ANTHROPOS

108.2013: 53–75

"Cutting Old Life into New"

Teeth Blackening in Western Amazonia

Thomas J. Zumbroich and Brian Stross

Abstract. – For all the attention paid to corporeality as a central idiom in Amazonia, the bodily practice of teeth blackening has remained poorly explored. In this article we document that in a defined region of Western Amazonia indigenous groups used to engage in the deliberate staining of their teeth by means of chewing the leaves, shoots, or fruit of over forty different plant species. Teeth blackening and the closely associated staining of the mouth and lips took on a multiplicity of roles, beyond their aesthetic appeal in the context of applying "design" to the human body and in addition to any potential medicinal benefits. Based on the analysis of myths and ethnographic data, we argue that the meaning of teeth blackening frequently derived from teeth as a focal site of physical as well as social development in the predacious, consuming, and sexually reproductive Amazonian body. *[Western Amazonia, body ornamentation, teeth blackening, perspectivism, mythology]*

Thomas J. Zumbroich, Dr. phil., studied in Tübingen as well as Oxford and is currently an independent scholar in Austin (Texas). – His research is concerned with social anthropology and ethnobotany, in particular with reference to the changing global uses of plant stimulants, aromatics, and agents of bodily ornamentation. His publications include: "From Mouth Fresheners to Erotic Perfumes. The Evolving Socio-cultural Significance of Nutmeg, Mace, and Cloves in South Asia" (*eJournal of Indian Medicine* 2012) and "'*Ny vazana tsy aseho vahiny*' – 'Don't Show Your Molars to Strangers' – Expressions of Teeth Blackening in Madagascar" (*Ethnobotany Research & Applications* 2012). – See also Ref. Cited.

Brian Stross, Professor of Anthropology at the University of Texas at Austin. – He has geographical interests in the indigenous peoples of the New World, with a focus on Mesoamerica, and theoretical interests in communication, ethnobiology, and foodways. His publications include: "This World and Beyond. Food Practices and the Social Order in Mayan Religion" (In: J. E. Staller and M. Carrasco [eds.], Pre-Columbian Foodways. New York 2010).

Introduction

> Yet another abuse similar [to body painting] is common to many. They dye their teeth for long periods as black as coal, as if they were of ebony, and this they do by chewing the stem of a certain herb. They will know themselves best, what peculiar beauty they accomplish with this, a European cannot easily comprehend it (Veigl 1785: 66).[1]

It did not escape the attention of explorers and missionaries that some people east of the Andes deliberately applied black stain to their teeth (Fig. 1). Perplexed by the apparent aesthetic appeal of blackened teeth to many indigenous groups, Western observers embraced other, functional explanations and, for example, thought it was plausible that its primary benefit was to prevent bad breath (Niclutsch 1781: 50).[2] However, aside from such passing remarks, for the longest time the practice attracted relatively limited ethnographic attention, at least compared to some of the seemingly more spectacular bodily decorations, such as feather works, tattoos, body paintings, and piercings. Hence, early summary accounts gave a brief listing of ethnolinguistic groups engaged in the practice in South America, but were unin-

1 This early description of teeth blackening of Panoan speakers was provided by the Austrian Jesuit missionary Franz Xavier Veigl (1723–1798) who spent the years from 1753 to 1777 in South America.

2 The Austrian Jesuit Francisco Niclutsch (1723–1800) worked for ten years as a missionary in the province Maynas, among others with the Encabellado along the Rio Napo.

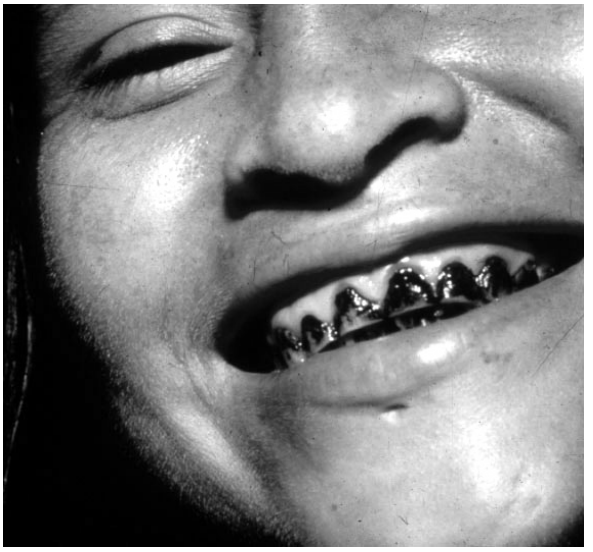

Fig. 1: In the early 1980s, some Achuar still regularly blackened their teeth, e.g., by chewing *Calatola costaricensis* Standl., as shown in this image.

formed about the source of the black teeth stains.[3] A flourishing interest in the ethnobotany of the region, much inspired by the school around Richard Schultes (Pinkley 1973; Schultes and Raffauf 1990), eventually provided more detailed documentations of the plant species associated with teeth blackening (e.g., Cerón Martínez y Montalvo Ayala 1998; Ehringhaus 1997). In addition, studies of "folk dentistry" among the indigenous peoples of the Amazon basin were undertaken,[4] in part with an eye on identifying plants that might potentially be valuable for pharmacological science. From this work a narrative of teeth blackening derived as a practice primarily underwritten by concerns for "dental health" or "caries prevention," such that teeth blackener would simply be referred to as "tooth paste" (Dalle and Potvin 2004: 41). However, this primarily botanical or medicinal analysis from an overtly Western ethnocentric point of view failed to take into account any specifically Amazonian perspectives that informed the practice.

Reflecting a fundamental ideological concern with teeth and their metaphorical associations, many indigenous Amazonian groups traced back the origin of teeth blackener to the mythical time of the creation of the universe or believed it to be transmitted to their core cultural repertoire by divine intervention.[5] In fact, local cosmologies and indigenous discourses on sociality are pervaded with metaphors and references to the body as the key site of difference between beings. It is only by recognising teeth blackening as a bodily process that one begins to understand its broader implications. Highlighted by the classic text of Seeger, da Matta and Viveiros de Castro (1979), corporeality has emerged as a focal idiom and a key foundation of social structures in Amazonia. The human body is dependent on human ritual action and intervention to bring about physical changes and proper development, which at the same time become reflected in the social position of the person (e.g., McCallum 2001). In particular, the bone structure of the human body is symbolic of growth and, therefore, a potent target for human agency to produce the body of a "Real Person" (e.g., Erikson 1986: 198; Londoño Sulkin 2001: 60). This brings into focus teeth blackening as a means of interacting with the only visible part of said bone structure. The corporeal idiom derived its significance in Amazonia particularly from the predacious, consuming, and sexually reproductive body (e.g., Gow 1989), and we will explore how these very themes are also elaborated in the indigenous discourse on teeth blackening.

The last decade has seen a number of comprehensive studies in lowland Amazonia on the use and meaning of plants and substances of vegetal origin, such as manioc (*Manihot esculenta* Crantz, Euphorbiaceae), tobacco (*Nicotiana* spp., Solanaceae), coca (*Erythroxylum* spp. Lam., Erythroxylaceae), hunting poisons, and plant derived salts.[6] Yet to our knowledge no study synthesising the fragmented record on teeth blackeners has been performed to date. This might be in part due to the fact that with increasing acculturation teeth blackening had been mostly abandoned by the end of the 20th century,[7] diminishing the opportunities to turn up significant new data based on firsthand accounts. Since many of the field data from the last decades already relied on indirect evidence from older community members rather than direct observations, we decided to approach the subject from a comparative perspective rather than through in-depth field work. Here we have, therefore, relied on a review of ethnographic studies, from early missionary and travel accounts to more recent field work, as well as eth-

3 Lasch (1901: 16 f.); Nordenskiöld (1922); Rippen (1918: 229–235).

4 E.g., Davis and Yost (1983a); Elvin-Lewis and Lewis (1983); Lewis and Elvin-Lewis (1984).

5 Agudelo Ramírez (1986: 41); Bellier (1987: 137); Bertrand-Ricoveri (2005: 69–71).

6 E.g., Echeverri et al. (2001); Londoño Sulkin (2001); Mejía and Turbay (2009).

7 The use of past tense throughout this article acknowledges this fact, even though many of the underlying ideas and some of the practices are still at work to this date.

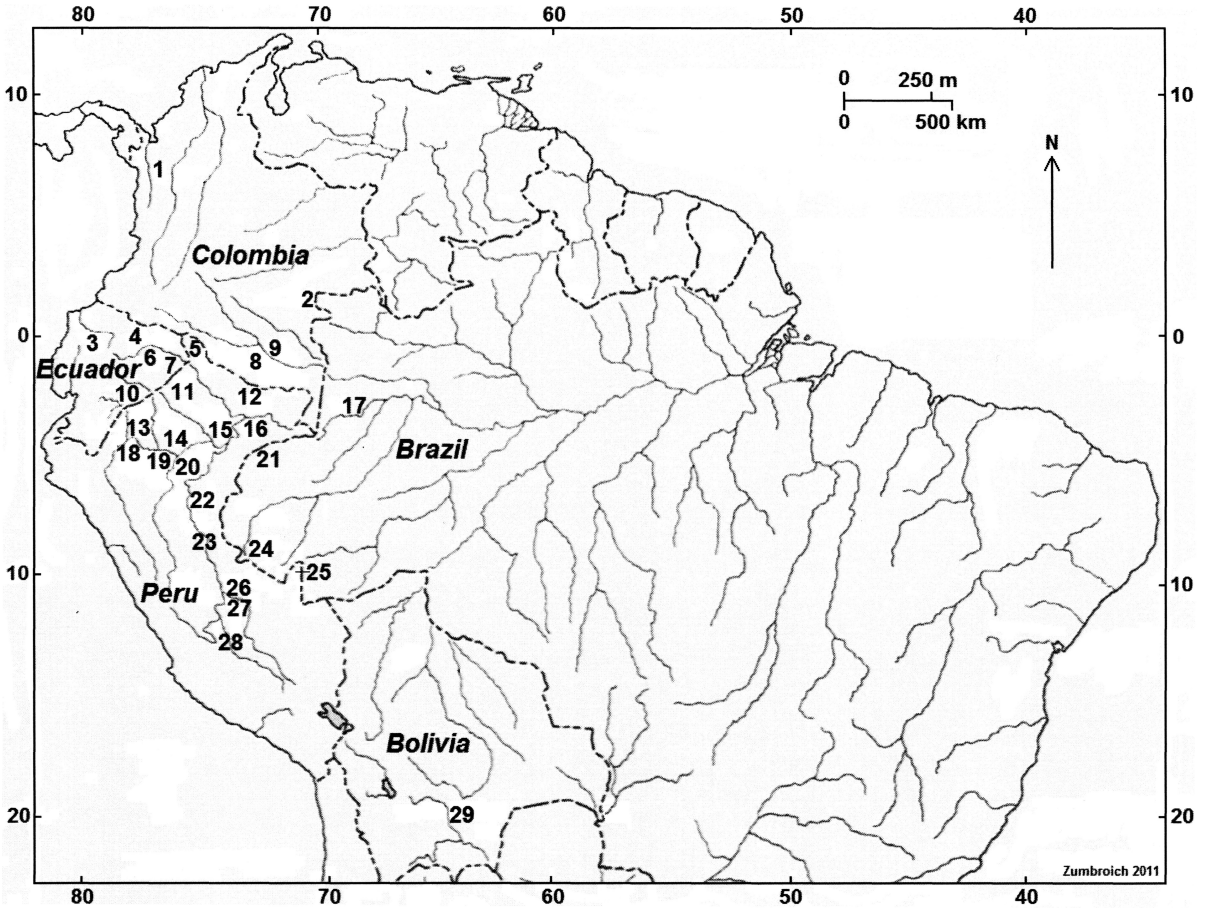

Fig. 2: Indigenous groups who used to engage in teeth blackening or closely related practices were almost entirely confined to a nearly contiguous region east of the Andes. – 1. Emberá, 2. Cubeo, 3. Tsáchila, 4. Cofán, 5. Secoya, 6. Napo Runa, 7. Huaorani, 8. Bora, Huitoto, Miraña, Ocaina, 9. Andoke, Muinane, 10. Achuar, Jivaro, 11. Aushiri, Iquito, Záparo, 12. Mai Huna, 13. Candoshi-Shapra, Huambisa, 14. Omurana, Urarina, 15. Omagua, Yameo, 16. Yagua, 17. Ticuna, 18. Aguaruna, 19. Chayahuita, 20. Chamicuro, 21. Matis, Matsés, 22. Pánobo, 23. Setebo, Shipibo, Conibo, 24. Cashinahua, 25. Kulina, Sharanahua, 26. Amahuaca, 27. Yine, 28. Asháninka, 29. Chiriguano.

nobotanical research. We have also surveyed some relevant taxa through on-line searches in herbarium collections in order to reconcile anthropological with ethnobotanical data and to aid the mapping of the practice based on collection locations of relevant plant genera.

