Él que va alcanzar huecapearme mi pecho, es que voy a entregar mi hija.'

Dice un rey, una–, un rey. Escucha Sisurito. Pucha, bien, un caballo de allí, ha comenzado, y un rey estaba sentado ese así, hablando:

'Si que me–, si que me–, si que me huecapea mi pecho, eso voy a entregar mi hija.'

I clarified at this point what the word 'huecapear' meant. Miguel explained that it was done 'con palo', leading me initially to believe that it was about making a hole ('hueco') with a pole. In light of the events to follow, however, it more likely refers to a form of jousting.

'Quien va a alcanzar aquí, yo voy a entregar mi hija. Se escapa, no.'

Pu–, mirando Sisurito. Pucha, viene. Conoce esos dos hermanos.

'Esos dos hermanos que están huecapeando.'

Y comienza huecapear, we, se escapa. Acá no más chocaba, no más. Acá. [Miguel points next to his chest] Y no chocaba así su pecho.

'Ah, yo sí. Yo sí voy a huecapear.'

Pucha, dice [a] ese fierrito: 'Fierrito, fierrito, yo necesito un caballo bien brillosito.'

Ya. *Huiw. Ta.* Caballito, bien brillosito.

'Ya, monta–, voy a montar en su encima.'

Ha comenzado a pasar con su caballito, wa. *Huiw.* Pucha, mira ese, '¿Qué está pasando?' Él no conocido su hermano ya. De ahí comienza regresar otra vez y sigue diciendo ese el rey:

'Al quien huecapea mi pecho, yo voy a entregar mi hija.'

Pucha, viene regresar Sisurito de allá, we. *Huiw.* Comienza huecapear. *Huiw. Bao.* Misma en su pecho.

'Ah, ya me han alcanzado en mi pecho. Ese mi yerno.'

Comienza a bajar, y viene pues esos dos:

'Mira, eso–, eso–, eso–, eso–, eso naño, Sisurito, él ya ha ganado, ya, él ya va a tener su mujer y nosotros estabamos escapando.'

Pum. Como baja ese–, ese rey.

'A ver: ¿Quién ha huecapeado mi pecho?'

'Yo.'

'Ya, yo te voy a entregar mi hija.'

Allí entregado. Y dos hermanos han quedado sin mujer. Allí termina el cuento.

Awarima tuchono.



Translation



There once was a woman. She was left with three sons. Her husband had died. There was a little boy, who was still very, very small; and two young men who were already bigger and already knew how to hunt.

When these two were already somewhat big, they say that–, the two little brothers conversed with each other.

'Brother, with what would it be that dad hunted when he was still alive?'

'I don't know. Let's ask mum. Mum knows.'

He went to speak to his mum already, telling her.

'Mummy, when my dad was alive, what did he kill animals with?'

'Well, your dad had his blowgun.'

'And where is his blowgun?'

'Well, here it is. Here. Look how it is stored! There it is.'

His mum then says: 'Go up. It will be there, because I still remember how he put it there when he began to fall ill.'

Indeed. The bigger son went up. He goes up, searching there. He finds it. How his blowgun was there. From there he took it.

'Good, mum, now indeed, we're going to eat meat, mum.'

'What are you going to do, son? Do you know–, are you going to kill an animal? Do you know how to use a blowgun?'

'Yes, mum. Tomorrow, I'm going to bring woolly monkey.'

'Okay, son', answers his mum.

It becomes night. They slept. It dawns.

'Okay, mum, I need his container, these–, darts. Where is it?'

'Here. I stored it here, from your dad.'

He took it out. With all its darts already. With all the cotton already. He disentangled the darts. Don't you see how they are tied? He is then drying them on his fire. And he took his dart container.

'I [inaudible], mum, and later, I'm going to bring meat. Woolly monkey. Let's go, my brother.'

He already took his small brother along.

'Let's go.'

He goes away. Damn, he finds a troop of woolly monkeys, who were jumping [from branch to branch], eating fruits. *Po.* The two young men then arrive underneath these woolly monkeys.

'How many are we going to dart?'

'Let's dart twenty woolly monkeys. Ten you are going to carry and I am also going to carry ten. Twenty, then.'

'Okay.'

There, it was passing. *Wa. Cha.* It fell. Another one. It fell. They are already darting. Now he complemented twenty. He cut the ungurahui leaves to bag these–, each ten woolly monkeys. They already know how to tie their load. He lifts his big load.

'Let's go already, brother.'

They reach the house of their mum. Damn ...

At this point, my recorder ran out of battery, and I had to quickly fetch new batteries. Miguel then began anew.

And well, there remained this woman, a widow. She had three sons. And when the two small men were already somewhat bigger:

'Mum, with what did my dad maintain [inaudible]? With what did he kill animals to eat them?'

'Well, he had his blowgun'

'And where is his blowgun, mummy?'

'Well, he kept it there when he began sickening. He put it there in the rooftop.'

'Let's see. I am going to go up.'

His mum then asks:

'Do you know how to use a blowgun? Do you already know how to use a blowgun, son?'

'Yes, mummy, yes. I know how to use a blowgun.'

'Okay, then, let's see. There, look how the blowgun of your dad is put.

'Okay.'

He went up. Already, searching.

'There it is, mum.'

He took his blowgun. He came down. And now:

'Its dart?'

'There is the dart. I stored it there, with all its container, with all its cotton. All of it. It's complete.'

'Let's see. Bring it then, mummy. I am going to have a look.'

Indeed, she brought it.

'Here it is, son.'

He disentangled it, and it's with poison, with poison it was already.

'Well, I am going to dry it.'

He dried it. He wrapped it again. And his beloved brother, who was sitting on his buttocks, said:

'What are you going to do, brother? Are you going to hunt tomorrow, to eat meat tomorrow? I want to eat already.'

'Okay, my brother', he says.

Okay. And there remained the smallest one, the last-born, his dear brother. He was watching his house, his brothers, [inaudible] two.

'My brother', he says, 'where are you going?'

'Well, I'm going to hunt. Today, we're going to eat woolly monkey meat.'

'Okay, my brother.'

He remained with his companion, his mum. The other two brothers go away and hunt.

Damn, he finds a troop of woolly monkeys, look. *Choo. Choo.* They are easting fruits, look. Damn, the two are already underneath the woolly monkeys.

'Hey, my brother, how many woolly monkeys are we going to shoot?'

'Well, twenty. Ten, you are going to carry, and ten I am going to carry as well.'

'Okay, my brother.'

A woolly monkey began to pass, look. There he shot. *Chaa. Bu.* Continuing the shooting. *Baa. Ta.* Falling little woolly monkey. *Bum.* Damn, as they completed twenty woolly monkeys, he already began to collect them. Damn, a pile like this, twenty woolly monkeys. He began searching for ungurahui leaf. He finds ungurahui leaf. He cut it, for his bag, of course. Then, he wove his bag, well-woven. And he put them there. There, they put ten, ten each. *Bum, bum, bum, bum, po.* He began tying his bag, look. A heap of woolly monkeys like this. And the other is beginning to tie his bag already. He finished tying, and his beloved brother was also tying his bag as well. Okay. He already finished tying. Okay.

'Let's go already, my brother. Let's go, to begin carrying.'

