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SPECIAL ISSUE

SCIENCE IN THE FOREST, SCIENCE IN THE PAST

Antidomestication in the Amazon

Swidden and its foes

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John Locke never acknowledged the existence of any agriculture and hence of property in the Americas. Yet, one can say that in Amazonia, cultivation not only existed among humans but was a capacity shared with almost every living being and with spirits. While Amazonia is presently recognized as a major center of plant domestication, one can argue that indigenous agriculturalists did not conform to a proper definition of domestication. One is tempted to say that they resisted absolute domestication of plants as well as of themselves, as they avoided losing the ability to survive as foragers. Swidden agriculture was no "subjection of the land" (as Locke would have it) but a science of both cultivation and forest producing in which humans shared rights with other beings.

Keywords: Amazonia, swidden agriculture, property, domestication, plants, animals, fallow, rights, subjection

It might come as a surprise that I would enlist agriculture as a science in and of the forest. Is it a science? Here's a quotation from the *Oxford English Dictionary* (*OED*):[1] "If we estimate dignity by immediate usefulness, agriculture is undoubtedly the first and noblest science." In the second edition of the *OED*,[2] agriculture is still being defined as a science: "The science and art of cultivating the soil; including the allied pursuits of gathering in the crops and rearing live stock; tillage, husbandry, farming (in the widest sense)." However, the third edition, twenty-three years later, considers that earlier usage to have become rare: "(a) Originally: the theory or practice of cultivating the soil to produce crops; an instance of this (now rare); (b) Later also (now chiefly): the practice of growing crops, rearing livestock, and producing animal products (as milk and eggs), regarded as a single sphere of activity; farming, husbandry; (also) the theory of this."

If the *OED* change of heart is any indication, it looks as if agriculture is being demoted from science to mere practice. And yet, somewhat puzzlingly, *OED* adds the "theory of the practice of agriculture" to its (b)-level definition.

There is no doubt that the scientific establishment tends to keep the label *science* to itself. A depreciation of local communities and indigenous peoples' agriculture is transparent in a distinction that is sometimes made between knowledge and empirical know-how, something the French separate into *savoir* and *savoir-faire* (Caplat 2016).

I take it that we can agree that the term *science* is applicable to traditional peoples' agriculture. But then, how can I call it a science *in* or *of the forest*? How can one reconcile agriculture with the forest, since the former is blamed for having caused the very destruction of the latter? True, some definitions of agriculture include forestry, but this is not what I am talking about. What I mean is high forest, a forest that looks pristine

1. Johnson *Rambler* (1751) No. 145. ⁋3.

2. *Oxford English Dictionary*. 1989. 2nd ed. 20 vols. Oxford: Oxford University Press. Continually updated at http://www.oed.com/.

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to nonexpert eyes, even though it might well be anthropogenic to some degree (Balée 1994, 2013; Heckenberger and Neves 2009).

It is somewhat ironic that among many South American Lowland indigenous peoples, the forest is often conceived of as itself cultivated. True, not necessarily cultivated by present-day humans but rather by other "people," animals, spirits, masters, even planted and cared for by other plants. In a sense, it is as if agriculture were the norm, wilderness being residual. Thus, the Wajãpi notion of human space is restricted to their gardens and fallows while the forest is made by other beings cultivating their own food (Gallois 1986; Cabral de Oliveira 2012). In Jamamadi indigenous universe, there are no such things as wild plants, since everything is cultivated but by some "other" cultivator (Shiratori 2018: 136). Jarawara follow a similar view, yet admit a degree of remaining wilderness (Maizza 2014: 504). Several Amazonian indigenous peoples credit agoutis for cultivating Brazil nuts. Sometimes the forest is reconfigured as the garden planted by the Creator himself.

This might correlate with a puzzling and often noted absence among indigenous peoples as well as Amazonian rubber-tappers of a general term for designating the *Plantae* kingdom. A *plant* for humans is literally what humans have planted.[3] But animals and other beings can and do also plant, hence they have their own plants—that is, those they cultivate. Knowledge of animal food preferences is truly encyclopedic (Cabral de Oliveira 2012: 73ff.).[4] An animal's plant roughly corresponds to its food, though such food might be edible for several different animals and humans alike. Just as many animals partake in what is produced in human gardens, so humans may also eat what was produced by animals: wild food. One could speculate whether this would favor human trekking seasons and abandoning cultivation once and for all. In a sense, therefore, every sentient being could be a gardener or an agriculturalist.