Distribution of Teeth Blackening

Our survey of data on teeth blackening across all of South America revealed that it was almost entirely confined to a single, nearly contiguous region which was centred on northern Peru and comprised much of Western Amazonia (Fig. 2).[8] There was no evidence that the practice ever played a role among Quechua speakers of the high Andes, and the border of teeth blackening to the west was defined by the lower eastern slopes of the Andes of Ecuador and northern Peru, from where it tapered out toward the lower Amazon basin. Ecologically this region comprised cloud forest transitioning into the tropical rainforests of the Amazon plains.

8 When mapping the distribution of a historical practice, such as teeth blackening, in the Amazon region, one is not only confronted with a large array of frequently changing ethnonyms, but also with shifts in ethnographic patterns that were initiated by the Spanish conquest and have continued for various reasons into the present time. Despite the fact that groups have become extinct and territories have expanded or contracted, the fundamental pattern of tribal blocks has generally persisted (Taylor 1999). The following discussion reflects a distribution of ethnolinguistic groups from post-rubber boom times, when a substantial amount of the relevant evidence originated.

Jívaroan speakers (Shuar, Achuar, Huambisa, Aguaruna) and the culturally related Candoshi-Shapra and long extinct Maina constituted a core group of teeth blackening people of the Montaña primarily north of the Rio Marañón.[9] Záparoan-speaking groups that occupied parts of the territory between Rio Tigre and Rio Napo further east (Záparo, Aushiri [extinct], Omurana [or Roamaina, extinct], Iquito), also blackened their teeth, judging from the limited descriptions which have survived (Tessmann 1930: 445, 476, 514, 536). North of the Rio Napo, the Cofán as well as the Tucanoan-speaking Secoya (in the past known as Encabellado or Pioché) and Mai Huna (previously known as Orejones or Koto), practiced lip blackening in addition to the staining of teeth.[10] Among the Quichua speakers of Amazonia teeth blackening was also of some significance and left traces among the Napo Runa along the upper Rio Napo (Kohn, pers. comm. 2010; Tessmann 1930: 239). It was an important practice among Huaorani who resided south of the upper Rio Napo, nearly surrounded by Quichua speakers (Davis and Yost 1983b: 182). Witotoan-speaking "People of the Centre" (Andoke, Bora, Huitoto, Miraña, Muinane, Ocaina) around the middle course of the Caquetá-Putumayo River area delineated the northeast limits of teeth blackening (Schultes and Raffauf 1990: 366; Tessmann 1930: 269, 330, 549).

Along the course of the Rio Marañón and its immediate tributaries, teeth blackening was noted for a few ethnolinguistic groups belonging to different language families, namely Chayahuita (Cahuapanan), Chamicuro (Arawakan), and Urarina (isolate; Tessmann 1930: 383, 398, 491). To the east along the upper Amazon proper, Omagua, as the only division of the widespread Tupi-Guarani speakers, and the Peba-Yaguan-speaking Yameo (extinct) as well as the related Yagua, centred around the headwaters of the Rio Yagua north of the Amazon, were documented to engage in the practice (Fejos 1943: 39; Tessmann 1930: 50, 566).[11]

The riverine Panoan populations of the middle Ucayali basin (Pánobo [extinct], Shipibo, Setebo, Conibo) as well as the interfluvial Pano east of the Rio Ucayali, (Amahuaca, Cashinahua, Sharanahua, Yaminahua) practised teeth blackening, while it was absent (*sensu stricto*, see below) among the Mayoruna branch of Pano further west and north.[12] It was also briefly noted for one group of Arauan-speaking Kulina on the Peruvian side of the upper Purus River (Rivier and Lindgren 1972: 105). To the southwest among pre-Andean Arawakan speakers, a subtribe of Piro (now known as Yine) used to be known as Chontaquiro based on Quechuan folk etymology describing their blackened teeth (*chonta* "black wood," *quiros* "teeth"; Raimondy 1863: 36).[13] To the south teeth blackening was found no further than among Asháninka of the Rio Tambo (Weiss 1975: 238, 567).

Beyond this region, teeth blackening was only documented for very few other groups in South America. Most importantly, it was a significant practice in northwest Colombia and extending into the Isthmus of Panama among the Emberá (Isacsson 1993), whose mythological as well as cultural characteristics have raised the possibility of an actual Amazonian origin of this group (Vasco Uribe 1996: 154). For Tsáchila, residing in the lowlands at the foot of the Western Andes around the equator, teeth blackening was part of their extensive bodily decorations, which, on account of their red body paint, earned them the colonial name "Colorado" (Rivet 1905: 188). Colorado were documented in the early 17th century to travel on the paths connecting coast and Amazonia (Navas de Pozo 1990: 96 f.) which likely brought them in contact with teeth blackening people of the Montaña. For Tukanoan-speaking Cubeo of the Vaupés region of the northwest Amazon tooth staining for ceremonial purposes was noted once (Schultes 1964: 337), but not mentioned in their major ethnography (Goldman 1963), leaving its significance unresolved. Finally, much further south in the Cordillera de los Chiriguanos of today's Bolivia, the Guaraní dyed their teeth blue in what appears to have been an isolated practice about which relatively little is known (Nordenskiöld 1922: 379; Viedma 1836 [1788]: 188).

9 Chantre y Herrera (1901 [1768]: 63); Harner (1963: 42); Jakway (1987: 79); Larson (1966: 60); Tessmann (1930: 282).

10 Pinkley (1973: 240); Tessmann (1930: 193); Vickers and Plowman (1984: 4).

11 While Désiré (1994: 119) indicated that Ticuna further east along the Amazonas used to blacken their teeth, Tessman (1930: 560) and, in particular, Nimuendajú in his extensive ethnography (1952: 39) did not share this observation.

12 Déléage (2005/I: 269; /II: 258); Dole (1998: 181); Marcoy (1875: 22 f.); McCallum (2001); Siskind (1973: 33); Smyth and Lowe (1836: 183); Tessmann (1928: 91).

13 The notion that they used the root of the *chonta* palm (likely *Bactris* sp., Arecaceae) to blacken their teeth (e.g., Markham 1895: 273) is likely apocryphal.

Staining the Teeth with "Black Chew"

> Both sexes stain the teeth black with a plant called "Yanamuco," which they say preserves them from decay, but, from what we saw at this place, it seemed to have a contrary effect (Smyth and Lowe 1836: 183).[14]

This brief note about Pánobo, a now extinct group of Panoan speakers, identified their teeth blackening agent as *yanamuco*, which, as we know now, did not denote a specific plant but became a widely applied term for different teeth blackening agents. *Yanamuco* was a loanword from Quichua meaning "black chew" (*yana* "black," *mucuna* "chewing"; Torres Fernández de Córdova 2002: 372) and as such correctly described the primary method for turning teeth black.[15] Chewing, sometimes aided by rubbing the teeth, was the foremost method of extracting and simultaneously applying the dye from a variety of fresh plant materials, such as the leaves and their petioles, stems and young shoots as well as fruits.[16] Implicitly therefore, teeth blackener was almost always applied by individuals, nonspecialists so-to-speak, to their own teeth.

Besides the teeth, the developing dye affected at least temporarily the whole mouth. Consequently, in a number of groups mostly north of the Rio Napo, the deliberate colouring of their oral cavity and especially lips became equally as or more important than the staining of their teeth. Further, ethnobotanical descriptions indicate that the colour developed from chewing certain plants, such as *Calathea standleyi* Macbride (Marantaceae), was closer to deep purple than to black (e.g., Pinkley 1973: 168). However, where such plants were used, the colour of the teeth was often simply perceived as "black" or "dark" rather than "purple." For example, the colour system of Secoya had no separate term for our "purple" which was described as *nea*, "black," and Cofán similarly referred to stained teeth, whether actually deep purple or black, as *si'an* "very dark" or "black."[17] Nonetheless, a distinct coherence in ethnobotanical agents and underlying ideologies united all these practices to justify the term "teeth blackening" as a general descriptor.

Two other modes of marking the body in black across Amazonia were body painting and tattooing. Black body paint was universally derived from the liquid squeezed from the fruit of *Genipa americana* L. (or *Genipa* spp., Rubiaceae), known as *huito* or *jagua* in Loreto-Ucayali Spanish. This dye was sometimes made thicker and longer lasting by adding soot from burnt wood (Ulloa 1992: 180). Soot was also the primary ingredient of tattoo dye, though more complex mixtures containing *huito* as well as other ingredients were in use locally (Tessmann 1930: 210; Erikson 1996: 314). Hence, while there was some limited overlap in the sources of body paint and tattoo ink, the composition of teeth blackeners was distinct from the dyes of these two other forms of body decoration.

Plant Agents

We were able to identify about forty different species belonging to twelve genera that were utilised for the practice in different ethnolinguistic groups (Table 1). Where multiple species were in use for teeth blackening, some practitioners expressed a preference for a particular agent. For example, the Cashinahua designated *Piper pellitum* C. DC. as *nixpu kuin*, the "true teeth blackener." As one of the rarer species in their habitat it needed to be actively searched out, but they also employed a number of alternative *Piper* sp. (Ehringhaus 1997: 54f., 134). Often the supply of teeth blackeners was anthropogenically managed by cultivating these plants near habitations. Since typically fresh plant material was required, there is no evidence that teeth blackening agents were subject to trade.

While the precise catalogue of plants used for teeth blackening was locally specific, ethnolinguistic groups widely shared the use of closely related plants (e.g., *Neea* spp.) for this purpose. The application of *Piper* spp. spanned the greater part of the area in which teeth blackening was practised, reaching from the Emberá of the Isthmus of Panama to the Asháninka of the Ene River valley of

14 These observations were made along a tributary of the Rio Ucayali by two British explorers, William Smyth and Frederick Lowe, during their quest to find the source of the Amazon River in Peru.

15 The term "*yanamuco*" has more recently been dissociated from referencing teeth blackening. It is now used as a vernacular name for different plant species beyond the Amazon region where teeth blackening was never practised, and, therefore, its use for a plant is no longer indicative of teeth blackening.

16 We know of only two examples in which inorganic materials were involved. Achual women chewed leaves of *taí* (*Arrabidaea chica* [Humb. & Bonpl.] B. Verlot, Bignoniaceae), which turned their teeth maroon, and then put some clay into their mouths for a black colour (*Lewis 111993* [MO]). Shipibo-Conibo enhanced the effect of *yotoconti* (*Piper* sp.) by putting *máno*, black clay, into their mouth, followed by sap from the banana plant (Arévalo 1994: 327). Both methods were direct adaptations from fabric dyeing.

17 Pinkley (1973: 254); Vickers (pers. comm. 2011); for Emberá, see Ulloa (1992: 180).

Table 1: Plants Employed for Teeth Blackening That Have Been Identified to the Level of the Family, Genus, Or Species. The Following Abbreviations for the Part of Plants Were Used: F – Fruit, L – Leaf, S – Shoot, Apical Meristem, SP – Spadix (Spiky Inflorescence).

Plant Family Species	Indigenous Name	Ethnolinguistic Group	Part Used	Herbarium Voucher	Reference
Acanthaceae					
unidentified	*uratetseperi*	Kulina	L	*"No. 16"*	Rivier and Lindgren (1972: 105)
Justicia sp.	*weoko*	Secoya	L	*Vickers 69* (F)	Vickers and Plowman (1984: 4)
Araceae					
Anthurium infectorium R. E. Schult.		Cubeo	F	*Schultes 19899* (GH)	Schultes (1964: 337)
Monstera sp.	*nixpu*	Cashinahua			Ehringhaus (1997: 47)
Araliaceae					
Dendropanax tessmannii (Harms) Harms	*chirez*	(Huitoto?)	L	*Klug 2016* (MO)	
Arecaceae					
Chamaedorea pinnatifrons (Jacq.) Oerst.	*sápap*	Achuar	L	*Lewis 10072* (MO)	
Geonoma maxima (Poit.) Kunth	*Zu'je*	Cofán	L	*Cerón 119* (QAP)	
Geonoma stricta (Poit.) Kunth var. *stricta*	*dé-dé*	Secoya	S	*Balslev 4838* (AAU)	
Hyospathe elegans Mart.	*utahue-ócó*	Secoya	S	*Balslev 4834* (AAU)	
H. elegans	*ña-k-r*	Huitoto	S	*Galeano 1215* (MO)	
Bignoniaceae					
Arrabidaea chica (Humb. & Bonpl.) B. Verlot	*taí*	Achuar	L	*Lewis 11148* (MO)	
Icacinaceae					
Calatola costaricensis Standl.	*piú*	Achuar	L	*Lewis 11938* (MO)	
C. costaricensis	*piu*	Candoshi-Shapra	L		Ayala Flores (1984: 6)
C. costaricensis	*ishoan zí-hĕ*	Cofán	L	*Pinkley 318* (GH)	
C. costaricensis	*yana mucu*	Napo Runa	L	*Neill 6958* (QAME)	
C. costaricensis	*ampo, wema*	Tsáchila	L	*Cerón 29032* (QAP)	
Marantaceae					
Calathea standleyi J. F. Macbr.	*tsau mani*	Cashinahua	L	*Graham 736* (F)	Graham et al. (2004: 1)
C. standleyi	*Iyofantzu'je*	Cofán	L, S	*Cerón 369* (QAP)	Cerón Martínez (1995: 61)
C. standleyi	*huito panga*	Napo Runa	L, S		Cerón Martínez et al. (2005: 54)
Nyctaginaceae					
Neea parviflora Poeppl. & Endl.	*píushank*	Achuar	L	*Lewis 10381* (MO)	
N. parviflora		Candoshi-Shapra	L		Ayala Flores (1984: 6)
N. parviflora		Huitoto	L	*Klug 1955* (MO)	