Damn, he reaches there late, in his house, and his mum is preparing *chapo.* She was whisking his *chapo*, so that her two sons could come and drink. And she was talking with the smallest one, with her dear son.

'Now the beloved brother is going to come with woolly monkey.'

At this point he comes from behind her.

'There he comes! There he comes. My son, my dear son, he really already knows how to use the blowgun. How they are bringing this big bag.'

They came to throw it into the kitchen already. *Buum.*

'There is woolly monkey, mum. Scorch it already.'

'Okay, my son.'

Within a short period of time, she gave him his food.

'Eat already, my son. You know: The whole day you have been hungry. Eat the *chapo* there.'

'Okay, my dear mummy.'

He began to drink. And the last-born son was observing there, sitting there. Their mum already finished beginning to scorch. look. *Pu.* She finished scorching twenty woolly monkeys. And a grill for smoking, look. She begins making a grill, look, like the ancestors smoked. They tied them. They tied them whole. Their tail here; their neck they tied there. That's how this woman did it. There begins to smoke there. *Che.*

'Mummy, there is not going to be any food lacking, now, mummy. Tomorrow, I'm going to bring twenty more.'

'Okay, my son.'

It became evening. Night fell. They slept again. It was already dawn.

'My dear mummy, today we're going to bring twenty woolly monkeys.'

'Okay, my son.'

He leaves again. He finds a troop of woolly monkeys again.

'Okay, you are going to shoot twenty.'

'Okay, my brother', he says.

He began to shoot. *Too. Byaa.* It fell. *Bum.* Again, a woolly monkey. *Cha. Bum.* To complete twenty woolly monkeys again. They began to search for *ungurahui* leaves again.

'Okay.'

He began tying his bag.

'Okay, let's go, my brother. Let's go.'

Each was carrying ten woolly monkeys. He reached again and was with his mum. And her little son was next to her and looks at his beloved brother.

'Beloved mummy, my beloved mummy, look: The dear brother is bringing some more woolly monkey again.'

'Where is he?'

'There.' *Puu.*

'Damn, I thought my dear son doesn't know how to use a blowgun. But he know!'

'Mummy, here is the woolly monkey.' *Poo.*

He piled it up again.

'Okay, my dear mummy.'

'My dear son, there is food' –

No: She herself served it.

'Eat, my son!'

It was served. And the smallest son was observing. He is now already going to be somewhat big.

'Well, mummy, there is no more food going to lack. Tomorrow, I'll bring twenty more woolly monkeys. So that there are woolly monkeys.'

'Okay, my son.'

Damn, look, a grill, like this, look. There didn't lack any food. And the smallest son was observing. And when they had hunted for a week already, this smallest son had grown. He was already bigger, and he already talked.

'My brother. I am going as well.'

'No, no. No, brother, no, no. You don't yet know how to walk. Stay here, keep mum company, and that's all.'

He sat down again. He left again.

'I'm now going to bring twenty woolly monkeys again.'

From there, they find another troop of woolly monkeys again. They then shot [inaudible]. *Chaa.* The woolly monkey fell. *Bum. Cha. Bum. Chaa. Bum.* He completed twenty woolly monkeys again. He already began to search for *ungurahui* leaves. He went to cut them. He wove his bag again. He began piling the monkeys up again, ten each. *Bum. Bum. Bum.* He tied them again. *Trum. Ta.*

'Okay, let's go again already, my brother.'

And it was about a week that they were hunting. They reached again. And then, as their mum saw them:

'My son, my son, they are bringing woolly monkey again.'

'Yes, mummy, here it is.' *Bum.*

Damn, within a short while, his mum served the food. Ah. *Pum.*

'Take it, my son, eat. You are hungry.'

It was already served.

'Eat, my son.'

They ate well. And her smallest son was watching from there. Then, this smallest son says:

'Mummy.' He already knew how to talk. 'Mummy. And you don't give any food to me, mummy. Why?'

'Well, because I don't want to give you the food fast. Because you don't yet hunt. Once you are going to walk [in the forest], like your two dear brothers, [inaudible] their food. You are going to eat after that, my dear son.'

'Okay, my dear mummy, okay.'

Well. From there, the same again.

'Mummy, I'm going to bring twenty woolly monkeys again tomorrow.'

'Okay, my son', she says.

Then, [inaudible] answers the last-born son already:

'My dear brother, I am also going to accompany you. I also wish to carry woolly monkey.'

'No, no, no. No, my brother, no, no, no.'

'Why? I can also walk.' The last-born son already conversed. 'I also wish to walk in the forest.'

'No. Stay with our mummy, and that's it', he says.

'No, my brother.' He already begins to cry. 'My brother, I also to go. My brother, I also go. I also wish to carry woolly monkey, damn, my brother', he says.

Then: 'No. You cannot yet carry woolly monkey. You have to grow more. Bigger.'

'No, I already wish to learn carrying right now.'

'No, my brother, no, no.'

Well. From there, these two went. He finds woolly monkey again.

Again: 'We are going to shoot twenty woolly monkeys.'

After that they shot twenty woolly monkeys again. A lot. *Tsak.* Another woolly monkey fell. Another woolly monkey fell. Another woolly monkey fell. Another woolly monkey fell. They completed twenty. Okay, done. They began to collect again. They already began to cut *ungurahui* leaf again to make their baskets. From there, they wove their basket again. *Te. Tete.* Woolly monkeys already began to mount again on their baskets. *Bum. Bum. Bum.* They began to tie them up again. Done. And his little brother, too.

'Let's go, my brother. Mum is waiting.'

Damn, he goes again. This little brother, this last-born, was already somewhat big. Damn, he comes looking.

'Mummy, mummy, mummy, there comes my brother again with his load.'

'Where is he? Oh, really: There he is.'

Damn, he comes. *Bum.* He comes and throws down his load again. That moment she served his food.

'My son, here is your food.' She gave him his chapo. 'Eat already. Eat already. Eat.'

And his last-born brother was watching.

'Mummy, I'm also hungry, mummy. Why do you not wish to give me food? I want to eat together with my dear brother, too.'

'No, no, my son. Once you are going to hunt, I am going to give you your food quicker.'

'Okay, mummy.'

That's when his wound began to appear across all his body ... Everywhere wounds. Rash, rash. Everywhere. All his body. Damn, he says:

'My brother, I am really going with you. Okay, my brother? I'm going to accompany you carrying woolly monkey.'

'No. What are you going to do, brother? You are Sisuro (Spanish 'Scab').'

He already began to scold his brother, the little Sisuro. That's why this story is called *The Story of Sisuro* ...

'No, no, I don't want that that little Sisuro follows me. No. Stay here with mum.'

Damn, he looks at this body. 'Ah, that's why they call me Sisuro.'

All his body, all rash, round. Everywhere itches that he scratched like that.

'Ah, deng ... I also want to know how to carry prey. My brother does not wish to take me along.'

Well. What was going to happen? He was already somewhat big. He goes to look at the creek. He goes to the creek. After a while comes Sisuro.

'Mummy, mummy, mummy. With what did my dad catch fish? With what did he catch it?'

'What?'

'Fish. I've found a pond below. A lot of *sábalo*, a good number, really big *sábalo*.'