In contrast with such notion of a wide prevalence of cultivators, be they humans or otherwise, John Locke never acknowledged any agriculture at all among "Americans": "In the beginning all the world was America." This somewhat odd quote comes from John Locke's *Second treatise of civil government* (1960: chap. 5, sec. 49) and needs some explanation. America and aboriginal Americans stand, in Locke's scheme, for an age of universal undivided commons. Individual property (and hence its "conveniences") does not exist just as was the case when humankind lived in the Garden of Eden.

> *Sec. 41.* There cannot be a clearer demonstration of any thing, than several nations of the Americans are of this, who are rich in land, and poor in all the comforts of life; whom nature having furnished as liberally as any other people, with the materials of plenty, i.e. a fruitful soil, apt to produce in abundance, what might serve for food, rayment, and delight; yet for want of *improving it by labour*, have not one hundredth part of the conveniencies we enjoy. (Locke 1960: chap. 5, sec. 41; emphasis added)

The reasoning is: labor being absent, property has not yet emerged. Primeval labor was cultivation, and cultivation implied "subduing."

> And hence *subduing or cultivating the earth, and having dominion, we see are joined together. The one gave title to the other* (Locke 1960: chap. 5, sec. 35; emphasis added)

Half a century after Locke's *Second treatise of civil government*, the joint issue of agriculture as the paradigmatic form of labor and hence the basis of rights of dominion over land had firmly taken root.[5]

Not just any kind of agriculture, however. Agriculture in its full sense was deemed to be practiced in permanent fields and preferably with a plow. A plow no doubt "subdues the earth" more effectively than a stick. That those "Americans" merely "scratched the land" and ignored tillage could be grounds for asserting that their title to property was dubious at best.[6]

3. In a similar fashion, for older Wajãpi, wild fruit was designated by an exclusive term that could not be extended to cultivated fruit. Under outside influence, the scope of the term now covers both wild and cultivated fruit (Cabral de Oliveira 2012: 77). What this might indicate is that in the nomenclature criteria of old, actions and relations to plants trumped form and function.

4. It exceeds its hunting utility that allows one to anticipate when and where one can expect to find specific game by following the ripening of fruit or seeds.

5. The word itself, *labor*, comes from old French *Labour*, which meant tillage using a plow.

6. Such an argument could be brought up in later colonial conquests such as Australia, but was (fortunately) never used in earlier European colonial empires.

It looks as if in the eighteenth century, issues of style of agriculture, domestication, sedentarization, property, and progress had become entangled in a single syndrome. A similar syndrome seems to appear in archaeology, when Neolithic revolution conflates pottery with domestication of animals and plants. As archaeologist Eduardo Neves has pointed out, the distinct dimensions of the syndrome are disjointed in the Amazon. Pottery is older than agriculture and not necessarily found together with cultivated plants. Hence, there was never a Neolithic revolution in Lowland South America, as the author puts it (Neves 2016).

As for livestock or any other animal domestication, Amazonian indigenous peoples are famous for their love for wild animals as pets as well as for their avoidance of animal domestication (Erikson 1987, 1997; Fausto 1999). Taming is one thing, domestication is quite another. Furthermore, pets or any creature one has fed are generally not to be eaten.[7]

Amazonian agriculture is a vibrant topic of research by such researchers as Clement or Emperaire or Elias, among others. This is not the place to review such things as the changing historical importance of maize relative to manioc in different societies and linguistic stocks, nor the possible precedence of non-toxic manioc over toxic manioc (Alves Pereira et al. 2018; Santos-Mühlen et al. 2013).[8] While some debate persists on regional issues, there is presently a general recognition of the Amazon being a major center of plant domestication (Clement et al. 2015; Levis et al. 2017). Recently, even rice on the Guaporé was added to an already large list of plants domesticated in Amazonia (Hilbert et al. 2017). Archaeological research in Amazonia has produced evidence of several large sites with long-term intensive agriculture in the forest (Heckenberger and Neves 2009). A formidable indigenous contribution to agrobiodiversity has been stressed, covering an astounding number of varieties of sweet potatoes, gourds, beans, peanuts, et cetera, not to forget, of course, manioc (Carneiro da Cunha and Morim de Lima 2017).