Plant Family Species	Indigenous Name	Ethnolinguistic Group	Part Used	Herbarium Voucher	Reference
N. parviflora	(*bibe*) *beoko*	Mai Huna			Bellier (1991/II: 283)
Neea spruceana Heimerl	*píushank*	Achuar	L	*Lewis 9970* (MO)	
N. spruceana	*aipa cu'ña chipiri*	Cofán	L	*Cerón 20861* (QAP)	Cerón Martínez y Mena V. (1994: 60)
N. spruceana	*yana mucu caspi*	Napo Runa	L		Cerón Martínez et al. (2005: 49)
N. spruceana	*cueyihue, bengüe*	Huaorani	F	*Cerón 26197* (QAP)	Cerón Martínez y Montalvo Ayala (1998: 133)
Piperaceae					
Piper sp.	*tokónti*	Amahuaca	S		Dole (1998: 181)
Piper sp.	*iváranci*	Asháninka			Weiss (1975: 238)
Piper sp.		Iquito			Tessmann (1930: 314)
Piper sp.	*Dì'tsáhkòbà*	Miraña	S	*La Rotta 322* (COL)	La Rotta Cuellar (1987: 204)
Piper sp.	*jahua yana mucu*	Napo Runa		*Kohn 2574* (AMAZ)	
Piper sp.		Yagua			Ayala Flores (1984: 6)
Piper sp.	*tʃkaxru*	Yine	S		Matteson (1954: 62 f.)
Piper acutilimbum C. DC.	*bisex nixpu*	Cashinahua	S	*Ehringhaus 395* (NY)	
Piper aduncum L.	*yotoconti*	Shipibo-Conibo	S		Arévalo (1994: 327)
Piper aleyreanum C. DC.	*basa mebin nixpu*	Cashinahua	S	*Ehringhaus 279* (NY)	
Piper armatum Trecul & Yuncker	*niu weoko*	Secoya			Duke and Vásquez Martínez (1994: 137)
Piper augustum Rudge	*menpucayabo*	Huaorani	SP	*Davis 938* (ECON), *Cerón 27591* (QAP)	Cerón Martínez y Montalvo Ayala (1998: 140)
Piper coruscans Kunth.	*yotokúnti*	Shipibo-Conibo	S		Tessmann (1928: 91)
Piper dichotomum Ruíz & Pavon	*kaian txan kex nixpu*	Cashinahua	S	*Ehringhaus 238* (NY)	
Piper dumosum Rudge	*paka nixpu*	Cashinahua	S	*Ehringhaus 354* (NY)	
Piper glabratum Kunth	*kunixau nixpu*	Cashinahua	S	*Ehringhaus 392* (NY)	
Piper heterophyllum Ruíz & Pavon	*bixta kuma katis*	Cashinahua	S	*Ehringhaus 227* (NY)	
Piper hispidum Sw.	*tikishiarman*	Achuar	L	*Lewis 12118, 10692* (MO)	
Piper humillimum C. DC.	*hana kain nixpu*	Cashinahua	S	*Ehringhaus 294* (NY)	
Piper leticianum C. DC.	*menpocahue, yacabebe*	Huaorani	SP	*Davis 939* (ECON), *Cerón 26149* (QAP)	Cerón Martínez y Montalvo Ayala (1998: 140)
Piper macrotrichum C. DC.	*aua pabinti nixpu*	Cashinahua	S	*Ehringhaus 283* (NY)	
Piper maranyonense Trel.	*yacabe, nempocayahue*	Huaorani	SP	*Cerón 27603* (QAP)	Cerón Martínez y Montalvo Ayala (1998: 140 f.)

Plant Family Species	Indigenous Name	Ethnolinguistic Group	Part Used	Herbarium Voucher	Reference
Piper marginatum Jacq.		Emberá	S		García Barriga (1974: 230)
Piper obtusilimbum C. DC. sp. aff.	*nencahue*	Huaorani	SP	*Cerón 27852* (QAP)	Cerón Martínez y Montalvo Ayala (1998: 141)
Piper pellitum C. DC.	*nixpu kuin*	Cashinahua	S	*Ehringhaus 323* (NY)	
Piper phytolaccifolium Opiz	*taa-do'*	Andoke	S	*La Rotta 70* (COL)	Schultes and Raffauf (1990: 366)
Rubiaceae					
Manettia divaricata Wernham	*nashúmp*	Achuar	F	*Lewis 12076* (MO)	
M. divaricata	*ashúmbi*	Candoshi-Shapra	F	*Lewis 12974* (MO)	Ayala Flores (1984: 6)
Manettia glandulosa Poeppl & Endl.	*nashumpi*	Shuar	L	*Camp E1417* (NY)	Joyal (1987: 178)
Manettia reclinata L.	*nashúm*	Achuar	F	*Lewis 11800* (MO)	
M. reclinata L.	*nashúm*	Huambisa	F	*Lewis 10494, 13092* (MO)	
M. reclinata L.	*kidabe*	Emberá	F	*Duke 14934* (MO)	Duke (1970: 360)
M. reclinata L.	*ampo*	Tsáchila	F		Hagen (1939: 21)
Morinda siebertii (Standl.) Steyerm.		Emberá		*Duke 13082* (MO)	Duke (1970: 354)
Psychotria cf. *horizontalis* Sw.	*papainch*	Achuar	L	*Lewis 12121* (MO)	
Schradera marginalis Standley	*quedá*	Emberá	S	*Archer 2204* (F)	Archer (1934)
Solanaceae					
Cestrum racemosum Ruiz & Pav.	*púshank*	Achuar	L	*Lewis 11086* (MO)	
Verbenaceae					
Lantana trifolia L.	*pakanmaya piyushang*	Achuar	L	*Lewis 12585* (MO)	

Peru's *selva central*. The preponderance of *Piper* spp. among plants used for teeth blackening might also have been rooted in the medicinal potency that traditional knowledge ascribed to this genus.

Absent from our list of identified teeth blackeners is the coca plant (*Erythroxylum* spp. Lam., Erythroxylaceae), even though for centuries observers have claimed that indigenous groups in South America blackened their teeth by chewing coca leaves with lime.[18] However, the likely reason for any dark stain observed on coca chewers' teeth were neither coca leaves nor added lime, but a general lack of dental hygiene.

The oral ingestion of tobacco products (*Nicotiana* sp., Solanaceae) was a practice that strongly intersected with coca chewing in parts of the Amazon basin, where coca and tobacco were sometimes conceived of as "brother" and "sister" (Karadimas 2005: 125). Together with the chewing of tobacco, the frequent licking of tobacco paste (Spanish *ambíl*; see Londoño Sulkin 2001: 77–87) could lead to darkly stained teeth. When substantial consumption of tobacco in various forms occurred, e.g., in shamanic practice, the associated staining of teeth was recognised as characteristic, but was never the

18 Herrera y Tordesillas (1740: 303); Humboldt and Bonpland (1852: 302); Nordenskiöld (1922: 382 f.).

primary focus of the tobacco consumption (e.g., by Sharanahua; Déléage 2005/I: 269) and tobacco (or coca) were, therefore, not viewed as "teeth blackeners."

Teeth Blackening as a Herbal Intervention

Indigenous testimony consistently stressed that teeth blackening provided a benefit for preserving, protecting and strengthening one's teeth. In some communities this was reflected in the frequent and informal chewing of the respective plants to maintain the black colour (e.g., Valenzuela y Rojas 2005: 152f.). In the first steps of our analysis, we will, therefore, illuminate the practice within the context of indigenous herbal practices, especially those concerned with oral care.

As noted above, teeth blackeners were most frequently recruited from the genus *Piper* which in many Amazonian pharmacopoeias played a significant role. This is best exemplified by the Cashinahua of Brazil who distinguished forty eight species of *nixpu* (*Piper* sp.), almost all of which had medicinal uses. Among these forty eight species, no less than nine were employed as teeth blackeners, of which all but one had a variety of other medicinal applications. In fact, leaves of the Cashinahua's most favoured teeth blackener, *Piper pellitum*, were also chewed against tooth ache, and the sap was applied to blisters in the mouth. Four out of their nine teeth blackening plants were taken as analgesics and five served as externally applied wound treatment (Ehringhaus 1997: 123–141), i.e., in uses broadly related to their notion that teeth blackening could provide a medicinal benefit to the oral cavity.

Similar observations can be made for teeth blackening among Jivaroan speakers where a handful of fruits of *nashúm(p)* (*Manettia divaricata* or *M. reclinata*; *Lewis 10494, 13092* [MO]) were chewed as a teeth blackener by some, but by others specifically "when teeth were aching." Leaves of *Piper hispidum* served as teeth blackener and were also rubbed on children's gums and teeth for strengthening them (*Lewis 12118, 10692* [MO]). For Amahuaca their teeth blackener, *tokónti* (*Piper* sp.), doubled as a treatment for dental pain and inflammation of the gums (Dole 1998: 181), and the use of certain *Piper* spp. among Miraña showed similar patterns (La Rotta Cuellar 1987: 203–205).

This association between teeth blackening and herbal oral care is further demonstrated by the Huaorani who in the past had used the spadix of *yacabebe* (*Piper leticianum*) as part of their teeth blackening regimen and to scrub their teeth. Huaorani continued the latter practice with the stem of the plant, even after they no longer deliberately blackened their teeth (Davis and Yost 1983b: 182). Certainly the most common methodology of teeth blackening, simple mastication, was not specific to teeth blackening, but mimicked a widely used way of delivering oral plant-based treatments. Other plant products chewed in order to improve oral health were the stems of *Petiveria alliacea* L. (Phytolaccaceae) in Colombia, the fruiting spike of *Piper andreanum* C. DC. by the Shuar, or the bark of *Heisteria acuminata* (Humb. & Bonp.) Engl. (Olacaceae) by groups such as Shipibo-Conibo living along the Rio Madre de Dios.[19]

Protecting the Cosmic Waterways

When the teeth blackener of Emberá received the Spanish vernacular name *curadientes*, "teeth cure," this reflected the belief that its frequent use was responsible for the lifelong good health of their dentitions (García Barriga 1974: 230). This and the other examples above might misleadingly suggest that the practice of teeth blackening can be adequately explained within an analytical framework of herbalism that is consistent with a Western paradigm of "ethnopharmacological" action. But, as we will exemplify with the case of Emberá, the use of teeth blackener did not simply reflect a concern with the material, "superficial" integrity of teeth, but was tied to the central role of teeth in their ontological concepts.

For Emberá the riverbank and headwaters held a central place in daily life, ritual, and mythology, and Emberá used the human face to project this special relationship with the riverine ecology. With the mouth as the river (*do*) itself, the teeth (*kidá*) became the banks of the river (*dokidá*). Reflecting this intimate association with the river, Emberá rinsed their mouth in a ritual act after each meal with river water, which was thought to convey strengthening qualities to their teeth (Isacsson 1993: 16). When man was seen as cosmos, the mouth represented the opening of the mythical waterways leading to the underworld and the mouth was guarded by the master of the teeth represented as a carnivorous fish monster (*kidazhara*; Isacsson 1993: 42, 47). Located at a critical metaphysical junction point, teeth were sensitive and exposed to weakening influences

19 García Barriga (1974: 303); Joyal (1987: 175); Lacaze and Alexiades (1995: 129, 178). – For a discussion of the potential medicinal benefits of teeth blackening beyond South America, see Zumbroich (2011).

by periods of ritual or other important transitions, such as a girls first menses, the birth of her first child, or the mourning period for a spouse. Therefore, especially during these times blackening aided the teeth in maintaining or recuperating their full strength (Isacsson 1993: 30).

Creation of Teeth

Such concerns with the vulnerable nature of teeth were more broadly elaborated in the juxtaposition of human versus animal teeth in the collective cosmovision of many upper Amazonian groups whose creation myths shared the specific motif of the origin of teeth. The creation of a human body entailed receiving teeth from the creator's hands, and, due to interference from humans or animals those teeth were of an unintentionally impermanent nature.