'And where is it?'

'The pond is over there. I wish to fish, mummy. With what–,' – No. – 'Didn't my dad have a fishing rod?'

'Yes, my son, I've got it here. It's stored here.'

'Let's see it, mummy. Bring it here.'

He began to search for his basket.

'It's here, my son.'

A fishing rod, like this, a big fishing rod, really very big. Well. With all its thread already. At that time they didn't use any nylon. Only *chambira*. And after a short while, he goes. He begins to fish. *Va. Bum. Bum. Bum.* He catches twenty *sábalo*. A big bag that is full. From there he comes carrying, look. *Poo.* He comes throwing it down next to his mum.

'My dear mummy. Here's fish. *Sábalo*. I've only caught *sábalo*.'

'Hello, my son. Do you already know how to fish, my son? Oh, you–, now we're not going to be hungry. Now is also going to come your brother again.'

She began cooking. Already, she no longer touched the woolly monkey [inaudible], fish [inaudible] cooked his mum. She finished cooking.

'My son, we're already going to eat.'

'Okay, fine, mummy.'

That's when the two sons come.

'My dear mummy, there comes brother, these two. [inaudible] is carrying again.'

He comes to throw it down. *Bum.* Already, his mum did no longer serve them their food. These two sons wait.

'At what time is mum going to serve us food?'

After a while, she [or he] got up.

'My son, there is food in the pot. You are going to serve.'

Well, that's when they get furious, these two sons.

'Why is mum [inaudible]? Why does she not serve food?'

Damn, he comes from there, small Sisuro.

'Ah, my dear son is coming there. He had gone fishing.' *Pu.* He brings a large bag with *sábalo*, only *sábalo*. He comes to throw it down *Pu.*

'Damn, I'm going to quickly serve him his food [inaudible].' Damn, look. 'My son, eat. Here is food.'

And the two are watching.

'Damn, mum apparently doesn't want to let us eat [inaudible]. Why? She lets her son eat, Sisuro, the damaged one.'

And the two say:

'Better: What are we going to do, brother? Tomorrow we go far away. And mum is furious. Because she stays here alone.'

'What are you saying, my brother?'

'I don't say anything. I don't have a mother here', the two brothers say already. 'As you have a mum, you are given food. We don't have a mum anymore. Tomorrow we are going to go far away.'

'Tomorrow I'm going with you, my brother. I'm also going.'

'No, no, no. I don't want to take you along, Sisuro. Sisuro, stay here with your mother. If you are going to follow me, I'm also going to kill you.'

'No, my brother. I'm going to follow you, my brother.'

'No. If you [tú]–, you [Usted] are going to follow me, I'm going to kill you right there on the path, Sisuro, damaged one.'

'No, no, I'm going to follow you, my brother', Sisurito told him. 'I'm sad.'

'No. Nobody wishes to follow me. Don't follow me. Because if you go, I'm going to kill you in the middle of the path.'

Okay. It became evening. It dawned. The two get their few things ready, the two men. They left their blowgun there, in its original place. Well.

'Since I don't have a mother, we're going to search for my work.'

Cho. Sisuro, the damaged one. They left scolding their little brother.

'My brother, I'm also going.'

'No, don't go. If you go, I'm going to kill you where you go.'

'No.'

Pu. These two, the two young men, go away along the path. He goes, he goes, he goes, he goes, he goes, he goes, he goes. He reaches a house. Three–, four young women and a mother; she was likewise a widow. They pass through there, and [inaudible] began to stop these two. There they said–, they looked behind them.

'Sisuro doesn't come. Where he goes–, if little Sisuro comes, we're going to kill him there.

The two young women heard this.

'How are they going to kill their little brother? Because this Sisuro is their little brother.'

'Are they really going to kill their brother?'

'Well, yes, that's what they said here.'

Okay. He begins to pass. It becomes night. It dawned.

'Mummy, I'm going to follow my brothers, these two.'

'No, my son, did you [tú]–, did you [Usted] not hear? Where you encounter these two brothers, they are going to kill you.'

'No, mummy. They are not going to kill me. No. That's just a lie my brother is telling. He's not going to kill me. I'm going to follow.'

'No, son. Don't go, my son, don't go.'

'No, no, mummy. I'm also going to search my work. I'm already going to work. What am I going to do here? I also need something.'

'Don't go, my son. Your brothers say they are going to kill you there.'

'No. They are not going to kill me. I'm going, mum.'

He takes his small bag. There he puts in his little *champa*. For me to say 'little *champa*', he puts all his little clothes there. He begins to carry.

'I'm already going, mum.'

Damn. This woman stays all alone in her house.

Little Sisuro goes away, following these two brothers. He goes, look. He is going. Following these two brothers. He goes, he goes, he goes. Well, at about three in the afternoon, he comes to a large *chacra*. [inaudible] see bananas, ripe, hanging in large numbers ripe in the *chacra*. He follows the path. He is already going through the middle of the banana plantation. He comes to a house.

'Young man, young man', the four young women call him. 'Young man, young man, where are you going?'

'I'm following my brothers, these two brothers that came yesterday.'

'Ah, these that passed yesterday - yes.'

'Which time did they pass here?'

'Ooh, they passed early. Is it that you are following?'

'Yes.'

'Look, young man. I'm going to tell you. They came to stop here yesterday, these two, your brothers. Here. They were talking here. They looked behind themselves. "Sisuro is now going to come. When he appears, I'm going to kill." And they are going to kill you. That's how they came saying it yesterday.'

'Really? Well. They are not going to kill me. I'm going to follow, and that's it.'

'No. The following is better: Why don't you wish to work here? I'm in need.'

'Mummy', these four young women hence called. 'Mummy, this young man is passing through here. He is searching his work.'

'Where is he?'

'Here he is.'

'Let's see. Where are you going, young man?'

'I'm following my–, these two brothers that passed through here yesterday. These are my brothers.'

'Ah, look, young man. They came stopping here, and they say they spoke this: "Where you are going to encounter this little Sisuro, I, we are going to kill." That's how they spoke. Young man, why don't you wish to work with me?'

'No, no, no. I don't wish to work. I wish to find these brothers of mine, these two.'

'No. Better stay here working. I'm in need of a worker. To work this night only. This night only. If you don't wish, I have four daughters here. This is for you. I'm going to give them to you right away.'

'No, I have not come searching for a wife. I'm coming to search my work, where I am going to find my brothers.'

'No. They are going to kill you. Don't fellow. Better stay here, young man. Stay here.'

'No, madam, I'm not going to stay here.'

'Better I am going to give away my daughters. I have four daughters.'

'No, no, madam.'

It's now already going to be five in the afternoon.

'Look, it's already getting late. So, are you going to follow these two brothers the whole night?'

'No, I'm going to sleep there.'

'Better stay here. Better that–, work this night. I'm going to pay you. How many bags of money are you going to need? I'm going to give you five bags of money, okay? I want that–, I need a young man so that he can work this night, and that's it. If I have a–, look, okay: your work–, you're going to do this, look. Come, let's go, young man.'

They go.

'I'm already going to let you see what you're going to work this night.

They go, taking this Sisurito along. Into the middle of the banana plantation. Damn, there, in the middle of the plantation, there is a big arm, a ripe cluster. A really big cluster, and also very ripe.