In short, this is a time for academic celebration of indigenous agricultural techniques and exploits. And yet, a number of Amazonians' attitudes toward agriculture look somewhat puzzling.

As Claude Lévi-Strauss very early pointed out in the *Handbook of South American Indians* (Lévi-Strauss 1950), people knew and relied at least as much on cultivated as on wild plants. In the myth usually called "The origin of cultivated plants" among the Ramkokamekra-Canela of Eastern Timbira, Star-Woman not only donates seeds and teaches Indians to cultivate plants but she also introduces them to edible wild food: before Star-Woman, people ate "rotten wood" (Miller 2015: 385–90). It is as if the two modes of procurement, which are so starkly distinguished by us, were never really separated.

Present-day foragers like the Maku-Nukak (Politis 2009) will cultivate some manioc for special occasions, while not letting cultivation hinder their mobility. A significant number of former agriculturalists, such as the Western Parakanã, the Awá (or Guajá), the Sirionó, the Ache, have reverted to foraging (Carneiro da Cunha and Morim de Lima 2017). Conversely, some Gê-speaking societies, who were deemed "marginal" in the 1950 *Handbook of South American Indians* for their little agriculture, have presently turned into obsessive gardeners. Ramkokamekra-Canela and Krahó are examples of that move (Miller 2015; Morim de Lima 2016). Trekking periods are enjoyed even among strong agriculturalists.

There is abundant worldwide evidence of cultivated plants as "people" requiring special attention and coaxing. Anne-Christine Taylor (2007) and Philippe Descola have described Achuar women's extreme maternal dedication to their plants (Descola 1986). Rio Negro women endeavor to make their manioc children happy in the gardens by providing to them companion species who should play music and comb their hair (Emperaire, van Velthem, and Oliveira 2012).[9]

Kraho people seem to take this cultivars' independence and demands to the next level. Their plants have

7. An example of the same attitude is brought out by an attempt in the 1990s by an NGO at breeding fish on the upper Rio Negro. Women starkly refused to eat fish they had been feeding (Estorniolo 2012).

8. Sweet manioc is pervasive on the Juruá River (Acre and Amazon states). On the Purus River basin, indigenous people who cultivated sweet manioc claim to have only recently learned of toxic manioc and manioc flour from itinerant river traders. In Northwestern Amazonia, in contrast, the word *mandioca* refers only to the toxic varieties and sweet manioc is considered a wholly different species, sometimes assimilated to a "fruit" and is called *macaxeira*.

9. Stephen Hugh-Jones (this volume) rightly points out that, according to context and situation, very similar attitudes are present in people whose ontologies are deemed naturalist as against animist.

their own volition and demand special attention. If discontented, sweet potato tubers will migrate on their own and establish themselves in gardens of more attentive farmers (Morim de Lima 2016). Again, this kind of relationship to cultivated plants is hardly seen as the dependency on plants implied in domestication. It might look like domestication to us, but it doesn't seem to look like it to them. There is no (ideological at least) subduing implied. Marilyn Strathern (2017, this volume) gives several New Guinea examples of similar personal relations.[10]

Even as the Amazon is presently recognized as a major center of plant "domestication," it is as if Amazonians would maintain a virtual if not actual possibility of escaping being fully domesticated themselves. For agriculture and livestock, as I have argued recently, go both ways: they fix and tie down the domesticated as much as the domesticator (Carneiro da Cunha and Morim de Lima 2017).

Granted, foragers are commonly despised by more sedentary lowland societies. The Kaapor and Guajajara agriculturalists in the state of Maranhão looked down on the Guajá before they settled down in villages[11] and the Hupda (Maku) are looked down upon by the more sedentary Tukanoans.[12] And yet Tukanoans themselves enjoy seasonal mobility for fishing or foraging. Central Brazil Gê-speaking societies, for all their present-day agricultural activity, have not relinquished their seasonal trekking expeditions.

Would there be something like a (so to speak) menu available to Neo-tropical Lowlanders offering a gradient ranging from full sedentarization to an option for mobility? In support of such view, let us stress that many mobile societies seem to share regional space with more sedentary ones. It is as if their spatial contiguity could be thought of as jointly forming a meaningful unit, much in the way as the articulate coexistence of Jivaros and their neighbors, as Taylor (2007) once pointed out.