Machiguenga told a story how the first humans were initially toothless and then received magnificent teeth of quartz, but carelessly ruined them by gnawing on bones. When their teeth were eventually replaced with the seeds of the *sagïnto* bush (unidentified), they were no longer durable, if more brilliantly white (Renard-Casevitz 1991: 37–40). In a Cashibo myth the sun god intended to give humans teeth from the hard wood of a palm tree (*Iriartea* sp., Arecaceae). He was, however, persuaded by a doe to fashion their teeth from balsa wood (*Ochroma pyramidale* [Cav. ex. Lam.] Urb., Malvaceae), since, the doe argued, humans only ate cooked, soft food rather than hard leaves and branches (Tessmann 1930: 148 f.). According to Cofán, humans owed their soft teeth to the tardiness of the curassow bird (Cracinae) sent out by the creator to retrieve flint stones, but overtaken by the swift *trompetero* bird (*Psophia* sp., Psophiidae) bringing balsa wood. After humans had received teeth of balsa, the flint stones then became the teeth of peccaries and dogs (Borman y Criollo 1990: 59–64). This myth reverberated in the rationale given for teeth blackening by Cofán: It was to mimetically emulate the black teeth of the collared peccary (*Pecari tajacu*, Tayassuidae) since those never rotted (Michael Cepek, pers. comm. 2011).

Frequently, however, human teeth were thought to be derived from maize (*Zea mays* ssp., Poaceae), as in another Cashibo myth which described how the pregnant moon goddess ate maize to make her child's teeth grow, only to find out later to her surprise and dismay that her child's teeth were truly like maize: white, soft, and impermanent (Wistrand 1969: 70, 114). Other groups, such as Secoya, Napo Runa, or Ticuna, echoed the notion of human teeth having been derived from maize rather than stone.[20] In Yagua mythology, the acquisition of teeth marked humans' emergence from a literally and figuratively "toothless" and hence entirely weak state. On the other hand, mankind, unlike jaguars, forfeited through its actions the possession of durable stone teeth for teeth of maize at the same time that it also rejected its chance for immortality (Chaumeil 1998: 115, 233 f.; Powlison 1969: 100, 234).

These myths shared a number of themes that were central to indigenous discourses on the nature of teeth. The infirmity and whiteness of teeth appeared as an unintended consequence of the vegetal origin which characterised human teeth. Particularly strong and widespread associations between maize and teeth were in part inspired by objective visual similarities between teeth lined up in the gums and kernels on the cob.[21] Thus the "toothed face" of the maize cob gave rise to the Emberá form *be kirá* (= *be kitá*), meaning "teeth of the maize," for maize kernels (Isacsson 1993: 152).[22] But the vegetal nature of teeth in general and their specific connection to maize, known to mature from a soft and green state to a harder, more durable state, also symbolised an inherent potential for development and strengthening. This contrasted with the dark, "inorganic" and hence permanent and indestructible teeth that identified animals and often predators. In this context, teeth blackening emerges as a process that allowed the transformation, if not oscillation, between these two perspectival states related to predaceousness.

Predatory Spirit of Teeth

While human teeth were fragile and resided in a mortal body, their acquisition nonetheless symbolised an increase in human strength, even if of a limited amount. Across Amazonia it was a widely shared belief that the head was the centre of vitality with the teeth as the specific site containing vital force. For warriors in pursuit of human trophy heads, the

20 Belaunde (pers. comm. 2011); Mercier H. (1979: 64); Nimuendajú (1952: 129).

21 This association between teeth and maize went well beyond the Amazonian region and, e.g., ran deep in the mythology of Quechua speakers of the Andes. Out of jealousy Pachacamac, the creator god, slew the son of the Inca sun god whom the latter had fathered with a human. From the slain's teeth Pachacamac made maize (Calancha 1975: 931–933).

22 In Emberá cosmology maize was given to humans by the creator Karagabí's daughter Dabeiba, who was also responsible for introducing teeth blackening as well as many other cultural skills to Emberá people (Agudelo Ramírez 1986: 41; Isacsson 1993: 151).

most important goal was the acquisition of the enemy's teeth, since it meant as much the destruction of the enemy's vitality as it entailed the appropriation and accumulation of his life force. The captured teeth were extracted from the head and fashioned into necklaces to heighten the victor's own prosperity, power, and longevity. For example, Yagua believed that if those teeth were worn by the warrior's wife during planting time, the vitality contained in teeth became recirculated to improve the productivity of their plot. Thus teeth were integrated into the cosmic circulatory system of energy (Chaumeil 1987: 151 f.; 1998: 99, 234).

It was not just the vital energy contained in teeth, but specifically the predatory potential of the enemy that was being tamed and turned into an ally. This was particularly apparent in the Miraña's discourse on predation. Aggressiveness was mediated by *gwášà*, an evil and predatory spirit, characterised by devouring raw meat and being attracted to blood. *Gwášà* was most purely present in the teeth of jaguars, piranhas, or bats, but also in the permanent teeth of humans. Importantly, it lived on in the teeth, even after they were removed from the jaw as long as the teeth remained intact. To mobilise and control the *gwášà* contained in the teeth of a victim required a process of co-sanguinisation, which, after ritual consumption of parts of the enemy, was finalised by fashioning his teeth into a necklace worn by the killer (Karadimas 2005: 84–88). In Candoshi cosmology, warrior power was the reflection of a more intense *vani*, soul. Teeth were a materialisation of predatory power and intentions that translated into "acting with a big heart," i.e., with courage and determination. Candoshi men made the extent of their *vani* visually more explicit by filing their teeth to a point in order to mimic predators (Surrallés 2003: 41–45; pers. comm. 2010).[23] Similarly, the black tattoos of Panoan-speaking Matsés, that extended from ear to ear and surrounded the mouth, bore resemblance to teeth worn on the outside of their skin. These tattoos identified them as true Matsés which was synonymous with being courageous warriors (Romanoff et al. 2004: 73 f.). However, in a perspectival universe, it was not just the teeth of human prey, but also those of many animals that could be transformed into a necklace and, with their spirit now domesticated, they could work for their owner as predators, in a literal sense when hunting or by "killing" negative affect states (e.g., Londoño Sulkin 2001: 382 f.).

If the acquisition and display of teeth summoned power, the reverse could also be the case: The loss of teeth in battle could strike a devastating blow to the social identity of a warrior, Historical sources describe the case of the famed Emberá leader Ucumiá who had his teeth knocked out fighting against Spanish forces. This caused such anguish to him that he considered suicide (Isacsson 1993: 31). To Miraña the aggressive *gwášà* spirit disappeared from a broken tooth, leaving it much like a vacant shell, and with each tooth lost a fractional deficit of aggressiveness occurred (Karadimas 2005: 87 f., 170). Among Jivaro dreaming of teeth falling out was interpreted as an omen of death for the dreamer or a close relative, such was the strength of the metonymical association between human teeth and life force (Descola 1989: 447). To summarise, indigenous ideologies strongly underwrote the need to maintain the physical integrity of teeth, both for their inherent vital potential and their use as a tool of predation. This provided a compelling logic for the desire to protect teeth by blackening them.

Blood of Predation

Teeth blackener was never applied before children received their permanent teeth, and its first, often ritualised application thereafter could reflect important changes in social status. Given the association of teeth with predation, it is not surprising that teeth blackening related to hunting and the associated consumption of prey. Emberá adolescents were not allowed to apply *kidai* (teeth blackener; *Piper* sp.), until they had killed a substantial animal, like a deer, in order to ensure their future hunting success (Santa Teresa 1959: 109 f.).

Highlighting a similar restriction, the first teeth blackening for Miraña youths was integral to their initiation rites. These occurred for girls on the occasion of first menses and for boys when they were first allowed to see the sacred *yurupari* flutes. Uninitiated children with their deciduous, unblackened teeth could only chew fish and minor game safely. Large game contained a different kind of blood that could give rise to worms which were bound to destroy the teeth from within, hence also a food prohibition against palm larvae and other worm-like foods for initiates (Karadimas 2005: 169).[24] During initi-

23 Teeth filing has been noted for a few other groups in Western Amazonia (e.g., Aguaruna, Amahuaca, Antipa, Cocama, Miraña, Shipibo), but the sources are either of an unconvincing nature, and/or the evidence indicates that the practice was recently acquired or only sporadic (Castelnau 1851: 368; Clark 1953: 314; Farabee 1922: 107; Martius 1867: 536; Tessmann 1930: 68; Up de Graff 1924: 192, 267, 274).

24 The idea of the tooth worm used to be a near global concept (e.g., Zumbroich 2011: 99). It was first noted in Amazonia by

ations the teeth of Miraña youths were blackened with *dì 'tsáhkòbà* (*Piper* sp.; *La Rotta 322* [COL]), accompanied by songs addressing the protective qualities of the plant. Subsequently, the neophytes were able to eat large game without putting their teeth at risk, since the blackening protected their teeth from any blood the meat might still contain.[25] Teeth blackening, we begin to understand, allowed not just the predation but also the safe assimilation of game that in its nature represented the "outside" and "otherness" (Karadimas 2005: 86, 199–201; La Rotta Cuellar 1987: 204).

Accentuating and Disguising Orality

Teeth blackener was applied with particular care in preparation for visits to other households, for celebrations, or in ritual contexts when it was perceived as visually attractive and profoundly beautifying for men and women. The following lines from a Shipibo-Conibo song explain how time spent on teeth blackening delayed the singer's arrival at a feast:

The tips of my teeth
first had to be penetrated
by the stain from young *Calathea* shoots,
hence I was not here all day.[26]

Such elaborate teeth blackening was often, if not always accompanied by facial paintings, typically done with red *achiote* (*bija*), a dye derived from the seeds of *Bixa orellana* L. (Bixaceae), or black *huito* (*Genipa americana* L.). The designs painted on the face were in some cases very individual expressions, e.g., related to hallucinogen induced visions (e.g., Jivaro, Secoya; Taylor 2003; Vickers, pers. comm. 2011), or were executed in defined patterns that often accentuated the mouth and its relationship to other parts of the face or even the whole body. For example, the complex patterns, which Emberá painted on their body with *kipará* (Emberá for *huito*), would end exactly at the level of the mouth (Isacsson 1993: 34, 254; Ulloa 1992).

Such visual emphasis on orality directs our focus back to the semiotic aspects of the practice. For Parintintin, Tupi-Guarani-speaking people of Brazil's Rio Madeira basin, their darkened mouth signified aggressiveness. A man's mouth was accentuated by facial tattoos of three lines from his ears to the lips which in case of war were filled in with a black band of paint from the charcoal of *Bertholletia excelsa* Bonpl. (Lecythidaceae). When visitors approached their settlement, Parintintin chewed the same charcoal to instantly enhance the bellicosity of their mouth and teeth for a subsequent mock attack (Nimuendajú 1924: 229, 245–247). Since Parintintin did not otherwise blacken their teeth, the message conveyed by the darkened mouth was unequivocal, but this was not the case for other groups who frequently or even nearly permanently blackened their teeth.

In preparation for individual and collective raiding expeditions Jivaro marked their face and, in fact, their whole body with broad stripes of black *súa* (Jivaro for *huito*) to indicate their assimilation into the predatory state of a ferocious animal, like the jaguar (Karsten 1935: 288 f.; Taylor 1993: 668; 2003: 227 f.). From this perspective blackening projected a predatory bodiliness that extended to the "jaguarisation" of their teeth. A different type of red face painting, which also accentuated their mouth, was displayed by Jivaro in a different set of social situations that can be characterised as "peaceful confrontations." They often involved ritual dialogue where discursive competence was demonstrated as a central element of prestige seeking (Taylor 2003: 229–235). While blackened teeth helped to underscore the agonistic aspect of the verbal performances, at the same time the display of the mouth was carefully controlled here in and other situations, such that the mouth remained hidden behind a closed fist during speech (Descola 1994: 134).

The issue of visibility was also central to the perspectivist perception of teeth blackening among Muinane. While darkness was, on the one hand, potentially undesirable by providing cover and inconspicuousness for evil beings, it could also act as protection by making the mouth and teeth not just more fearsome, but also less visible to animals and inhuman beings (Londoño Sulkin 2001: 84; pers. comm. 2011). This highlights a dilemma that arose when teeth marked for predaceousness were displayed in social contexts where such effects were not sought. This was resolved by Candoshi men by never eating in close proximity to each other or in the presence of someone who was not himself eating. Similarly, Candoshi men would hide their mouth and teeth with a bowl of manioc beer when speaking to another man (Surrallés 2003: 44). It also brings into focus the significance of teeth in social pro-

Tessmann for Bora and Muinane (1930: 269, 330), later also for Yagua (Chaumeil 1998: 235).

25 While exogamous blood could be harmful, the reverse could be the case for one's own blood: Matis infants had a drop of blood from their umbilical cord massaged into their gums to stimulate the development of their teeth (Erikson 1996: 232).

26 Song by Herminia Sanancino Mozombite (Vienna Phonogrammarchiv Archive no. D 5468; Brabec de Mori, pers. comm. 2011). Our identification of *mani* as *Calathea* sp. differs from the translation by Brabec de Mori.

cesses that were "un-predatory," or even explicitly "anti-predatory," exemplified by the gendered role of teeth for Candoshi. While for men teeth could epitomise the intention of predation, women used them in a range of social functions of which the focus was generative, such as producing manioc beer or prechewing food for the ill or to feed children (Surrallés 2003: 43).