'Look, young man. I want that this cluster of bananas is the same at dawn as it is right now. Without a single banana eaten. Not one, not one. Because I search–, a lot of young men I have been searching for. And once it dawns, there is not even the smallest banana at dawn. I want it to dawn as it is now. Okay. Without touching a single banana. I–, that it dawns as it is.'

'Ah, okay, madam. That's fine. The only thing I'm going to say is this, madam: Bring me a wooden board, but don't let it be too wide, a board, two small metres, that's all. Okay. And a piranha tooth.'

'Okay, okay, young man.'

'And a hundred-metre-long cable.'

At this point, I asked Miguel what he meant by 'cable' (Spanish 'cable'), and he explained that it was a form of lasso. Possibly in order to facilitate my understanding, he subsequently used the word 'soga' (Spanish 'rope, liana') instead of 'cable'.

'Okay, young man.'

She went there, to that house of that woman. She began to bring a board, and a piranha tooth, and rope.

'There it is, young man.'

'Okay, madam. This–, madam, the only thing I can tell you is this: That ripe cluster there is going to be the same in the morning. No one, and be it some type of fox, is going to eat this banana. Nothing. It's going to be same in the morning.'

'Okay, young man. I'm now going to pay you then. Five bags of money ... And in addition, I'm going to give you my daughter, four daughters. She is already your wife.'

Well. In the evening–, let's say that this is the board, okay? This young man is going to sit here [Miguel knocks on a board]. He's sitting here already. And he begins putting a nail [piranha tooth] here, do you see? [points to the board] Nail all in. *Ta. Ta. Ta.* ... All of it is fitted with nails. All of this, look. Everything. That's why ... And well. There he is guarding. Eleven – nothing appears. He looks like this, down the banana plantation. There's nothing. Damn, when it's already about one, at one in the morning, damn, from there, there's sleep attacking him. And he wished to lie down; the nail pokes in his back.

'Ow!' Then he woke up.

Sleep attacks him again. He wished to lie down again. *Chang.* Because everything poked his back. That didn't allow him to sleep. Where he was sitting, looking around. Well, then sleep attacks him again. He wished to lie down again. *Chang.* The nail poked all his back. Damn, it kept him awake, guarding that cluster of bananas there. And then comes–, he looks up. A white lowers like this, look.

I asked what Miguel meant, and he specified that it was 'white, from up there, in the sky'.

A white lowers, a bundle, like this, look.

'What is lowering over there?'

Very straight to where it is, where the cluster of bananas is. It lowers very straight. *Wiim. Pum.* Above the banana. Damn, this–, he sees a massive horse. Well, damn, at this point he already grabbed his rope, before it could eat a single banana. He began lassoing it like this. *Chao.* Its neck. *Po.* It begins to kick.

'Me-memememe, meee-me, mememememe', it shouted.

He tied it well. Over there. And it has not eaten a single banana. The horse begins to kick around there. A very white horse. Kicking around there. Kicking around.

Well, two in the morning. Nothing.

At three in the morning, it already begins to talk.

'Young man, young man, set me free, set me free.'

'No, I'm not going to set you free. You're going to stay here.'

The horse talked: 'Set me free, set me free, young man, set me free.'

'No. I'm not going to set you free.'

Damn, already at three in the morning. Damn, it began to kick around. It began to kick, beginning.

'Young man, set me free, mememememememe.' But it still was a horse.

At four in the morning, it already wished to return back to from where it has come from. That's why it wished to get away. And that's why it was saying:

'Set me free. I'm not going to eat bananas anymore.'

'No. I'm not going to set you free. You are going to be here at dawn.'

And at five already–, at half past four already, it begins to talk:

'Look, brother, set me free. And where are you going?'

'No, I'm following my brothers.'

'Look, I'm going to tell you. Your brothers have said like this. These two brothers, who are going, and whom you are following, they are going to kill you. I heard them saying like this. That's what these two brothers have been saying. "If Sisuro comes, we're going to kill him where we find him." You, they are going to cut you in half, and they are going to throw your head here and your body to the other side. And that's how they have been saying.'

'Really?'

'Yes. And where–, where–, where you are going to find your brothers eating, and they are going to give you faeces, blended faeces. Look, better, okay, I'm going to accompany you. What do you say, brother?'

'Yes.'

'I'm going to accompany you. Look, this here, this small metal, this metal of small size. Look, this here, this–, say "little metal" to it, like this, look. And now, do you want to see? Look, let's see, say to it: "Little metal, little metal, I need good food." And at this point is going to appear good food. Let's see, say it.'

'Well, okay.'

He gave this little metal. It's then already in the hand of little Sisuro.

'Little metal, little metal, I need a house.'

Tsaa. A house.

'Oy, it's true, isn't it? Metal, metal, I need food.'

Ba. A table like this [Miguel stretches his hands], look, for [inaudible] food.

'Like this, I'm also going to help you. Set me free. Look, I'm going to tell you. If–, your brother is not very far. You are going to find him tomorrow. He's here nearby. He's going here, he's going. Say it. Look, put your little metal into your small pocket. That's going to defend you where you're going to find these two brothers. They are going to cut you there. In half you are going to split and your part is going to be thrown here and your other part here. This little metal here, if your head is not dead, call it: "Little metal, I need to be mended." In an instant, it will mend you.'

'Ah, okay.'

'When you need food, say: "Little metal, little metal, I need food." There you're going to have some food to choose.'

'Ah, okay.'

'Let's see. Call this little metal.'

He then begins to call it again.

'Little metal, I need food.'

Ta. Puh, it's there to choose from, good food. He ate.

'Okay? Go like this.'

Well.

'Okay, set me free.'

He set it free, only now he set it free, that this little metal was provided. [inaudible] he puts it into his small pocket. Okay.

'Don't throw this metal. Careful. This is going to accompany you.'

'Okay, that's fine.'

It goes away, look, the horse goes. And shortly after comes the woman already, when it was already day. The woman comes, the owner–, the owner of the banana whose cluster he is guarding. She comes.

'And, young man?'

'Yes, madam.'

'How is the cluster of bananas?'

'There it is, look. It's complete.'

'Damn, young man. You, yes, you truly know how to work. This type I need for my son-in-law. Now already, you are my son-in-law. I–, I'm going to hand you my four daughters.'

'No, no, madam, I did not–, I did not come to search for a wife. I'm following my two brothers.'

'No, young man, no. You are not going to follow, because they are going to kill you, these two.'

'They are not going to kill me, no.'

Well, damn, she takes him to her house already.

'Young man, we're already going to give you breakfast. Come here into the house.'

She goes. What–, she already tells the four daughters.

'Daughter, damn, this young man truly knows how to work. He didn't let the banana be eaten. It is really well complete. There it is hanging well complete. Not a single one, not a single one eaten. Not a single banana did they eat. This–, this young man knows to work. Lower [inaudible], we're going to pay him.'

'Well, madam. I don't need money. What am I going to need money for?'

No–, you–, since you have worked.'

'No, no, madam.'

'Well, if you don't need money, I'll give you four daughters. This is your wife already. My daughter, come, give a hug to your husband.'

The four young women are already coming.

'Well, young man, you are–, you are our husband already.'