The term *domestication* and the expression *domestication process* are loosely used based on more or less stringent definitions. Yet many natural scientists will argue that proper domestication is that state of affairs that demands that the very life and reproduction of a species be strictly dependent on human care. Hence, the notion is one of absolute subjection of the domesticated to the domesticator. Volition, demands, and even initiatives by plants in Lowland agriculture ideology hardly conforms to that definition. What I mean is that indigenous peoples, for all their exploits in what we call domestication of plants, might not think of themselves as domesticators.

Swidden, manioc, and colonial concerns

Manioc, also known as cassava among many other names, has several virtues: it grows on poor soils, such as Amazonian ferrosols; it can be quite precocious (as little as six months to maturity) as well as very long-lived (up to two years, according to varieties); and it does not require storage arrangements, as it remains stored in the field itself. By now, manioc or cassava, which is native to the Amazon, has become staple food for some eight hundred million people, mainly in Africa.

Manioc is cultivated in tropical countries around the world in a system known as swidden. Swidden is "an agricultural system in which fields are cleared by burning and are cropped discontinuously, with periods of fallowing which are always longer than periods of cropping" (Fox et al. 2000). Fallow—that is, regeneration—is an integral part of the system. Yet swidden is often defined (for example, in *OED*) solely by its use of fire, obliterating the importance it places on fallow.

Here is a very general and rough model for indigenous agricultural system in the Amazon: every year, at least one new field is cleared for planting manioc, corn, squash, pineapples, sweet potatoes, bananas, and a wealth of other plants. Primary or secondary vegetation is cut and burned and logs are left in place. The plot will still be productive the following year, with varieties that can mature more slowly. However, weeds and secondary vegetation are already present, and weeding is a very demanding task. By the third year, as soil fertility

10. "In the eyes of many Papua New Guineans, however, planting does not axiomatically ensure that the plant stays there; once in the care of particular gardeners, who may or may not pay them sufficient attention, the souls of both taro and yam may have reason to wander away. If they have come from somewhere else they can go off too, in a kind of reverse movement" (Strathern 2017: 33n11).

11. Uirá Garcia, personal communication.

12. They are often accused of pilfering in agriculturalist fields. Yet Hupda are used as occasional laborers by Tukanoans.

has declined, weeding and cultivation will cease, but not the visits to the plot and the rights over it.

In many Neo-tropical societies, there is an elaborate management of gardens and fallows initiated even before anything is planted. It starts with the opening of a new plot and persists long after the garden's last crop is reaped. Fruit and other useful trees, tolerated or protected when clearing, will be growing in there, competing for light with fast-growing secondary vegetation. Useful trees comprise not only those that bear fruits that humans eat but also fruit trees appreciated by game (and hence that attract game when fruit is ripe), trees for attracting birds that disperse forest seeds (Bahuchet and Betsch 2012), besides a number of other plant species used for construction, health, and all kinds of other purposes.

William Denevan (1992) suggests that manioc cultivation exploded as steel axes became available in colonial times. Stone axes made felling trees much more exerting, but we should remember that there were other precolonial indigenous techniques for felling trees, such as cutting out a bark ring on a big tree, causing it to die. That tree would be able to take down some others when it fell, and thus open up a clearing in the forest.

In any case, the system required opening up at least one new field per year, and led (and still leads) to moving from one place to another every so many years when gardens become too distant from villages. Other factors, which include game depletion, political disputes, and permanent schools and health and administration facilities that function as attractors are taken into consideration when considering moving. But whatever other reasons there were, gardens on their own acted as inducers of territorial movement.

Colonial settlers in the hinterland were quick to adopt manioc cultivation, while urban settlers tried to stick a little longer to a rarefied diet of wheat, wine, and olive oil. Jesuits sent queries to Rome asking if communion with manioc host was acceptable.

Settlers who had slaves took swidden cultivation to a much greater scale. To this day, *mutatis mutanda*, the change in scale is a major cause of huge deforestation in the region. Yet, at the time, in contrast with what happens now, people were not concerned with deforestation. Officials were rather concerned with settlers who moved about too much, settlers who did not actually settle down, and who did not produce what was expected to stand as cultivation—namely, permanent fields leading to permanent homes and villages.