Ornamented to the Teeth

The Mayoruna, a subgroup of Panoan speakers, did not engage in teeth blackening sensu stricto; yet some of their facial ornaments, it turns out, strongly alluded to the practice.

> In adorning the face the Mayoruna people were the most monstrous of all. The men had everything studded that corresponded to a man's beard, like the tightly kept beard of a Spaniard. From childhood they began to pierce the beard and to insert pieces of black chonta,[27] a strong and hard wood, so that, seen from a distance, it seemed that the men had a black and dense beard (Chantre y Herrera 1901 [1768]: 64).[28]

Matis (belonging to the Mayoruna subgroup) in the past ornamented their face in a set sequence from around the age of four through adolescence. In a painful operation stoically tolerated in their late teens, men, and only men, perforated the dimple separating the maxilla and cheek to insert the *mananukit* ("that which emerges"), a thick and long stick made from black palm wood of *wani* (*Bactris gasipaes* Kunth., Arecaceae) or *isan* (*Oenocarpus bataua* [Mart.] Burret, Arecaceae). The lower end of the *mananukit* extended into the oral cavity, and upon smiling it appeared as a kind of dark supernumerary canine. Similarly alluding to black teeth was the *kwiot*, a type of labret, which for men was fashioned from spines of *isan*.[29] In the past these decorations were numerous, and dozens of *mananukit* and *kwiot* would be inserted into the respective areas of the face. To Matis these ornaments irrevocably became part of their body, truly marking an irreversible ontological change, and they can, therefore, be justifiably analysed as "real" blackened teeth (Erikson 1996: 248 f.; 2003: 137). Early images from the region show that similar peribuccal decorations were quite common beyond Matis, and, e.g., the insertion of black spines of *isan* into the upper lip was practised into the mid-seventies by Matsés men (Marcoy 1875: 311 f.; Romanoff et al. 2004: 75 f.).

Mariwin masks, on which the decorations focussed on cheek and lip piercings, were worn by Matis men to represent ancestor spirits, the paragons of maturity and personal development. In fact, it was the idealised image of the *mariwin* spirit with multiple piercings that Matis tried to emulate with their own decorations. Besides two cheek inserts (equivalent to teeth inside the oral cavity as described above), the masks displayed a circle of *kwiashak*, tufted piercings around the mouth that took the place of both "beards" and "teeth." Beyond these iconically displayed teeth *mariwin* also had further teeth "deep inside." Teeth in their different representations acted here as symbols of physiological maturation as well as "ornamental" development (Erikson 2003: 140).[30] In addition, just as the black blowgun dart made from *isan* wood for hunting terrestrial animals could double as a *mananukit* (upper lip plug) in men, so did *kwiashak* bear a strong visual association with blowgun darts (Erikson 2001: 109, 113). Thus the pierced ornaments acting as darts were able to inject and transfer *sho*, the mystical energy which *mariwin* and, in fact, any of the pricked ornaments, contained in abundance so as to guarantee the success of blowgun hunters and shamanic interventions.

To summarise, among Matis inserting ornaments into the body was far more than an embellishment, but rather an essential practice to socialise a body that had been born incomplete. The most important type of pricked ornaments was for Matis in one of its simultaneous representations equivalent to (blackened) teeth, and this equivalence possibly holds true more widely among northern Panoan speakers. These pierced ornaments did not just index the progress of their development, but actively acted as a vector that induced development by transmitting energy.[31]

27 Likely *Bactris* sp. (Arecaceae).

28 The study of José Chantre y Herrera's gives details of the Jesuits' evangelical work around the Rio Marañon until their expulsion in 1767. Veigl similarly noted the "black pieces of wood" that Mayoruna inserted all around the upper and lower lip (1785: 88).

29 With the *kwiot*'s position in the *lower* lip more characteristically female, it was considered of more importance by women who made them from lightly coloured wood.

30 A similarly prominent representation of teeth is characteristic of other masks of the region, such as the *yushin shetaya*, ("toothed spirit"), shaman masks, of the Shipibo-Conibo or the *munti xetaya* ("toothed gourd") of the Cashinahua, used in fertility rituals, as well as masks of the Yine (Baer 1993: 292–297; Erikson 2001: 121).

31 We are reminded here, that Shipibo-Conibo referenced their teeth blackener as *yotoconti*, with *yo* "charged with energy" and *toconti* "to hold in the mouth," hence a substance "charged with energy that was held in the mouth;" other examples of forms belonging to the same semantic field, defined

Eating the Teeth Blackener

A similar ontological ideology, that ascribed teeth blackener a central role in the work of completing the body and person, was elaborated in the month-long ritual cycle *nixpu pima* ("to make them eat *nixpu* [*Piper* sp.]") of Cashinahua. This celebration, which culminated in the first blackening of the recently developed permanent teeth of children, was considered so essential that without it children were thought to die, just as they would perish if they used teeth blackener before completing *nixpu pima*.

The ritual was held at *xekitian*, the "time of green maize," when maize turned rapidly from soft to hard. This brought forth complex associations between the appearance and maturation of maize and that of teeth and, in fact, the whole person of the initiate. In this it echoed similar associations between the cultivation of maize and initiation rites in the Panoan culture area and beyond (e.g., Erikson 1996: 293–297). Maize was a seed, containing *yuxin*, vital force, and, as a "vegetable semen," was closely allied to male semen. It was sown by men and women together by piercing the ground with a stick and throwing the seed into the hole. Beyond the obvious allusion to sexual intercourse, this image could also evoke the appearance of growing teeth breaking through the gum line.[32] Because the seeds rapidly sprouted a plant, maize stalks also served as a model for healthily developing bones, the invisible structures giving a body form, which could be accessed through their visible endpoints, the teeth.

Nixpu pima was modelled after the myth of *xeki keneya*, "yellow maize with [black speckled] design." A woman had sown maize during her pregnancy while chewing *nixpu*. Later her child desired to eat that very maize which had "eaten" the *nixpu* out of a yearning to become a person. Now the child hoped to speed up his own development with the help of the black speckled maize (Lagrou 1998: 231). This episode epitomises the power of teeth blackening in humanising or, better, embodying a complete person.

By eating maize, reciting names in ritual songs, and drawing black *genipa* (*Genipa americana* L., Rubiaceae) paintings with maize cobs on the body to mimic the bone structure, the children's development was stimulated in the course of the ritual. In its final stages the focus of the ritual turned to the initiate's teeth which were first polished with small stones,[33] suggesting that this might improve the "absorption" of the teeth blackener. The blackening occurred through an act of hitting or tapping the teeth with the *nixpu* stalks, combined with chewing them to also blacken the tongue and lips, interrupted by regular spitting. The process was explicitly (and uniquely) referred to as "eating" the *nixpu* (Ehringhaus 1997: 23; Lagrou 1998: 269).[34] The black colour, initially adhered to the teeth, but slowly disappeared over the next week or so, as if gradually internalised to actively mould the neophytes from the inside. The end of the ritual process was indicated by the complete absence of *nixpu*, at which point initiates would emerge from seclusion (Lagrou 1998: 241–320; 2007: 184-187; McCallum 2001: 47).

As adults, the former initiates now had *xeta yuxin*, the vital essence of teeth, fixed in place in their hardened, "jaguarised" teeth. Furthermore, the ritual intervention on the level of the body also transformed the initiates' personhood by reshaping them, in order to start the differentiation of genders and to allow them to productively contribute to society. This, in turn, would be reflected in further physical transformation.

Designing the Lips

Black dye spilling out of the mouth to stain the lips, could at first glance be conceived of as an incidental effect of chewing teeth blackener,[35] but, to the contrary, it was without doubt "by design." During the final stage of the extensive *nixpu pima* ritual of Cashinahua, the blackened lips of the initiates became an outwardly visible sign of the progression of the process. For Amahuaca, another Panoan group in relative proximity, painted lips were an essential part of their formal attire. Amahuaca would apply

by the prefix *yo*, are *yoshin* "ghost" and *yobue* "sorcerer" (Illius 1999: 41 f.; Loriot et al. 1993: 411).

32 Beyond their development and strength, the homologies between maize and teeth extended to the threats their integrity faced from the attack by "worms." For the protection of maize against worms by Matsés, see Romanoff (1984: 96).

33 Possibly this preparatory step aided the absorption of the stain (Lagrou, pers. comm. 2010), but its significance does not seem fully explored (see also footnote 40).

34 Although not previously noted, the description points in a number of ways to sexual allusions, beginning with the reference to "eating" and enacted by inserting the stalks of *nixpu* into the mouth, followed by tapping, and the repeated spitting (the latter metaphorically linked to ejaculation by Cashinahua; Lagrou 1998: 220). While sexual abstinence of the parents of neophytes was mandatory during the initiation period, many elements of the teeth blackening ritual itself were rife with sexual innuendo expressing its intimate link to concepts of fertility.

35 E.g., by Steward and Métraux to explain the stained lower lips of Záparo women (1963: 641).

black *huito* mixed with charcoal in a wide crescent moon from ear to ear enclosing the mouth, but to stain their lips in black they employed *tokondi* (*Piper* sp.; Dole 1998: 180 f.). Blackening the lips with the same plant dyes used for teeth was also practised in another set of upper Amazonian groups. Spread over a wide area from beyond the Rio Napo to the Rio Marañon, these group were, with the exception of the isolate Cofán (Pinkley 1973), of Záparoan[36] and Western Tucanoan (Encabellado / Pioché / Secoya / Airo Pai, Koto / Mai Huna; Tessmann 1930: 193, 210) linguistic affiliation.

> Besides their necklaces of monkey, boar, and tiger teeth, as is customary for all savage tribes, and besides their headdresses decorated with parrot feathers, these people had a special ornamentation, since they coloured the whole lip with a black and shiny paint (Veigl 1785: 100 f.).

For men as well as women blackened lips were a complement to the complex designs painted on their face and to their other finery, thus reserved for special events, like visitations or ritual functions (e.g., Secoya, Vickers and Plowman 1984: 4; Fig. 3). Before the consumption of the psychoactive *yage* drink (*Banisteriopsis* spp., Malpighiaceae, with admixtures) Cofán stained their lips as part of the meticulous preparations of their face, which were further augmented by wearing their best clothing and decorations of glass beads. The first step was to ready the lips by rubbing the back side of the *sa'ha nahe* (unidentified) leaf over the lips repeatedly. After chewing the *fu'he* leaf (unidentified) and spitting the juice into a leaf bowl from dried corn husks, the leaf juice was carefully applied with an applicator of wild cotton (Robinson 1979: 165 f., 256).

An early description of lip blackening by the once numerous Maina from the region with the same name provides some fascinating details:

> But, not content with the tint [after a few days], they apply this varnish at least every two days to the teeth and lips to keep them more polished. It causes disgust how they rub the lips with the roughest leaves of maize to remove the old stain until they skin them and draw blood so that they can better place a new one on that will shine freshly (Chantre y Herrera 1901 [1768]: 63).

More recent descriptions of lip blackening by Mai Huna echoed this account. Initially the lips were prepared with the rough leaf of *gere*, the wild grape (*Pouroma* spp., e.g., *Pourouma cecropiifolia*

Fig. 3: A Secoya woman from the village of San Pablo (Ecuador) shows blackened lips complemented by geometric facial decorations (1980).

Mart., Urticaceae; Bellier 1991/II: 22, 281).[37] Indeed, the image of "filing" was used for this action that could ultimately cause their lips to bleed (Gilmore, pers. comm. 2011). On the one hand, this might well have been intended to aid the adherence or even "absorption" of the stain. However, the bleeding of the lips also suggests other interpretations, especially in the realm of reproduction, given that the practice of lip blackening was particularly pronounced among Záparoan and Western Tucanoan-speaking women.

Lips of Reproduction

In the Mai Huna oral tradition, the cultural hero Maineno decided to create a woman from a vegetal vagina to satisfy his sexual desires. In his attempts

36 For Iquito, Mainas, and Záparo see Chantre y Herrera (1901 [1768]: 63); Steward and Métraux (1963: 641); Tovar y Ramírez (1966: 180).

37 The upper half of the leaf of *upujicacu* (*Pourouma* sp.) was used by Cubeo to sand the inside of gourds for shamanic rituals in preparation for their blackening with lacquer (Salser 1978: 57).

to do so, he placed a leaf of *beoko* (*Neea parviflora* Poeppl. & Endl.) onto the vagina, herewith not just establishing an analogy between the mouth and female genitals, but also affirming how essential blackening the lips was for "becoming" a woman.[38] The first woman he created, even though endowed with lip blackener and red face paint, turned out to be sexually voracious and harmful to Maineno. In his second and successful attempt, he provided the vagina/mouth/woman with *all* requisite tools (e.g., a stick to apply paint) and vegetal products for her embellishment. These also included the *gere* leaves for "filing" the lips before blackening (Bellier 1987: 138; 1991/II: 21–23).