'No, I don't want a woman. I'm following my two brothers who passed through yesterday.'

'No. You don't follow them. They are going to kill you.'

'No. They won't kill me.'

The young man–, the young man–, small Sisuro goes away again. He goes, he goes, he goes, he goes, he goes, he goes, he goes, he goes. Damn, he finds them in the middle of the road. The two brothers were having lunch. Eating there, look. Damn, the older one looks.

'Look, brother. Sisuro is coming there. Let's kill him.'

Look, well, he was not received with any good intentions at all.

'Damn, there he comes, look.'

Poo. They cut him in the middle. They left throwing one part there and the other part, look. He remains dead already. These two go away, after having killed this little Sisuro. From there, since his head was not dead, he calls, then:

'Little metal, little metal, mend me.'

Then. *Ba.* Again–, he rises again. He lived again. He goes. He goes away again. He goes away, goes away. *Boe.* He goes reaching them again, and they are eating again. They go see him again.

'Look, and how ... ? But we have left him killed [inaudible] Sisurito. Look, he's coming. What are we going to do?'

'We're going to tie him up, we're going to tie him up with some liana.'

He begins fetching liana [inaudible]. On top of a trunk they tied him up, well tied, look. *Ta. Ta. Ta.* A good trunk. Well tied. There they left him, well tied.

'How is he going to leave from there?'

These two brothers go away again, leaving little Sisuro tied. Well. When he calculated that they were already further away these two brothers, he calls again from there:

'Little metal, little metal, set me free.'

Just a moment. *Tsa.* He untied again. He's already going again. He goes away again. He goes away, he goes away. Damn, he finds them again, drinking their *chapo.* Drinking. They go looking again.

'But look, there's little Sisuro coming again. Damn, how can I do this from there? We cut him, we left him tied. Now, what are we going to do?'

'What are we going to do?'

He goes, like to make a joke: 'My brother, I also want to eat. I want to drink *chapo.*'

Damn, there he begins pooping, it is said, the older one, it is said, into what they used for drinking at that time, a *pate*, okay. There he begins to blend [chapear], to move his faeces, okay.

'Well, here's your *chapo.*'

They are giving him faeces, blended. Damn, they left him throwing little Sisuro. There, they left killing him. *Po, po, po.* Little Sisuro remains again kill–, dying. These two go away. From there he said–, he called this little metal again:

'Little metal, little metal, heal–, leave me cured.'

A little while and Sisuro rises again, dead again. He goes going. He goes going, he goes going, he goes going. And there, he reaches them again, they go seeing him again:

'Look, Sisuro is coming there again. How can one kill him?'

'Look, what can one do?'

There was a steep hill. Truly very steep. They wait there. Little Sisuro comes.

'My brother, don't kill me, then.'

'Why do you follow me? Well, come here already.'

Damn, they took him, look, they already threw him down the hill, little Sisuro. *Wao. Hiw. Bum. Woa.* Little Sisuro was screwed. Now for real: how is he going to get up from there? There was no way. Very steep, two–, some three hundred metres. Damn, he called. They had long gone away. Now he goes, takes his pocket. *Ba.* He lost his metal from his pocket. It's no longer there.

'Now for real. I believe that I'm going to truly die here.'

Damn, he began calling already.

'Metal, metal, help me up!'

Nothing.

'Metal, metal, help me up!'

Nothing. What's going to listen? Damn ... He called, called so much.

'Metal, metal, help me up from here!'

How could it have heard? In fact, that metal fell at the very top. That little metal was left on top. He began to call, loudly:

'Metal, metal, help me up!'

'What?'

'Help me up! I can't get up because: How to get up? I'm here.'

'How many metres is it?'

'I, it fell–, one–, three hundred metres I'm in.'

Damn, and now: How? The metal is thinking up there: *How are we going to get up?*

'Look what you're going to do. I'm going to try extending my–, my tongue. Maybe it can reach there. If my tongue extends, well, three hundred metre, then I am going to help you up.'

'Okay, that's fine.'

It began to extend its tongue already, the metal ... It extended its tongue.

'Did it reach?'

'No, it has not yet reached.'

It begins to expand its tongue again.

'Has it already reached?'

'Nothing. It hasn't yet reached.'

Damn, he begins to expand two hundred metres already.'

'And?'

'Nothing!'

Damn ... Three hundred metres.

'Has the tip of my tip already reached there?'

'Yes, it has already reached.'

'Okay, grab–, grab the tip of my tongue.'

'Okay.'

He began to grab, this young man, this little Sisuro. It began to help him up again, his metal, look. There on the top again. He is on the top again, this little Sisuro.

'Well, let's go.'

He put this little metal into his pocket again. *Ta.*

He goes away again. He goes, he goes, he goes, he goes, he goes, he goes. Fine. And he hears:

'I am going to give my daughter to whoever manages to hit [huecapear] me in my chest.'

A king says, a king. Little Sisuro hears this. Damn, well, a horse from there, it began, and a king was sitting, speaking like this:

'If he–, if he–, if he hits me in the chest, I'm going to give him my daughter.'

I clarified at this point what the word 'huecapear' meant. Miguel explained that it was done 'con palo' (Spanish 'with a pole'), leading me initially to believe that it was about making a hole ('hueco') with a pole. In light of the events to follow, however, it more likely refers to a form of jousting.

'To whoever is going to reach me here, I am going to give my daughter. To whoever misses, not.'

Damn ... Little Sisuro is looking. Damn, he comes. He knows these two brothers.

'These two brothers are hitting.'

And he [the brother] begins to hit, look, he misses. It only touched here, nowhere else. Here. [Miguel points next to his chest] And it didn't hit his chest like this.

'Ah, I on the other hand, I am going to hit.'

Damn, he says to this little metal: 'Little metal, little metal, I need a very shiny horse.'

Okay. *Huiw. Ta.* A little horse, very shiny.

'Okay, mount–, I'm going to mount on top.

He began to pass with his little horse, look. *Huiw.* Damn, look at this. 'What is happening?' He does no longer recognise his brother. From there he begins again and the king keeps saying this:

'To whoever hits my chest, I'm going to give my daughter.'

Damn, little Sisuro comes returning from there, look. *Huiw.* He begins hitting. *Huiw. Bao.* Directly in his chest.

'Ah, they have reached my chest. He is my son-in-law.'

He begins to lower and these two come:

'Look, this–, this–, this–, this–, this brother, little Sisuro, he has already won. He is now already going to have his wife and we missed.'

Pum. How this–, this king lowers!

'Let's see: Who hit my chest?'

'Me.'

'Well, I'm going to give you my daughter.'

There he gave it. And the two brothers remained without a wife. This is where the story ends.

Awarima tuchono. (Yaguan 'The story has ended.')