A somewhat extreme measure was advocated by a Jesuit priest. Padre João Daniel S.J., born in 1722, had first arrived in the Amazon at the age of nineteen and had spent some sixteen years in the region. As Jesuits were being thrown out of the Portuguese Empire under Prime Minister Pombal, Padre João Daniel was incarcerated. While rotting in prison where he died nineteen years later, he wrote a remarkable treatise on the Amazon, posthumously published under the title *Tesouro Descoberto no Máximo rio Amazonas*, which can be roughly rendered as "A treasure unveiled in the greatest River Amazon" (Daniel [1757?–1776] 2004).

The manuscript described all kinds of Amazonian riches and proceeded to suggest governmental colonial measures. His odd recommendation was that Amazonian colonial settlers should be barred from planting manioc and should turn instead to cereals. There were several reasons the prisoner expounded for prohibiting manioc. Most importantly, manioc meant swidden agriculture, itinerant agriculture meant itinerant population. Cereals were much more desirable from a colonial government point of view since they were supposed to fix people on their land.

His recommendation was actually shared by eighteenth-century colonial authorities. The issue of settling the settlers, fixing them to a specific portion of land, and even better, urbanizing landowners to some extent, appears to have been a permanent concern of the eighteenth-century colonial state.

By then, manioc was popular almost everywhere in what is today's Brazil. A contemporary of imprisoned Padre João Daniel, the fourth Morgado de Mateus (Earl of Mateus) was, by contrast, well regarded by the all-powerful Prime Minister Pombal of Portugal. For ten years (1765 to 1775) he governed a large part of Southeast Brazil (the then captaincy of São Paulo) and became known for the many urban settlements he was able to create. He issued ordinances requiring landed citizens to build a proper house in town and . . . to abstain from cultivating manioc. Again, manioc was considered a hindrance for fixing the population and establishing title to land (Monteiro 2012).

Swidden in high modern times

Swidden agriculture still has a bad name, in more than one sense. True, its most common earlier designation, "slash and burn," which is reminiscent of the infamous "search and destroy," is slowly being abandoned. Itin-

erant or shifting agriculture is a more politically correct expression.[13]

Yet, to this day, discussions still go on about swidden's good or bad effects. In Southeast Asia, there is a lively, ongoing dispute about the overall prohibition of the practice, as many traditional peoples are being pushed into abandoning it in favor of palm oil plantations (Padoch and Pinedo-Vasquez 2010; Ribeiro Filho et al. 2013). All kinds of state policies, including the separation of forest and agricultural land, have contributed to the demise of swidden in Southeast Asia (Fox et al. 2009).

The Food and Agriculture Organization of the United Nations (FAO) bears a strong responsibility on that front. The very same year it published the remarkable work by Harold Conklin (1957) on Hanunoo swidden agriculture, it delivered a scathing indictment of the very same practice. They referred to the practice as "the greatest obstacle not only to the immediate increase of agricultural production, but also to the conservation of the production potential for the future, in the form of soils and forests. . . . Not only a backward type of agricultural practice . . .[but] also a backward stage of culture in general" (FAO Staff 1957). However, Conklin's study had ended with no suggestions for improvement of the system, for, as the reviewer E. Biasutti Owen stated, no suggestions were in order, since this was a case of a good, stable equilibrium. So, which is it?

Almost sixty years later, in 2015, in what looked like a reversal of opinion, the FAO, the International Work Group for Indigenous Affairs (IWGIA), and the Asia Indigenous Peoples Pact (AIPP) jointly published a book defending swidden agriculture in Southeast Asia (Erni 2015). However, FAO still discreetly refrained from endorsing the views of the authors.

Prejudice against swidden endures. Starting in 1994, a long-term program that went on at least until 2004 and was led by an international agroforestry research organization was suggestively named "Alternatives to slash and burn" (Pollini 2009). It was richly endowed on the promise to inject a massive dose of hard science and agroforestry technology: one of its recommendations was enriching fallows, something that a large number of indigenous peoples already do.