The analogy between mouth and female genitals was further elaborated in Mai Huna mythology in the form of the toothed and carnivorous (or castrating) mouth, the *vagina dentata* as an image of predatory orality. In mythological times the teeth of the female vagina had to be extracted by male agency and turned into piranãs (*Serrasalmus* sp., Characidae; *gũhĩ bako ago*, "those that have teeth"; Bellier 1991/I: 170). Only then did male and female union become possible. Mai Huna enacted an analogous puberty ritual of clitoridectomy to remove what was considered part of the girls' masculinity, thus making women "toothless." In Mai Huna mythology this act also related to the deflowering and "opening" of a woman that was the cause of menstrual blood flow (Bellier 1991/I: 221 f.; 2002). Here we are reminded of the "filing" of the female lips, causing them to bleed, perhaps in a necessary step to transform the sexually predacious mouth into one suitable for sexual union.[39]

For Mai Huna *beoko* was the "water of *huito* fruit" (*be* "fruit of *Genipa americana*"; *oco* "water"; Velie y Velie 1981: 18, 46), implying further associations with fertility. Water was the element of the fertile woman, and the vagina could be metaphorically described as a lake (Bellier 1991/II: 25 f.). Elsewhere, Kuna ritually cut *huito* fruit during a girl's puberty ritual, interpreting its turning black as lost virginity, and to Emberá the black colour of *huito* was a sign of the "altered state" of the human body related to fertilisation and conception (Isacsson 1993: 254). This was similarly recognised by Mai Huna who painted a line with *beoko* blackened saliva exuding from the mouth across the centre of their belly, connecting mouth and genitals, as a mark of their pregnancy (Bellier 1991/I: 168; 991/II: 182).[40]

In another Western Tucanoan group, Secoya (or Airo Pai), lip blackening by chewing the leaves of *weoko* if done in conjunction with face painting was for both men and women an important part of their ceremonial appearance (Fig. 3). However, the semiotic significance of blackened lips as well as stained teeth and mouth (without accompanying face painting) was tied to complex conceptualisations of reproduction (Belaunde 2001a). Secoya oral history made evident the symbolic association between the blackening plant juice and menstrual blood. In ancient times, when men still menstruated into tubes of bamboo in an isolated hut, they were being mocked by a woman. In anger one of the men, who was just chewing *weoko*, threw the plant at this woman and it stuck to her vagina. Thereupon the man said, "From now on all women shall menstruate" (Vickers 1976: 206).

Secoya considered menstruation a contagious state of ill health, and men feared menstrual blood as *sitsio*, polluting dirt. Therefore women employed *weoko* to signal with darkened lips the end of their menstrual seclusion.[41] Just as the dye on their lips wore off over a couple of days, so did the remnants of menstrual blood, until women were finally left purged of this contaminating agent and, in their own words, *ëmëje paiye*, "like a man." Blackening the mouth and lips with *weoko* after the cleansing process of menstruation could also indicate the desire for pregnancy and signal an appropriate time to become pregnant (Belaunde 2001b: 51; 2005: 143–144). Elsewhere, in a similar use of black colour, Cashinahua girls emerging from their first menstruation had their body painted in black, whereas Emberá girls had their teeth carefully blackened. Black colouring was as much a sign of their transitional state, indicative of only partial sociability, as it was to aid their recuperation from a weakened state (Isacsson 1993: 30; Lagrou 1998: 174; Ulloa 1992: 298).

The image of bleeding lips was also encountered in an act that symbolically manufactured the sex organs of a Secoya girl. On their third birthday girls

38 The ethnography of Mai Huna does not give an indication that the blackening of teeth was considered relevant, nor do teeth feature strongly in their well documented mythology. Mai Huna did, however, employ for lip blackening a plant used elsewhere as teeth blackener and referred to it as *yanamuco*.

39 Perhaps it is worth analysing along the same lines the "filing" of the teeth of the Cashinahua initiates with a stone that preceded the blackening of their teeth and lips.

40 The associated myth, explaining the cause of female pain during delivery, suggests that this black line metaphorically might stand for the blood that flows at birth.

41 There is no indication that Secoya prepared their lips by "filing" and bleeding as described above. Given the association of *weoko* itself with menstrual blood, this is perhaps not surprising.

underwent a process which involved scraping the labia minora and piercing the hymen of the child, an event often accompanied by significant bleeding (Belaunde 1994: 101). The operation began to differentiate the girl into a woman and would allow her later in life to properly shed menstrual blood and be able to bear a child. This was mythologically elucidated by an episode in which Ñañe, the moon, used his newly acquired human palms to rid his spouses of their vaginal mandibulae, thus allowing them to menstruate for the first time (Belaunde 2001b: 63 f.).

In yet another association in the context of reproduction, blackening *weoko* leaves were ritually used to influence the sex of a foetus to become female, whereas leaves of white barked *Cecropia* sp. trees (*setico blanco*; Vickers and Plowman 1984: 22) were linked with a male (Belaunde 2005: 144). Thus, for Secoya women the use of *weoko* was integrated in multiple ways into their practices of controlling cycles of reproduction in which the flow of menstrual blood was an important concern.[42]

Laughter, Sexual Eating, and Vaginal Teeth

Within the framework of some widely expressed Amazonian mythical motives (e.g., Roe 1982: 244), a Shipibo-Conibo myth articulated ideas about the sexual allure of teeth blackening and the origin of teeth blackener. A young man who diligently tended his *yotoconti* (*Piper* sp.) planting for teeth blackening repeatedly found the young shoots stolen. To expose the thief, he decided to sponsor a feast. In the course of the celebration he noticed a young girl, who exposed her teeth in laughter and thus revealed that they were blackened to perfection with stolen *yotoconti*. He then proceeded to sexually take advantage of her in her sleep. Only her pregnancy finally led to the discovery of these repeated acts, and out of shame he had a storm take him into the sky to become the moon (Bertrand-Ricoveri 2005: 69–71).

The myth specifically highlights the sexual seductiveness of a woman's blackened teeth, especially when displayed through opening her lips in laughter. The narrative also asserts the (future) moon as an abundant source of teeth blackener for women. It is the girl's use of his *yotoconti* which, through the actions of the moon, has her become a woman bearing a child. Parallels between the appearance of teeth blackener and menstrual blood, widely associated with the moon, are also elicited.[43]

The Mai Huna myth about the creation of women (see above) also provides an analogy between mouth and female genitals. The first woman, whom the Mai Huna cultural hero Maineno created, was described as "laughingly opening her legs" in ill-fated sexual invitation that ended up injuring Maineno's genitals (Bellier 1991/II: 22). Along the same lines different Emberá myths underline a specific connection between laughter and "sexual eating." Female laughter exposed the *vagina dentata* and thus heralded sexual voracity. Among Emberá especially women hid their teeth with their hands during laughter, for to do otherwise would be an invitation, if not threat, to engage in sex with the person who made one laugh (Isacsson 1993: 166–168).

This was perhaps expressed in some variation in the course of the female *kigimawlo* ("bead bracelets are put on to her") initiation rite of the Yine of the upper Rio Urubamba. After the girl had completed her seclusion, she would be elaborately decorated and painted. Not only was it the first time for her to wear the adult woman's skirt, called *mkalnama*, "mouth cloth," (Matteson 1954: 304), in a reference to her vagina,[44] but her decorations also included teeth blackened with *tskaxru* (*Piper* sp.; Matteson 1954: 377). When she emerged to the community as a virtuous, serious adult, she was supposed to refrain from showing her blackened teeth by suppressing laughter (Smith Bisso 2003: 128; pers. comm. 2011).

Emberá speakers captured the broad significance of teeth in their ontology by designating them as *kidá*, derived from the morphemes *ke* (vagina) and *ta* (seed, fruit). The *kidá*, "vagina-seed" tooth, was regarded as the germination of the uterine concept, thus becoming a tangible manifestation of the vaginal principle in the human face. In an inversion, or more accurately, an extension of the traditional

42 It is noteworthy that among Miraña teeth blackening apparently played the most important role for adolescent girls around the time of their first menstruation (La Rotta Cuellar 1987: 204 f.). In Miraña cosmology primordial humanity was generated from a divine earthworm, representing both the genital of the creator and the unborn child (Karadimas 2005: 108). Given the connections between male genitals, worms, and blood, it appears possible that in the female mouth, symbolically associated with the *vagina dentata*, the protective role of teeth blackener was also associated with reproductive functions.

43 The filing of teeth preceding the female genital cutting that Shipibo girls used to undergo when they began to menstruate (Tessmann 1928: 205 f.; d'Ans 1994) has been noted by a single source which, however, is not entirely trustworthy (Waisbard and Waisbard 1959: 57; see also Castelnau 1851: 368). Whether there was a relationship between female genital cutting and any dental modifications remains unresolved.

44 In Yine the vagina was referenced as *namaxi* with *nama* "mouth" and *xi* as a diminutive; so perhaps the vagina was the "little mouth" (Matteson 1954: 311, 388).

interpretation of the *vagina dentata* as a primarily predatory and destructive element this highlighted the constructive *dens vaginata*. The human mouth, both male and female, was regarded as a vagina, not despite, but because of its teeth. In what one may consider a synthesis of predatory and reproductive forces, those vaginal teeth were the force that could cut old life into new (Isacsson 1993: 128 f., 157). Applying teeth blackener, *kidabe*, meant to strengthen the teeth with the *be* principle that, in its broadest interpretation, symbolised the nature of cosmic man beyond any distinction of gender (Isacsson 1993: 152).

Conclusions

Across a significant area of Western Amazonia teeth blackening was an important bodily ornamentation that also extended to the colouring of the lips among Záparoan and Western Tucanoan groups and was mirrored with the use of pierced ornament by Mayoruna speakers. Such visually accentuated teeth, mouth, or lips frequently held aesthetic appeal and reflected a Western Amazonian sensibility to the presence of design, especially in groups where the knowledge of "true" design was appreciated as a profoundly human and socialising quality.

Different ethnolinguistic groups who engaged in the practice employed a wide range of plants for the practice, though exchange between neighbouring groups likely contributed to the noticeable concentration of teeth blackening agents in certain plant genera. The botanical resources used in the practice could, deceptively, give the impression that teeth blackening was, beyond aesthetics, foremost a herbal intervention providing a measurable medicinal effect aimed at fortifying the teeth.[45] But from an indigenous point of view, the actions of teeth blackener were rooted in a conceptual framework quite different from a reductionist Western model relying on molecular action. Rather than being a set material property, the effectiveness of teeth blackener was seen as a processual quality, affected by the wider circumstances of its use. Cashinahua believed that the effect of *nixpu* on initiates depended on the simultaneous observation of certain taboos or the persuasive power of songs recited during the collection of the plants (Lagrou 1998: 268). Even though the action of teeth blackener was visible only on the teeth, its reach extended beyond the surface deeply into the body where it exerted its transformative potency.

As almost universally teeth blackening was accomplished through the act of chewing, this in itself, perhaps sometimes as a form of ritual performance, carried semantic content. Chewing was readily associated with eating, and in a wider sense with predation, nourishment, and sexuality – all key concerns of Amazonian daily life (Gow 1989: 567). The very process of teeth blackening became a self-referential statement, as it began to elicit the range of associations that blackened teeth would stimulate. Teeth were the quintessential cutting tools, the "axes" of predators (Londoño Sulkin 2001: 382). They mediated the assimilation of prey as much as the transformation of manioc or maize into beer. Teeth were at the same time (sexually) threatening as they were seductive.

The sometimes seemingly contradictory roles of teeth blackener are best understood if projected against the background of Amazonian perspectivism (Vilaça 2005; Viveiros de Castro 1998). From a perspectival view what matters is not the physical substance of the body but the perception of one's reality in the eyes of others, such that things exist in the world only as a perspective. Mythological accounts suggest that the qualities of teeth were not a fixed ontological attribute, but were dependent on relational contexts, and in particular so with respect to predation as a key agency in the Amazonian cosmos. Blackening one's teeth could effect a "jaguarisation" associated with strong and permanent teeth that were replete with predatory spirit, while leaving behind white, soft, and perishable teeth characteristic of a weaker human.[46] Beyond the blackness of teeth on the surface what mattered were the accompanying deeper transformations that were being projected and perceived in the world. Where in one context having blackened teeth signalled predacity, either physically or sexually, in another context the invisibility associated with darkness could provide protection against evil beings.

With the Amazonian body conceived of as naturally unstable and both in need of and subject to constant transformation (Vilaça 2005: 457), teeth were an important site for development. On the one hand, the use of teeth blackener could have a profound effect in the processes required for the transformation of the body into a mature and socialised being. On the other hand, teeth blackener could ul-

45 While we do not exclude the possibility that such pharmacological effects occurred, they were not the object of this study.

46 By the same token, animals, too, were known to have used teeth blackener since mythological times in certain situations to call upon the strengthening or, better, embodying powers of teeth blackener (Lagrou 1998: 231).

timately also have a stabilising effect on the teeth, and thus indirectly on a body that was otherwise haunted by an ever present spectre of instability in the indigenous imagination.