Appendix C: Maps

Maps of Orosa Region

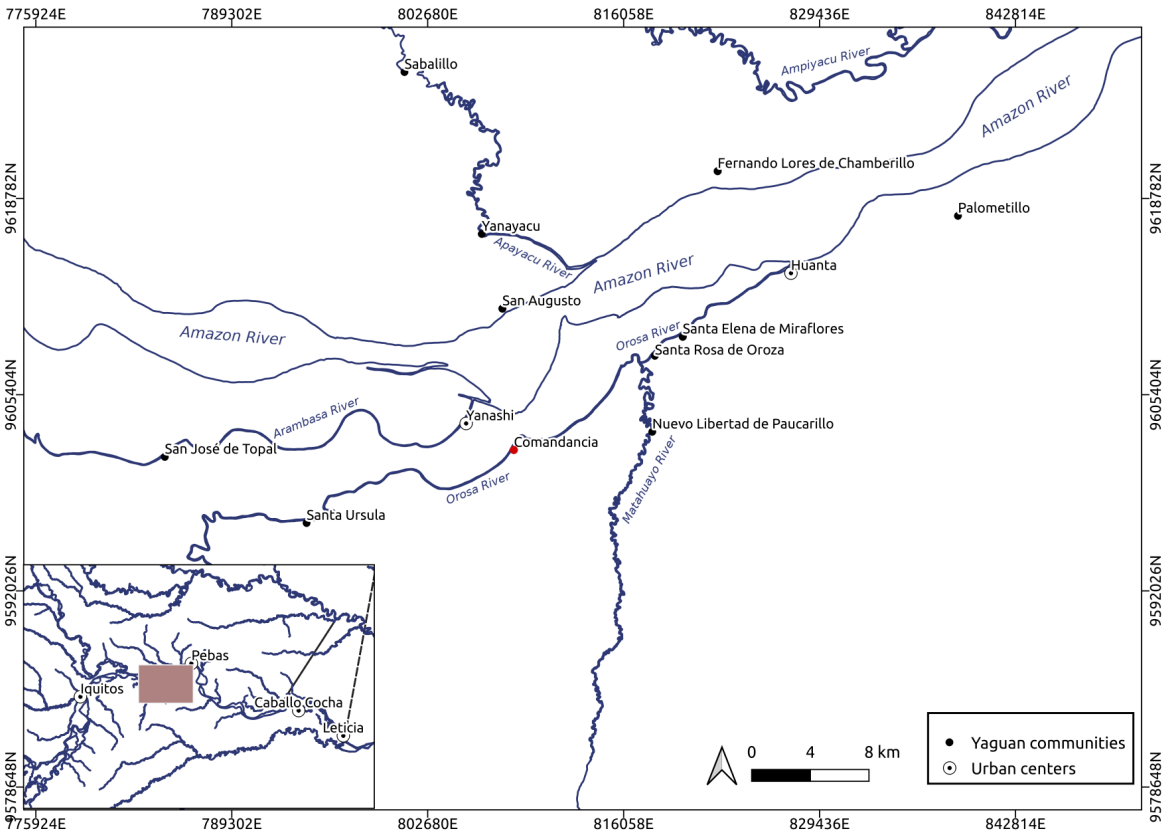


Figure C.1: Location of Yaguan communities along the Orosa River in Peru. Comandancia, in the centre, is marked by a red dot. Map by author based on data by the Instituto del Bien Común (IBC), the Autoridad Nacional del Agua (ANA), and OpenStreetMap (OSM).



Figure C.2: Village layout of Comandancia. Specifically marked are (1) the primary school, (2) the pre-school, (3) the football pitch, (4) the school canteen, (5) the old school and residence of the author, (6) the public house, and (7) the village shops. Layout and design by Sebastian Borrmann based on Maxar satellite imagery from 2013, personal drone footage from 2023, and notes from the author.

Maps of Atacuari Region

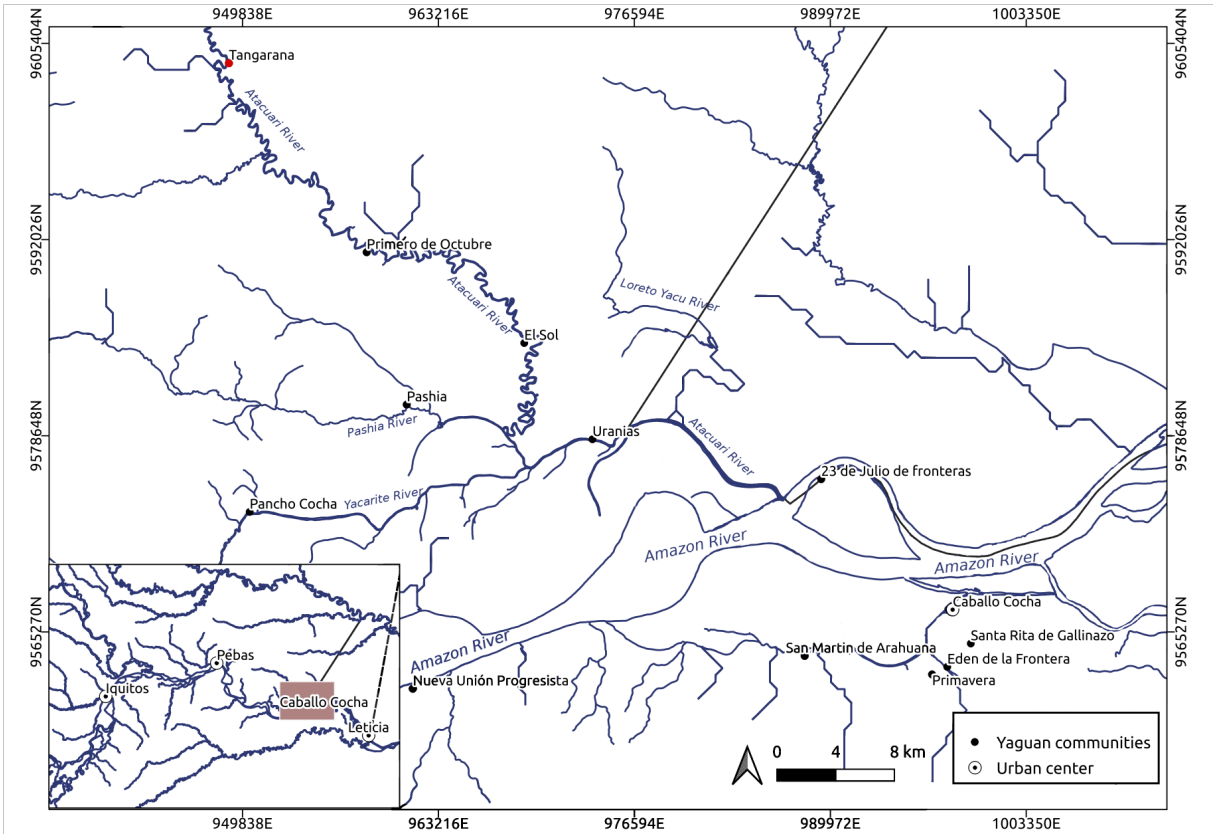


Figure C.3: Location of Yaguan communities along the Atacuari River in Peru. Tangarana, in the top left corner, is marked by a red dot. Map by author based on data by the Instituto del Bien Común (IBC), the Autoridad Nacional del Agua (ANA), and OpenStreetMap (OSM).



Figure C.4: Village layout of Tangarana. Specifically marked are (1) the primary school, (2) the pre-school, (3) the school canteen, (4) the football pitch, (5) the residence of the author, (6) the public house, (7) the prison cell, (8) the village shop, and (9) the dispensary. Layout and design by Sebastian Borrmann based on Maxar satellite imagery from 2024 and notes from the author.

