

Tropical Garden Cities: archaeology and memory in the Southern Amazon

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Abstract

In *Garden Cities of Tomorrow* (1902), Ebenezer Howard proposed a model of sustainable urban development as an alternative to industrial urbanism. A forerunner of the urban green movement, his model of galactic urbanism proposed tightly integrated networks of towns, each gravitating around a central public area, orbiting around a core town and linked by well-developed transportation and communication networks. This multi-centric form produced a subtle gradient between urban and rural areas. Recent archaeology and indigenous history in the Upper Xingu area of the southern Brazilian Amazon has revealed small clusters of settlements, or garden cities, composed of a central plaza settlement and four cardinaly oriented satellite plaza settlements. These were tightly integrated by major roads and surrounded by mosaic countryside of fields, orchards, gardens, and forest. Far from stereotypical models of small tropical forest tribes, these patterns document carefully engineered landscapes designed to work with the forest and wetland ecologies in complex urbanized networks. Such multi-centric, networked forms were quite common, if not typical, in many parts of the pre-Industrial world, particularly major forest regions. This paper explores land-use and dynamic change in coupled human-natural systems, or bio-historical diversity, during the past millennium in the Upper Xingu. In particular, it examines how archaeology and historical memory not only provide means to consider what the Amazon was like 500 years ago but also have vital implications to urgent questions of sustainability and cultural heritage and rights in the face of rapid landscape change related to economic development in the southern Amazon, the “arc of deforestation”.

Keywords: Amazonia. Pre-Modern Urbanism. Historical Ecology.

For most of the 20th century, Brazil's deep past was largely ignored, particularly in the remote hinterlands of Amazonia and other areas far removed from the centers of colonial power along the coastlines and the slopes of the Serra do Mar, rich in natural resources, particularly precious metals and gemstones. Before the 18th century Brazilian "gold rush" and subsequent Rubber Boom, the Amazon remained a distant frontier in the emerging European World System, little happened in the world's largest tropical forest. Its history was as flat as the land, an almost endless jungle of green, crisscrossed by convoluted networks of rivers and streams, filled with cryptic and often dangerous creatures and equally exotic peoples who seemed almost woven into the fabric of the forest itself, more life wildlife than civil societies.

Today this view is open to a thorough historical deconstruction, a radical revisionist perspective, which places the Amazon at the forefront of world history. The rich archaeology and history of indigenous peoples, revealed over the past two decades by the meteoric rise of research on the historical ecology of diverse areas, and particularly the economic development in the Brazilian Amazon and recent legal requirements for cultural patrimony, including archaeology and indigenous heritage. These patterns not only enable scholars to fit native peoples in world historical schema, the last piece in the puzzle, following Africa and the Pacific, which places the Global South in terms not only to underdevelopment, but alternative pathways of social and cultural development. These societies were no less complex in social, political and techno-economic terms to other world regions, although they differ dramatically from the yardstick of Western historical experience. Although radically different, in almost every respect, from classical civilizations, these tropical polities were no less remarkable in their historical achievements or the numbers of human bodies, including the dramatic interventions on the skin of the land.

These findings have important implications beyond the documentation of indigenous history, but are front and center in global debates regarding sustainability, resilience and robusticity,

all referring to complex processes across time. The past does hold important clues for the present, including the place of indigenous peoples in contemporary scientific debate and public policy. Indigenous peoples make up a small fraction of the Amazon's population in Brazil. In Brazil, as a whole, it is common to say that people are one-third European, one-third African and one-third indigenous, but this historical interaction obviously varies significantly from place to place. It seems reasonable to assume that Amazonia falls at the higher end in terms of indigenous practices, including cultural practices, corporeal dispositions and technologies that preserve among traditional groups, body languages and technologies, which vary in ways not isomorphic with language, ethnicity and belief. In other words, indigenous Amazonia extends far beyond the scope of demarcated indigenous lands, which in and of themselves constitute over 20% of the Brazilian Amazon.

The Brazilian Amazon is suddenly on everyone's radar as critical to agricultural, energy, carbon and climate security and, as an integrated system, a major global ecological regulator, a tipping zone. It also consistently draws the world's eyes in terms of the plight of its indigenous peoples, further propelled into global media, time and again, by celebrities from Sting and the Rainforest Foundation to James Cameron's championing of the people of the Xingu, a hauntingly familiar local antagonist in colonial enterprise, a real world Pandora. Not only does the past not fit this lingering image of a delicate balance, humans at one with nature living in such small numbers as to have minimal impact, but the ways indigenous peoples worked with nature, including large scale groups and highly productive techno-economies, provides important clues to ways to do so in the future, not only in demarcated indigenous and other protected areas, but in diverse settings.