Swidden agriculture is largely practiced in tropical countries around the world, with several variations. Tropical poor soils will use as nutrients the ashes of the vegetation that was cleared and burned down. While the cropping techniques have been extensively described, much less attention was paid to techniques related to fallow. These were often thought to be merely abandoned on account of the excess of invasive weeds. A remarkable paper, published online in 2012 and already cited, provides a minute description of an Amazonian fallow creation technology by the Wayana Indians on the Maroni River in French Guyana and their sophisticated method for establishing fallows (Bahuchet and Betsch 2012). Fallows will eventually result in a biodiverse and high biomass forest. *Swidden is not only a cultivation system in the forest, it is as well and very importantly a procedure for high forest regeneration*. "Swidden cultivation is an old paradigm built around the temporary removal of trees but not of the forest" (Fox et al. 2000).[14]

William Balée (1993, 1994, 2013) has published very interesting results on the importance of biodiversity that can be found on mature fallows. Further, by now archaeologists and botanists are claiming that a significant part of the Amazon is anthropogenic, based on the presence of plant species that indicate secondary forest and on the large distribution of ADEs, Anthropogenic Dark Earths (for example, Levis et al. 2017). ADEs are highly fertile soils, produced by anthropic remains, including food remains and pyrogenic carbon four thousand to ten thousand years old. They are often considered a model for the development of modern soil fertility in the tropics. Some ADEs may be quite extensive and their presence supports the claim for high density archaeological agricultural populations in the Amazon.[15]

13. NGO Survival International gives a more updated definition and explanation: "Swidden agriculture, also known as shifting cultivation, refers to a technique of rotational farming in which land is cleared for cultivation (normally by fire) and then left to regenerate after a few years. Governments worldwide have long sought to eradicate swidden agriculture, which is often pejoratively called "slash-and-burn," due to a mistaken belief that it is a driver of deforestation." https://www.survivalinternational.org/about/swidden.

14. As neotropical agriculture cannot be thought in isolation from forest production, many researchers prefer to call such systems agroforestry rather than simply agriculture.

15. Very similar systems using fire and resulting in enhanced soil fertility and centered around maize cultiva-

Do ontologies account for people seeing the trees while not seeing the forest?

Shifting cultivation under every other name is still outcast as promoting destruction of forests and land degradation. People see (felling of) trees yet they do not seem to see (the regeneration of) forests.

Among Amazonian indigenous peoples, humans' rights in the forest certainly do not follow Locke's theory of dominion. Everything has its own "master" or "mother" (Fausto 2008). Wayãpi people, to take an example, consider that the human domain is restricted to the clearings and plots they cultivate, which by definition are transient (Gallois 1986). Everything else has its own masters. Wild pigs or tapirs are obtained as prey only through shamanic transactions with their specific masters. Moreover, everywhere in Amazonia (and newcomers such as rubber-tappers learned to behave in the same manner), game carcass and remains are to be treated with "respect" and should not be disposed of carelessly (Almeida 2013). In the Amazon, forest-dwellers are supposed to follow all kinds of rules and prohibitions that curtail use of resources. As noted earlier, even cultivated plants have their own volition and require to be pampered (Emperaire, van Velthem, and Oliveira 2012; Morim de Lima 2016). There is no Lockean talk about "subduing and cultivating the earth."

Locke went on:

> *Sec. 32.* But the chief matter of property being now not the fruits of the earth, and the beasts that subsist on it, but the earth itself; as that which takes in and carries with it all the rest; I think it is plain, that property in that too is acquired as the former. As much land as a man tills, plants, improves, cultivates, and can use the product of, so much is his property. He by his labour does, as it were, inclose it from the common. (Locke 1960: chap. 5, sec. 32)

Again, this does not apply in indigenous Amazonia. Surely, people have a number of rights over their crops, their fields, and their fallows,[16] but these do not extend to rights of property over the land itself.

What seems to have occurred? What kind of science in the forest were and are some Lowland indigenous people still practicing?

Descola has argued that Amazonians never domesticated wild pigs because wild pigs, as every other animal and realm of nature, had their own masters (Descola 1994). I think the argument can be extended: it looks like Amazonian humans did not give preeminence to their own interests, making it the "primary organizing principle" of the forest. In that sense, their aim was not to colonize the forest.