Appendix D: Photographs

Fieldsites

Comandancia



Figure D.1: My host family in Comandancia celebrates the fourth birthday of their daughter. Photograph by author.



Figure D.2: The primary school building in Comandancia. When I arrived in the community, the building was still decorated with animal paintings and their respective names in Yaguan (e.g. nicha *means 'tapir', and* nibi *means 'dog'); the building was later repainted and the animals removed. In the background, one can see the new pre-school building (in orange and white). Photograph by author.*



Figure D.3: The primary school building in Comandancia is repainted through a collective effort. On the right can be seen a small hut with batteries to store solar energy. Photograph by author.



Figure D.4: A tin-roofed house in Comandancia during wet season. Photograph by author.



Figure D.5: The same house as on the previous photograph, but this time during dry season. In front, football bibs are left to dry on a clothesline. Photograph by author.



Figure D.6: A palm-thatched house in Comandancia during wet season. Photograph by author.



Figure D.7: The same house as on the previous photograph, but this time during dry season. Photograph by author.



Figure D.8: A typical balsa *raft on the riverbank. The raft is used to wash dishes and clothes and for bathing; the attached canoe is used for fishing. Photograph by author.*



Figure D.9: Cemented pathway in Comandancia. Photograph by author.



Figure D.10: The problem of diminishing fish stocks due to external fishermen is discussed at a workshop in Comandancia, with representatives from eight different communities along the Orosa River. Photograph by author.



Figure D.11: A birthday party in Comandancia. The piñata*, modelled after a jersey of the football club* Real Madrid*, has just been torn open, and the children try to collect the small toys and sweets. Photograph by author.*

Tangarana



Figure D.12: My host parents Richa Mutyasurya and Erlinda Ramunurya (on the left) with three of their children in front of their house in Tangarana. Photograph by author.



Figure D.13: The construction of a house in Tangarana. Photograph by author.



Figure D.14: The public house in Tangarana is constructed in preparation of the village anniversary. Photograph by author.

El Sol



Figure D.15: Miguel Panaijo Saboya, the communal leader of El Sol, is telling me a story. Photograph by author.



Figure D.16: The primary school in El Sol. Photograph by author.



Figure D.17: José Mukatyu is weaving a basket while talking with me. Photograph by author.



Machines and Screens



Peke-peke Motors



Figure D.18: A small peke-peke *motor in a boat. The steering helm is fastened to the boat, so that the tail is outside the water. There is also the string slung around the motor that is used to start the motor, namely by fiddling it into the flying wheel and pulling; the string is normally directly attached to the flying wheel, allowing the latter one to have a protective layer, but here it has been removed. Photograph by author.*



Figure D.19: The tank lid of a peke-peke *motor is replaced by the sole of an old rain boot. Photograph by author.*



Figure D.20: Manuel Ramirez Lopez is navigating a boat with peke-peke *motor. Photograph by author.*



Figure D.21: It is usually the responsibility of the peke-peke *driver to also bail the water that enters through cracks in the wood. In this case, Gerlin Ramirez Santana is bailing water while steering. Photograph by author.*

Chainsaws and Grasscutters



Figure D.22: This chainsaw was received as payment for scouting lumber. In the background, one can see a canister used for spraying poison; in the foreground, two pet parakeets walk around. Photograph by author.



Figure D.23: Elmer Pano Cahuamari is wielding a grasscutter during a communal work session in Comandancia. Photograph by author.



Figure D.24: A poster in Iquitos advertises a grasscutter who 'wins in all fields'. Photograph by author.

Smartphones, Computers, and Tablets



Figure D.25: Children are watching a cartoon on a smartphone in Tangarana. Photograph by author.



Figure D.26: The One Laptop Per Child (OLPC) Project is largely considered a failure. Yet, some of the computers can still be found in rural Yaguan communities. Photograph by author.



Figure D.27: A girl with a school tablet. Photograph by author.

Pets

Birds



Figure D.28: A tame toucan helps itself to a banana. Photograph by author.



Figure D.29: A baby macaw, still lacking full plumage, has just been fed with bananas. Photograph by author.



Figure D.30: Luisa is feeding a baby parakeet by masticating banana and helping the bird eat from her mouth. Photograph by author.



Figure D.31: A small child tries to feed two tame birds with a banana, which is, however, too big for the birds. Photograph by author.



Figure D.32: Two tame trompeteros *are about to take a bath in a water tank next to our house in Tangarana. Photograph by author.*

Agouti



Figure D.33: A girl with a pet agouti. Photograph by author.

Monkeys



Figure D.34: A recently captured baby saki monkey holds on to the author's head while leaving a hunting camp. Photograph by Richa Mutyasurya.



Figure D.35: Arielle, a tame woolly monkey, on a guaba tree outside her house. Photograph by author.

Hunting Dogs



Figure D.36: Laika, one of our hunting dogs, has entered the house in search for food. Neither dogs nor chicken are allowed in the house, though, so she is almost immediately chased away. Photograph by author.



Figure D.37: A hunting dog has stumbled upon a silky anteater and tries to attack it. The anteater later successfully flees into a tree. Photograph by author.



Hunting and Fishing



On the Hunt



Figure D.38: An unfinished hut in a hunting camp on a side creek of the Orosa River. The bark of the huacrapona *palm is later added on top of the tree trunks to form a bed, together with a blanket and a mosquito net. Photograph by author.*



Figure D.39: In the same hunting camp, a fireplace serves to make food. Next to it, there is the carcass of a sloth for preparation. Photograph by author.



Figure D.40: Milton Pipa Pipa is making a capillejo *to carry home his meat. Photograph by author.*



Figure D.41: Donaldo Pipa Pipa is studying tracks of collared peccary. Photograph by author.



Figure D.42: Donaldo is presenting a dead paca. Pacas are generally hunted at night. Photograph by author.



Figure D.43: A capillejo *with paca and meat from another animal. Photograph by author.*



Figure D.44: Julio Mutyasurya is making a capillejo *for peccary. Photograph by author.*

Catching Fish



Figure D.45: Julio is revising his fishing net. Photograph by author.



Figure D.46: The end of a canoe is laden with fish, caught with a fishing spear and barbasco *poison. Photograph by author.*



Figure D.47: The photo shows a heap of smashed barbasco *vines in the bottom-left corner. In the centre, one can see the wooden club used for smashing them against the tree trunk. The heap of vines is afterwards mixed with water to create a white liquid, whose release into the water slowly stuns or kills the fish.* Barbasco *is not frequently used nowadays. Photograph by author.*



Gardening and Gathering



Forest Gardens



Figure D.48: A small manioc plant begins to grow in a new chacra*, in the immediate vicinity of Comandancia. Photograph by author.*



Figure D.49: A minga *takes place to clear the garden of smaller branches and to plant manioc and plantains. As is customary,* masato *is served. Photograph by author.*

Pihuayo



Figure D.50: Julio is climbing a tree to cut off the fruits of the neighbouring pihuayo *tree. Around his feet, he wears a liana to assist his climb. Photograph by author.*



Food and Drink



Meat



Figure D.51: A dead monkey has been gutted for further preparation. Photograph by author.