In this sense, the good news, if our goal is not simply to preserve the present, as if it is a reflection of the past, but recognize the "home grown" solutions past indigenous civilizations developed, uniquely suited to sustainability of tropical resources, hold important clues to how to responsibly manage these resources in the future.

Suddenly, the Amerindian past may hold critical clues on how the “save the Amazon,” and also positions the region’s history in the Anthropocene, which notably included the widowing the land over the past few centuries. Clearly, the forest as it operates today is a critical element in climate, a major regulator of global ecology, which regardless of its complex human history helps ameliorate, but this was not always the case, with more people there was far greater forest conversion than under indigenous technologies in historic times. This did not, however, involve wholesale landscape transformation, and with forest cover reduction fire threat, erosion and degradation. Indigenous people worked with the land and through their manipulations, including anthropogenic soils that are rich in biodiversity and important carbon stores, in and of themselves. The Upper Xingu, the focus here, is a prime example of this rich history and the cultural memory, or historical patrimony, etched into the land in the forested realm of the Xinguanos. The Xingu is somewhat unique across the Brazilian Amazon in the degree to which this history, including arguably urbanized pre-Columbian populations, is preserved among descendant peoples and their orientation to the land. This, in turn, draws our attention to the nature of dialogues and collaborations between, on the one hand, Brazilian and the author and, on the other, between researchers and indigenous partners.

The pre-columbian Amazonia

The Xingu is one a growing number of cases across the Amazonia that refute long-held views of primitive societies, lacking features of social complexity noted in other major world areas, and a-historical views of pristine nature. Recent research in several parts of the Amazon shows that, in terms of landscape domestication, these societies were no less complex than many of the “oasis civilizations,” from which trait lists and stages were devised. Rather than asking how Amazonians fit into existing categories, we might instead ask (and compare) what types of urbanism do we see, or might we

expect. Archaeology and historical ecology in the humid lowlands of Amazonia changes the way people think about tropical forests. Studies of socio-cultural development and patterns of land-use in the Amazon basin over the past couple millennia reveal dynamic change and remarkable variability. These studies radically change the way scientists view the dynamics of change in coupled natural-human systems in the region. Today this variability is seen to include large, densely settled prehistoric populations in a variety of settings, which intensively managed and engineered the forested ecosystems.

Recent research also shows that even ephemeral occupations leave lasting marks on the landscape, particularly when considered across millennial scales of repeated human activities and co-evolution, which in some areas, and notably ecologically diverse and climate sensitive forest transition areas by late Pleistocene (Heckenberger and Neves 2009; Neves 2007; Schaan 2009). It is clear that early Holocene domesticates were widespread, as suggested to expansion into areas outside Amazonia (Clement et al. 2010). By the mid-Holocene, 6000-3000 BP, settled communities appear, including sites with monumental architecture (Guyana, Marajó, and southwestern Amazonia) by 4,500-3,000 BP and agricultural intensification in the form of raised field agriculture and associated wetland management in northern and southern borderland mosaic forest environments by 3,000-2,000 BP. By this time important regional differences are clear, including the emergence of substantial small river polities in the so-called formative period, with regional populations in the thousands often integrated in small integrated polities.

Early expressions show substantial variation in the timing or form of these early tropical forest polities, including ceramic artifact variation, monumental constructions and agri-biodiversity and land management. These features diffuse independently of the physical movement, but there is widespread agreement that this was tied to influence and actual movements by carriers of languages related to major linguistic families, notably Arawak in river and coastal areas, macro-Tupi, Carib, macro-Jê, and several smaller groups (Pano, Tukano). In many cases, larger polities that emerged have a core of

Arawakan speaking and closely related groups, which is the historical outcome of regional development and diversification in bottomland settings. Historical linguistics and archaeology suggest that Arawak-speaking groups not only dominated much of the diverse Amazonian bottomlands, but that features of social complexity and semi-intensive land-use were associated, in initial form, with common ancestral groups (proto-culture).

Three broad macro-regions have been identified that supported multiple interlinked peer-polities in the late Holocene, including the Amazon River bottomlands or *várzea* and the northern and southern borderlands. In the *várzea*, such systems were like a string of pearls along the main branch and lower reaches of major tributaries, with both buffer zones and oscillated between more and less bellicose groups, based on interactions with early Europeans in the 16th and 17th centuries. Nonetheless, the wide sharing of cultural aesthetics across the *várzea*, as reflected in material culture, documents loose integration along the river, particularly reflected in prestige goods, such as ceramics and lapidary. In several early historic cases descriptions of complex road systems suggest that settled river populations were linked with areas away from the primary rivers. The largest communities likely numbered in the hundreds to low thousands, with 10-50 ha of settled area overall, but often in a patchy pattern, as appears to be typical of many major pre-Columbian urban centers, particularly in major forested areas of the globe, including Medieval Europe. There were even larger centers, such as Santarém at about 100 ha, which rivals other major Native American centers. Regional populations clearly fall into the range of small- to medium-sized pre-Columbian polities, with densities well within the range of urbanized landscapes during the late Holocene. These were among the first native societies to succumb to European invasion, resulting in the remarkable diversity of contemporary “mixed blood” peoples along the rivers and general fallowing of working forests in the Anthropocene.