We owe the quote in the title to the late Sven-Erik Isacsson's insightful study of Emberá cosmology (1993). Many people have engaged in helpful discussions or contributed unpublished data from their fieldwork, in particular we would like to acknowledge the help of Luisa Belaunde, Bernd Brabec de Mori, Michael Cepek, María Susana Cipolletti, Pierre Déléage, Michael Gilmore, Els Lagrou, Carlos Londoño Sulkin, Scott Robinson, Alejandro Smith Bisso, Alexandre Surrallés, Anne Taylor-Descola, William Vickers, and Barbara von Tobel. Any errors are, of course, the responsibilities of the authors. All translations by T. Zumbroich from original texts as cited. Fig. 1 is reproduced with the permission of the editors of *Odonto-stomatologie Tropicale* where it had previously appeared in Elvin-Lewis and Lewis (1983) as Fig. 5. William Vickers generously contributed Fig. 3.

References Cited

Agudelo Ramírez, Luis E.
1986 Génesis del pueblo antioqueño. Bogotá: Ed. Era cósmica.

d'Ans, André-Marcel
1994 L'initiation et l'excision des filles chez les Indiens Shipibos d'Amazonie. Informations ethnographiques provenant de documents d'amateurs. *L'Ethnographie* 90/2 (116): 9–29.

Archer, W. Andrew
1934 The Dental Plant of the Citará Indians in Colombia. *Journal of the Washington Academy of Sciences* 24/9: 402–404.

Arévalo V., Guillermo
1994 Las plantas medicinales y su beneficio en la salud. Shipibo-Conibo. Lima: Edición AIDESEP.

Ayala Flores, Franklin
1984 Notes on Some Medicinal and Poisonous Plants of Amazonian Peru. In: G. T. Prance and J. A. Kallunki (eds.), Ethnobotany in the Neotropics; pp. 1–8. New York: New York Botanical Garden. (Advances in Economic Botany, 1)

Baer, Gerhard
1993 Para o melhor entendimento das máscaras sul-americanas. In: V. Penteado Coelho (org.), Karl von den Steinen. Um século de antropologia no Xingu; pp. 289–309. São Paulo: Editora da Universidade de São Paulo.

Belaunde, Luisa E.
1994 Parrots and Oropendolas. The Aesthetics of Gender Relations among the Airo-Pai of the Peruvian Amazon. *Journal de la Société des Américanistes* 80: 95–111.
2001a Menstruation, Birth Observances, and the Couple's Love among the Airo-Pai of Amazonian Peru. In: S. Tremayne (ed.), Managing Reproductive Life. Cross-Cultural Themes in Sexuality and Fertility; pp. 127–139. New York: Berghahn Books. (Fertility, Reproduction, and Sexuality, 1)
2001b Viviendo bien. Género y fertilidad entre los Airo-Pai de la Amazonía peruana. Lima: Centro Amazónico de Antropología y Aplicación Práctica.
2005 El recuerdo de Luna. Género, sangre y memoria entre los pueblos amazónicos. Lima: Fondo Editorial de la Facultad de Ciencias Sociales UNMSM.

Bellier, Irène
1987 Mai Huna. La création noyée. Maineno cherche ses femmes. *Amerindia* 12: 133–154.
1991 El temblor y la luna. Ensayo sobre las relaciones entre las mujeres y los hombres mai huna. 2 vols. Quito: Ediciones Abya-Yala; Lima: Instituto Francés de Estudios Andinos. (Colección 500 Años, 44 y 45)
2002 Sexualité et art d'enfanter chez les Mai huna. *Socio-Anthropologie* 11: 47–61.

Bertrand-Ricoveri, Pierette
2005 Mythes de l'Amazonie. Une traversée de l'imaginaire shipibo. Paris: L'Harmattan.

Borman, M. B., y **Enrique Criollo**
1990 La cosmología y la percepción histórica de los Cofanes de acuerdo a sus leyendas (Cofan Cosmology and History as Revealed in Their Legends.) Quito: Instituto Linguistico de Verano. (Cuadernos etnolingüísticos, 10)

Calancha, Antonio de la
1975 Corónica moralizada del Orden de San Augustín en el Perú. (Transcripción, estudio crítico, notas bibliográficas e índices de I. Prado Pastor.) Vol. 2. Lima: Universidad Nacional Mayor de San Marcos. [Barcelona 1639]

Castelnau, Francis de
1851 Expédition dans les parties centrales de l'Amérique du Sud, de Río de Janeiro à Lima et de Lima au Para. Exécutée par ordre du gouvernement français pendant les années 1843 à 1847. Vol. 4. Paris: P. Bertrand.

Cerón Martínez, Carlos E.
1995 Etnobiología de los Cofanes de Dureno. Provincia de Sucumbíos, Ecuador. Quito: Ed. Abya-Yala; Museo Ecuatoriano de Ciencias Naturales. (Publicaciones del Museo Ecuatoriano de Ciencias Naturales, 10/3)

Cerón Martínez, Carlos E., y **Patricio A. Mena Vásconez**
1994 Etnobotánica y notas sobre la diversidad vegetal en la comunidad Cofán de Sinangüé, Sucumbíos, Ecuador. Quito: EcoCiencia. (Investigación y monitoreo, 2)

Cerón Martínez, Carlos E., y **Consuelo G. Montalvo Ayala**
1998 Etnobotánica de los Huaorani de Quehueiri-Ono, Napo – Ecuador. Quito: Herbario "Alfredo Paredes", Universidad Central del Ecuador; Ed. Abya-Yala.

Cerón Martínez, Consuelo G. Montalvo Ayala, C. Reyes, y **D. Andi**
2005 Etnobotánica Quichua Limoncocha, Sucumbíos, Ecuador. *Cinchonia* 6/1: 29–55.

Chantre y Herrera, José
1901 Historia de las misiones de la Campañía de Jesús en el Marañón español. (1637–1767). Madrid: Imp de A. Avrial. [1768]

Chaumeil, Jean-Pierre
1987 Ñihamwo. Los Yagua del nor-oriente peruano. Lima: Centro Amazónico de Antropología y Aplicación Práctica.

1998 Ver, saber, poder. El chamanismo de los Yagua de la Amazonía peruana. Lima: CAAAP/IFEA/CAEA-CONICET.

Clark, Leonard
1953 The Rivers Ran East. New York: Funk & Wagnalls.

Dalle, Sarah P., and **Catherine Potvin**
2004 Conservation of Useful Plants. An Evaluation of Local Priorities from Two Indigenous Communities in Eastern Panama. *Economic Botany* 58/1: 38–57.

Davis, E. Wade, and **James A. Yost**
1983a The Ethnomedicine of the Waorani of Amazonian Ecuador. *Journal of Ethnopharmacology* 9/2–3: 273–297.
1983b The Ethnobotany of the Waorani of Eastern Ecuador. *Botanical Museum Leaflets* 29/3: 159–217.

Déléage, Pierre
2005 Le chamanisme sharanahua. Enquête sur l'apprentissage et l'épistémologie d'un rituel. 2 Vols. Paris. [Ph.D. Diss., École des Hautes Études en Sciences Sociales, Paris].

Descola, Philippe
1989 Head-Shrinkers versus Shrinks. Jivaroan Dream Analysis. *Man* (N. S.) 24: 439–450.
1994 In the Society of Nature. A Native Ecology in Amazonia. Cambride: Cambridge University Press. (Cambridge Studies in Social and Cultural Anthropology, 93)

Désiré, Guy
1994 Le mouvement des hamacs. Modèles symboliques et modèle social des indiens tikuna. *Journal de la Société des Américanistes* 80: 113–143.

Dole, Gertrud E.
1998 Amahuaca. In: F. Santos Granero y F. Barclay (eds.), Guía etnográfica de la Alta Amazonía. Vol. 3: Cashinahua, Amahuaca, Shipibo-Conibo; pp. 125–273. Balboa (Panamá): Smithsonian Tropical Research Institute.

Duke, James A.
1970 Ethnobotanical Observations on the Chocó Indians. *Economic Botany* 24/3: 344–366.

Duke, James A., and **Rodolfo Vásquez Martínez**
1994 Amazonian Ethnobotanical Dictionary. Boca Raton: CRC Press.

Echeverri Restrepo, Juan A., Oscar Roman Jitdut Jaanu, y **Simon Roman Sachez**
2001 La sal de monte. Un ensayo de halofitogenografía uitoto. In: C. E. Franky y C. G. Zárate, (eds.), Imani mundo. Estudios en la Amazonia colombiana; pp. 397–477. Bogotá: Universidad Nacional de Colombia, Ed. Unibiblos. (Imani mundo, 1)

Ehringhaus, Christiane
1997 Medicinal Uses of *Piper* spp. (Piperaceae) by an Indigenous Kaxinawá Community in Acre, Brazil. Ethnobotany, Ecology, Photochemistry, and Biological Activity. Miami. [Master's Thesis, Florida International University]

Elvin-Lewis, Memory, and **Walter H. Lewis**
1983 The Dental Use of Plants in Amazonia. *Odonto-stomatologie tropicale* 6/4: 178–187.

Erikson, Philippe
1986 Altérité, tatouage, et anthropophagie chez les Pano. La belliqueuse quête du soi. *Journal de la Société des Américanistes* 72: 185–210.
1996 La griffe des aïeux. Marquage du corps et démarquages ethniques chez les Matis d'Amazonie. Paris: Éditions Peeters. (Langues et sociétés d'Amérique traditionelle, 5)
2001 Myth and Material Culture. Matis Blowguns, Palm Trees, and Ancestor Spirits. In: L. M. Rival and N. L. Whitehead (eds.), Beyond the Visible and the Material. The Amerindianization of Society in the Work of Peter Rivière; pp. 101–121. Oxford: Oxford University Press.
2003 "Comme à toi jadis on l'a fait, fais-le moi à present …". Cycle de vie et ornementation corporelle chez les Matis (Amazonas, Brésil). *L'Homme* 167–168/3–4: 129–152.

Farabee, William C.
1922 Indian Tribes of Eastern Peru. Cambridge: Peabody Museum. (Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, 10)

Fejos, Paul
1943 Ethnography of the Yagua. New York: Viking Fund. (Viking Fund Publications in Anthropology, 1)

García Barriga, Hernando
1974 Flora medicinal de Colombia. Botánica médica. Vol. 1. Bogotá: Instituto de Ciencias Naturales, Universidad Nacional.

Goldman, Irving
1963 The Cubeo. Indians of the Northwest Amazon. Urbana: University of Illinois Press. (Illinois Studies in Anthropology, 2)

Gow, Peter
1989 The Perverse Child. Desire in a Native Amazonian Subsistence Economy. *Man* (N. S.) 24: 567–582.

Graham, James G., Alicia Pudicho Torres, Marcelino Pinedo Cecilio, and **Jose Schunke Vigo**
2004 Interesting use of *Calathea standleyi* Macbride (Marantaceae). *Bulletin of the Heliconia Society International* 11/1: 1–2.

Hagen, V. Wolfgang von
1939 The Tsátchela Indians of Western Ecuador. New York: Museum of the American Indian, Heye Foundation. (Indian Notes and Monographs, 51)

Harner, Michael J.
1963 Machetes, Shotguns, and Society. An Inquiry into the Social Impact of Technological Change among the Jívaro Indians. Berkeley. [PhD. Diss., University of California at Berkeley]

Herrera y Tordesillas, Antonio de
1740 The General History of the Vast Continent and Islands of America, Commonly Call'd the West-Indies, from the First Discovery Thereof. Vol. 3. London: Wood and Woodward. [2nd Ed.]

Humboldt, Alexander von, and **Aimè Bonpland**
1852 Personal Narrative of Travels to the Equinoctial Regions of America during the Years 1799–1804. (Transl. and Ed. by T. Ross.) Vol. 1. London: Henry G. Bohn.

Illius, Bruno
1999 Das Shipibo. Texte, Kontexte, Kommentare. Ein Beitrag zur diskursorientierten Untersuchung einer Montaña-Kultur. Berlin: Dietrich Reimer Verlag.

Isacsson, Sven-Erik
1993 Transformations of Eternity. On Man and Cosmos in Emberá Thought. Göteborg: Dept. of Social Anthropology, University of Göteborg.

Jakway, Martha A.
1987 Vocabulario huambisa. Yarinacocha: Instituto Lingüístico de Verano. (Serie lingüística peruana, 24) [2a ed.]

Joyal, Elaine
1987 Ethnobotanical Field Notes from Ecuador. Camp, Prieto, Jørgensen, and Giler. *Economic Botany* 41/2: 163–189.

Karadimas, Dimitri
2005 La raison du corps. Idéologie du corps et représentations de l'environnement chez les Miraña d'Amazonie colombienne. Paris: Éditions Peeters.