> Domestication is first and foremost a mode of inhabiting the world by occupying it. Occupation here is meant in the settler-colonial sense. Indeed, from an inter-species perspective, every human occupation is an act of settler colonialism since one occupies a space that is always already occupied by other domesticators, whether insects, animals, plants or trees. Each of these inhabits the world with some degree of instrumentalization too: a tree spreads itself above and below the ground in its struggle to extract nutrition, sun, and so on. Ants also organize and transform their surroundings in a specific way. What defines human generalized domestication is the act of occupying a space by *declaring one's own interest as its primary organizing principle*. As such it relates to prior occupiers of the same space according to how their being can be harnessed to the advancement of our own being. What comes in the way is excluded or exterminated. (Hage 2017: 94-95; emphasis added)

Charles Clement describes landscape domestication by Amerindians as making it "more productive and congenial to humans" (Clement 1999: 190). What about every other sentient being? Lowland indigenous peoples, with their theory of generalized cultivation, assume that such sentient beings too are organizing the land in order to make it more productive and congenial to *themselves*. What makes Amerindian ways different from human domestication in Ghassan Hage's sense is that Amerindians refrain from making their organization of the land into the "primary organizing principle" of the forest. In short, one could say that they do not submit the forest to human generalized domestication.[17] They

tion are reported for the Maya forest milpa tradition (Nigh 2008).

16. Groves and immature crops are usually not left behind by a departing dweller without bestowing them to someone else, either to keep or to look after. Most of the times, all that is required to access an area on which some other family enjoys rights is to ask its permission.

17. Saying this is starkly different from the still-lingering tropes about indigenous peoples "living in harmony

no doubt made the forest more favorable to human life but did not colonize the forest.

Swidden and antidomestication as a science of the forest

As Balée has first pointed out, Lowland indigenous societies who strictly resort to foraging are dependent on the preexistence of anthropogenic forests (Balée 1989). For the wandering Huaorani, those enriched forests are assumed to be the footprints of their own forebears (Rival 2002). It looks as if to be able to lead a totally foraging mode of life, one is best served by previously enriched forests and/or agriculturalist neighbors for resources.

Could it be that the management and enrichment of fallows in swidden agriculture are among the main mechanisms that allow for the very possibility of foraging societies?[18] For most hunting and foraging societies in the Lowlands (if not every hunting and foraging society), there seems to be a move out of a previous agriculturalist way of life, as Lévi-Strauss early suggested (Lévi-Strauss 1952). Such is the case for the Western Parakanã (Fausto 2001) and the Hi-Merimã (Shiratori 2018), among many other known examples. Rather than being an involution or necessarily the outcome of disaster, foraging would be maintained as a possibility by the very management practices of indigenous agriculturalists. It would be as if their kind of agriculture—opening forest plots for gardens and enriching fallows—would account for being able to abandon agriculture itself.[19]

What comes out of the peculiarities of neotropical swidden agriculture is that it resists so-called progress—namely, that irreversible "evolution," assumed by theorists to be universal, from foraging to domesticated life. Indigenous societies seem to have conceived of a forest that they inhabit with nonexclusive rights. As do those other species that dwell in the same forest, they try to favor their own interests. It looks like their aim is to be able, given different historical circumstances or mere choice,[20] to turn to a foraging existence. They will enjoy trekking in small family groups as well as tending their gardens in villages, and will retain the possibility of reverting ad libitum to different forms of life, to the pleasure of fishing, hunting, and eating wild fruit as well as to the enthusiasm of participating in beautiful crowd village rituals. As much as former wanderers can become enthusiastic gardeners, agriculturalists seem to be able to morph into foragers. Their science, as much as their messy gardens that mimic the forest, contradicts what we thought we knew about agriculture: that once one has it, there is no turning back; that progress is domestication of plants, animals, landscapes, and as a result, humans themselves.

There is another lesson here. Sharing rights over the land with other sentient beings; avoiding hegemony of human interests for exploiting the territory; abiding to a wealth of rules and restrictions; refusing to be wholly domesticated could well be the recipe for a good life in a lively forest.

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with Nature." For one thing, the very concept of Nature as we know it is foreign to Amazonians.

18. Among other important techniques: archaeology as well as forest-dwellers are familiar with "ïndian bread" (*pão de índio*), an elaborate product of wild plants preserved in the forest for food in wandering moments or trekking expeditions (Shiratori 2018: 140n49).

19. Such interdependence between foragers and agriculturalists reinforces my earlier suggestion of interdependent clusters of foraging and agricultural Lowland societies.

20. See Carlos Fausto's excellent discussion of foraging *à propos* the Western Parakanã case (Fausto 2001: 150–74) and Luiz Costa's summary of the literature (Costa 2009).

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