Figure D.52: A dead paca has had its fur removed. Photograph by author.



Figure D.53: This sloth was killed with a machete blow on its head. Photograph by author.



Figure D.54: The fur of the sloth is removed. Photograph by author.



Figure D.55: The skin of the sloth is softened by 'bathing' it on the fire to better remove its fur. Photograph by author.



Figure D.56: As in the previous photograph, one can see how the sloth is entered into hot water in order to ease the removal of its fur. Photograph by author.



Figure D.57: Most of the sloth's fur is removed at this point. Photograph by author.



Figure D.58: After the full removal of its fur, the sloth is gutted in a nearby creek. Photograph by author.



Figure D.59: The sloth is smoked for several hours, after which it is ready to be eaten. The small 'balloon' in the top-right corner of the photograph is the sloth's bladder, which can be used as treatment for bed-wetting. Photograph by author.

Fish



Figure D.60: Fish is cooked on a fireplace in Tangarana. Photograph by author.



Figure D.61: Various species of fish are drying on a balcony. Photograph by author.

Fariña



Figure D.62: Manioc is soaked to prepare fariña*. Photograph by author.*



Figure D.63: Soaked manioc is pressed to make fariña*. The bags with manioc had been left in the water for a few weeks, and the depicted construction helps to remove water before roasting. Photograph by author.*



Figure D.64: Manuel is making fariña*. In the background, one can see parts of the primary school and the adjacent volleyball court and football pitch. Photograph by author.*

Beer



Figure D.65: Luisa Ramirez Santana is pounding manioc to make masato. *The manioc was beforehand cooked and cut into small pieces. Photograph by author.*



Figure D.66: A woman is pounding pihuayo *to make* masato. *The* pihuayo *was beforehand cooked and cut into small pieces. Photograph by author.*



Figure D.67: Miguel treats another man to a bowl of masato *during the village anniversary in El Sol. Meanwhile, the* masato *is further stirred and swirled with a canoe paddle to improve its overall texture and taste. Photograph by author.*

Handicrafts

Hammocks



Figure D.68: Emerita Cahuamari Santana is weaving a hammock, which is attached to posts of her house in Comandancia. Photograph by author.



Figure D.69: Emerita is counting the number of threads before weaving in further yarn. Photograph by author.



Figure D.70: Emerita is weaving in further yarn. It is typical for Yaguan women to wind up the yarn into a bundle, whereas Ticuna women use a wooden shuttle instead, according to my research participants on the Atacuari River. Photograph by author.



Figure D.71: Chambira *thread is dyed with the scrapings of* achiote *bark to produce a yellow colour. Photograph by author.*



Figure D.72: Chambira *thread is dyed with a mixture of plants to achieve a black colour. Photograph by author.*

Sieves

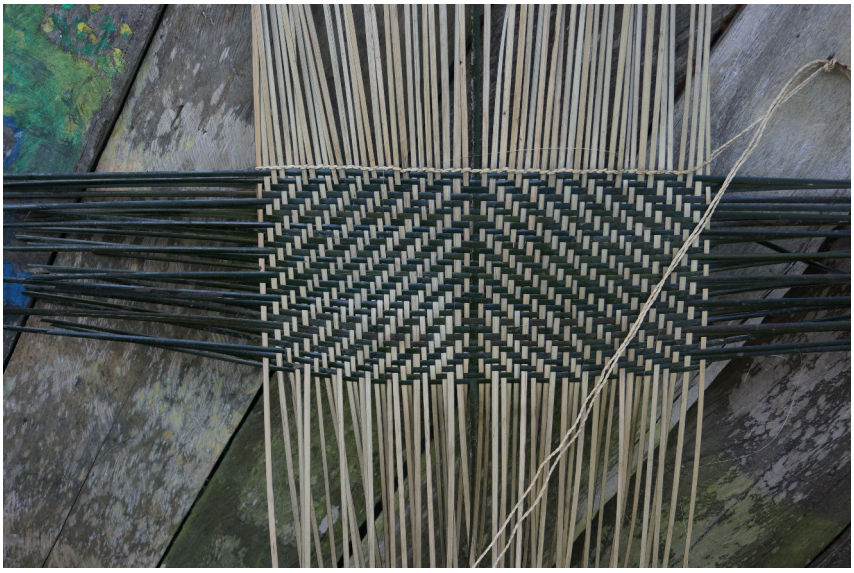


Figure D.73: An unfinished masato *sieve. Photograph by author.*

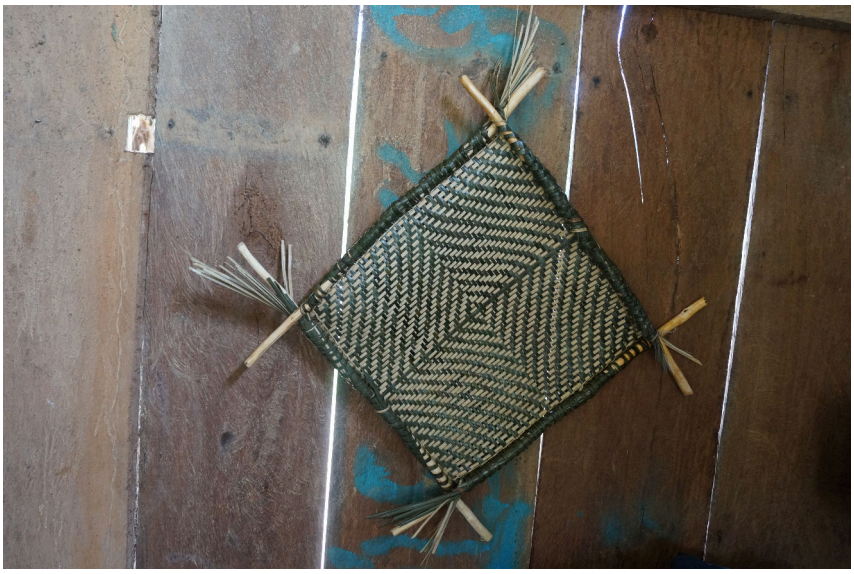


Figure D.74: A masato *sieve. Photograph by author.*

Drum and Flute



Figure D.75: An agouti skin is stretched to make a drum head. Photograph by author.



Figure D.76: Plastic flutes are often preferred to wooden flutes because of their greater durability. Photograph by author.



Logging Economy





Figure D.77: A log skidder in a logging camp on the Orosa River. Photograph by author.



Figure D.78: A logging company has piled logs along the river shore to float them downriver. Photograph by author.



Tourist Economy





Figure D.79: This maloca *was built primarily to attract tourists. Photograph by author.*



Figure D.80: Details of the interior of the maloca*. Photograph by author.*



Figure D.81: A Yaguan man with champa *showcases the Yaguan culture in Las Palmeras Zona II, a community that largely relies on the tourist economy. Photograph by author.*



Figure D.82: A Yaguan dance group in Las Palmeras Zona II presents a 'typical' Yaguan dance. Photograph by author.



Figure D.83: Two Yaguan women aim at a S/20 bill with a blowgun. Tourists are asked to provide a bill and can then compete in targeting it. Photograph by author.



Figure D.84: Close-up: A S/20 bill has been set as a target for the above blowgun shooting. Photograph by author.