Karsten, Rafael
1935 The Head-Hunters of Western Amazonia. The Life and Culture of the Jibaro Indians of Eastern Ecuador and Peru. Helsingfors: Akademiska Bokhandeln. (Societas Scientiarum Fennica; Commentationes Humanarum Litterarum, 7/1)

Lacaze, Didier, and **Miguel Alexiades**
1995 Salud para todos. Plantas medicinales y salud indígena en la cuenca del río Madre de Dios, Perú. Un manual practico. Madre de Dios: Federacion Nativa del Río Madre de Dios y Afluentes.

Lagrou, Elsje M.
1998 Cashinahua Cosmovision. A Perspectival Approach to Identity and Alterity. St. Andrews. [PhD Diss., University of St. Andrews]
2007 Cashinahua Poetics. Metaphors of Sociality and Personhood in Ritual Song. In: U. Demmer and M. Gaenszle (eds.), The Power of Discourse in Ritual Performance. Rhetoric, Poetics, Transformations; pp. 174–200. Berlin: Lit. (Performanzen, 10)

La Rotta Cuellar, Constanza
1987 Estudio etnobotánico sobre las especies utilizadas por la comunidad indígena Miraña, Amazonas, Colombia. [Bogotá]: WWF; FEN.

Larson, Mildred L.
1966 Vocabulario aguaruna de Amazonas. S. l.: Instituto Lingüístico de Verano. (Serie lingüística peruana, 3) [Rev. Ed.]

Lasch, Richard
1901 Die Verstümmlung der Zähne in Amerika und Bemerkungen zur Zahndeformierung im Allgemeinen. *Mittheilungen der Anthropologischen Gesellschaft in Wien* 31: 13–22.

Lewis, Walter H., and **Memory Elvin-Lewis**
1984 Plants and Dental Care among the Jivaro of the Upper Amazon Basin. In: G. T. Prance and J. A. Kallunki (eds.), Ethnobotany in the Neotropics; pp. 53–61. New York: New York Botanical Garden. (Advances in Economic Botany, 1)

Londoño Sulkin, Carlos D.
2001 The Making of Real People. An Interpretation of a Morality-Centred Theory of Sociality, Livelihood, and Selfhood among the Muinane (Colombian Amazon). St. Andrews. [PhD Diss., University of St. Andrews]

Loriot, James, et al.
1993 Diccionario shipibo-castellano. Lima: Instituto Lingüístico de Verano. (Serie lingüística peruana, 31)

Marcoy, Paul
1875 Travels in South America from the Pacific Ocean to the Atlantic Ocean. Vol. 2. New York: Scribner, Armstrong & Co.

Markham, Clements R.
1895 A List of the Tribes in the Valley of the Amazon, Including Those on the Banks of the Main Stream and of All Its Tributaries. *Journal of the Anthropological Institute of Great Britain and Ireland* 24: 236–284.

Martius, Carl F. P. von
1867 Beiträge zur Ethnographie und Sprachenkunde Amerika's zumal Brasiliens. Bd. 1: Zur Ethnographie. Leipzig: Friedrich Fleischer.

Matteson, Esther
1954 The Piro of the Urubamba. *Kroeber Anthropological Society Papers* 10: 25–99.

McCallum, Cecilia
2001 Gender and Sociality in Amazonia. How Real People Are Made. Oxford: Berg.

Mejía, Luis E., y **Sandra Turbay**
2009 Los venenos de cacería en la Amazonia colombiana. ¿Sustancias letales o fuente de vitalidad? *Boletín de Antropología* (Antioquia) 23/40: 129–153.

Mercier H., Juan M.
1979 Nosotros los Napu-Runas. Mitos e historia = Napu runapa rimay. Iquitos: Publicaciones Ceta. (Libro de lectura, 3)

Navas de Pozo, Yolanda
1990 Angamarca en el siglo XVI. Quito: Ediciones Abya-Yala.

Niclutsch, Francisco
1781 Americanische Nachrichten von Quito und den wilden Indianern in Maragnon. Wien: Archiv der Societas Jesu.

Nimuendajú, Curt
1924 Os indios parintintin do Río Madeira. *Journal de la Société des Américanistes* 16: 201–278.
1952 The Tukuna. (Ed. by R. H. Lowie; Transl. by W. D. Hohenthal.) Berkeley: University of California Press. (University of California Publications in American Archaeology and Ethnology, 45)

Nordenskiöld, Erland
1922 Absichtliches und unabsichtliches Zähneschwärzen bei den Indianern Südamerikas. In: W. Lehmann (Hrsg.), Festschrift Eduard Seler dargebracht zum 70. Geburtstag von Freunden, Schülern und Verehrern; pp. 379–384. Stuttgart: Verlag von Strecker und Schröder.

Pinkley, Homer V.
1973 The ethno-Ecology of Kofán Indians. Cambridge. [PhD Diss., Harvard University]

Powlison, Paul S.
1969 Yagua Mythology and Its Epic Tendencies. Bloomington. [PhD Diss., Indiana University]

Raimondy, Antonio
1863 On the Indian Tribes of the Great District of Loreto, in Northern Peru. *Anthropological Review* 1: 33–43.

Renard-Casevitz, France-Marie
1991 Le banquet masque. Une mythologie de l'étranger chez les indiens matsiguenga. Paris: Lierre & Coudrier Éditeur.

Rippen, Bene van
1918 Mutilations and Decorations of Teeth among the Indians of North, Central, and South America. *Journal of the Allied Dental Societies* 13/3: 219–242.

Rivet, Paul
1905 Les indiens colorados. Récit de voyage et étude ethnologique. *Journal de la Société des Américanistes* 2: 177–208.

Rivier, Laurent, and **Jan-Erik Lindgren**
1972 "Ayahuasca," the South American Hallucinogenic Drink. An Ethnobotanical and Chemical Investigation. *Economic Botany* 26/2: 101–129.

Robinson, Scott S.
1979 Toward an Understanding of Kofan Shamanism. Ithaka. [PhD Diss., Cornell University]

Roe, Peter G.
1982 The Cosmic Zygote. Cosmology in the Amazon Basin. New Brunswick: Rutgers University Press.

Romanoff, Steven A.
1984 Matses Adaptations in the Peruvian Amazon. New York. [PhD Diss., Colombia University]

Romanoff, Steven A., Daniel Manquid Jiménez Huanán, y **Fernando Shoque Uaqui Bëso**
2004 Matsesën nampid chuibanaid = La vida tradicional de los Matsés. Lima: Centro Amazónico de Antropología y Aplicación Práctica CAAAP.

Salser, J. K.
1978 El proceso cubeo de ennegrecer la calabaza. *Artículos en Lingüística y Campos Afines* 5: 53–61.

Santa Teresa, Severino de
1959 Los indios catíos, los indios cunas. Ensayo etnográfico de do razas de indios de la América española. Medellín: Imprenta Departamental. (Autores antioquenos, 7) [2a ed.]

Schultes, Richard E.
1964 Plantae Colombianae XVIII. Plantarum utilium speciei duae novae. *Botanical Museum Leaflets* 20/9: 336–340.

Schultes, Richard E., and **Robert F. Raffauf**
1990 The Healing Forest. Medicinal and Toxic Plants of the Northwest Amazonia. Portland: Dioscorides Press.

Seeger, Anthony, Roberto da Matta, e **Eduardo Viveiros de Castro**
1979 A construção da pessoa nas sociedades indigenas brasileiras. *Boletim do Museu Nacional* (Nova Série Antropologia) 32: 2–19.

Siskind, Janet
1973 To Hunt in the Morning. New York: Oxford University Press.

Smith Bisso, Alejandro
2003 Del ser Piro y el ser Yine. Apuntes sobre la identidad, historia y territorialidad del pueblo indígena Yine; pp. 127–257. In: B. Huertas y A. García (eds.), Los pueblos indígenas de Madre de Dios: Historia, etnografía y coyuntura. Lima: IWGIA.

Smyth, William, and **Frederick Lowe**
1836 Narrative of a Journey from Lima to Para, Across the Andes and Down the Amazon. London: John Murray.

Steward, Julian H., and **Alfred Métraux**
1963 Tribes of the Peruvian and Ecuadorian Montaña. In: J. H. Steward (ed.), Handbook of South American Indians. Vol. 3: The Tropical Forest Tribes; pp. 535–656. New York: Cooper Square Publishers. (Bulletin of the Smithsonian Institution, Bureau of American Ethnology, 143) [Repr.]

Surrallés, Alexandre
2003 Au coeur du sens. Perception, affectivité, action chez les Candoshi. Paris: CNRS Éditions.

Taylor, Anne Christine
1993 Remembering to Forget. Identity, Mourning, and Memory among the Jivaro. *Man* (N. S.) 28: 653–678.
1999 The Western Margins of Amazonia from the Early Sixteenth to the Early Nineteenth Century. In: F. Salomon and S. B. Schwartz (eds.), The Cambridge History of the Native Peoples of the Americas. Vol. 3: South America, part 2; pp. 188–256. Cambridge: Cambridge University Press.
2003 Les masques de la mémoire. Essai sur la fonction des peintures corporelles jivaro. *L'Homme* 165: 223–248.

Tessmann, Günter
1928 Menschen ohne Gott. Ein Besuch bei den Indianern des Ucayali. Stuttgart: Verlag von Strecker und Schröder. (Veröffentlichungen der Harvey-Bassler-Stiftung Völkerkunde, 1)
1930 Die Indianer Nordost-Perus. Grundlegende Forschungen für eine systematische Kulturkunde. Hamburg: Friederichsen, De Gruyter & Co. (Veröffentlichungen der Harvey-Bassler-Stiftung Völkerkunde, 2)

Torres Fernández de Córdova, Glauco
2002 Lexicón etnolectológico del quichua andino. Argentina, Bolivia, Brasil, Chile, olombia, Ecuador y Perú. Vol. 3. Cuenca: Ed. Tumpanpa.

Tovar y Ramírez, Enrique D.
1966 Vocabulario del Oriente peruano. Lima: Universidad Nacional Mayor de San Marcos.

Ulloa, Astrid
1992 Kipará. Dibujo y pintura dos formas EMBERA de representar el mundo. Bogotá: Centro Editorial, Universidad Nacional de Colombia.

Up de Graff, Fritz W.
1924 Bei den Kopfjägern des Amazonas. Sieben Jahre Forschung und Abenteuer. Leipzig: F. A. Brockhaus.

Valenzuela, Pilar, y **Agustina V. Rojas**
2005 Koshi shinanya ainbo. El testimonio de una mujer shipiba. Lima: Fondo Editorial de la Facultad de Ciencias Sociales UNMSM.

Vasco Uribe, Luis Guillermo
1996 Emberá. In: J. Wilbert (vol. ed.), Encyclopedia of World Cultures. Vol. 7: South America; pp. 154–158. Boston: G. K. Hall.

Veigl, Franz X.
1785 Gründliche Nachrichten über die Verfassung der Landschaft von Maynas, in Süd-Amerika, bis zum Jahre 1768. In: C. G. von Murr, (Hrsg.), Reisen einiger Missionarien der Gesellschaft Jesu in Amerika. Aus ihren eigenen Aufsätzen; pp. 1–324. Nürnberg: Johann Eberhard Zeh.

Velie, Daniel, y **Virginia Velie**
1981 Vocabulario orejón. Yarinacocha: Instituto Lingüístico de Perú. (Serie lingüística peruana, 16)

Vickers, William T.
1976 Cultural Adaptation to Amazonian Habitats. The Siona-Secoya of Eastern Ecuador. Gainesville. [PhD Diss., University of Florida]

Vickers, William T., and **Timothy Plowman**
1984 Useful Plants of the Siona and Secoya Indians of Eastern Ecuador. *Fieldiana Botany* (N. S.) 15: 1-63.

Viedma, Francisco de
1836 Descripción geográfica y estadística de la provincia de Santa Cruz de la Sierra. In: P. de Angelis (ed.), Colección de obras y documentos relativos a la historia antigua y moderna de las provincias del Río de la Plata. Vol. 3; pp. 1–207. Buenos Aires: Imprenta del Estado. [1788]

Vilaça, Aparecida
2005 Chronically Unstable Bodies. Reflections on Amazonian Corporalities. *Journal of the Royal Anthropological Institute* 11: 445–464.

Viveiros de Castro, Eduardo
1998 Cosmological Deixis and Amerindian Perspectivism. *Journal of the Royal Anthropological Institute* 4: 469–488.

Waisbard, Simone, and **Roger Waisbard**
1959 Les indiens shamas de l'Ucayali et du Tamaya. *L'Ethnographie* 53: 19–74.

Weiss, Gerald
1975 Campa Cosmology. The World of a Forest Tribe in South America. *Anthropological Papers of the American Museum of Natural History* 52/5: 219–588.

Wistrand, Lila M.
1969 Folkloric and Linguistic Analyses of Cashibo Narrative Prose. Austin. [PhD Diss., University of Texas at Austin]

Zumbroich, Thomas J.
2011 To Strengthen the Teeth and Harden the Gums – Teeth Blackening as Medical Practice in Asia, Micronesia, and Melanesia. *Ethnobotany Research & Applications* 9: 97–113.