In the northern borderlands, including Amapá, the coastal hinterlands of the Guianas, the middle-lower Orinoco and the

Caribbean, there are well documented cases of early settled occupations (Guyana, Middle Orinoco) and extensive landscape management by settled regional polities by 2000 BP, e.g., raised fields, modified wetlands and monumental architecture (Rostain 2012). Between, ca. 500-1500 CE, these included large, powerful urbanized polities, with core settlements that were structurally elaborated in production, communication and ritual landscapes and existed in regional peer polities that extended into upland areas of the Guiana plateau and pre-Andine areas.

In the southern borderlands, complex settled regions are focused on major headwater basins of the Xingu, Tapajós, Madeira and Purus, as well as densely settled areas along the eastern margins, including the Tocantins, and along the middle Madeira and Purus. In these areas, evidence of substantial landscape modification related to large, permanent settlements, semi-intensive agricultural and wetland technologies, and well-established communication networks, including monumental sites of regional interaction. The best known cases are the Beni in Bolivia (Erickson 2006; Walker 2008), Acre in the southwestern Brazilian Amazon (Schaan 2011) and the Upper Xingu (Heckenberger 2005; Heckenberger et al. 2008), but ethno-history and preliminary archaeological surveys suggest are much wider distributions across much of the southern Amazon, including the upper Tapajós and Paraguay rivers. Across the southern Amazon, major regional populations were present in the more closed forests of the southern Amazon and the woodland scrub forests and savannas of the Central Brazilian plateau. These areas, like the várzea and northern areas, were characterized by settled peer polities that created pockets of intensive anthropogenic influence, characterized by diffuse but highly planned and integrated regional population, surrounded by areas of more mobile and less integrated social formations.

The Xingu

Contrary to deeply entrenched views of fairly pristine tropical forest, current research shows that dense forests in the southern

transitional areas of Amazonia, concentrated in the headwater basins of the Xingu, Tapajós, Madeira and Purus rivers, were also occupied by dense regional populations. Like other major regions of Amazonia, such as the Amazon floodplains and estuary, coastal areas, western Amazonia, the Orinoco, and the coastline, the southern borderlands boasted impressive settlements and regional networks, making already great cultural and ecological variation all the more pronounced through coupled natural-human processes. These societies are notable for their plurality, incorporating ethno-linguistic enclaves in regionally integrated peer-polity systems extending over tens of thousands of square kilometers.

In particular, studies in the Upper Xingu, the crown jewel of Brazilian indigenism throughout the late 20th century as the first protected indigenous reserve, conducted over the past two decades in collaboration with Bruna Franchetto and Carlos Fausto of the Museu Nacional and the Kuikuro Amerindian community have revealed diverse aspects of the indigenous history of the region over the past millennium (Fausto et al. 2008). In particular, these have revealed critical elements of settlement organization and integration that arguably represent a unique form of pre-modern urbanism, different from classical examples and contemporary urban frontier development, disarticulated urbanism and rural “spawl” (i.e., agro-pastoral, energy, and associated development for major urban markets in Brazil and worldwide). This form of urbanism is quite the opposite, rather than expansive field agriculture there were smaller and larger patches of production, interspersed with grass and scrub forest fallows, and pockets of high forest, much of which is itself just older fallow, secondary forest, and surrounded by the deep forest, which the Kuikuro (Xinguano) call *itsuni*, which forms a green belt and closed wilderness between centers. Walking to any of these areas, while perhaps up to 10 km, could easily be done in a day and traversing the wilderness to other centers by forest trails, rather than roads, took no more.

In the southern Amazon, the Upper Xingu stands out as a “type site” of garden cities, or “galactic urbanism.” Xinguano peoples are

today composed of nine primary sub-groups, including Arawak (three modern subgroups), speakers of Carib languages (three subgroups), and Tupi-Guarani and related languages (two subgroups), descended from dozens of discrete sub-groups of unknown linguistic variation in early colonial times (ca. 1500-1650). Xinguano peoples preserve the most intact system of traditional knowledge among descendants of ancient complex polities in the broad Amazon, and thus one of the extremely few places where contemporary observations about indigenous agriculture, land-use, and settlement pattern can be systematically linked with archaeological and oral historical evidence within an unbroken cultural continuum from before 1000 BP to the present. Specifically, resilience in cultural patterns is archaeologically documented in house form, settlement spatial organization and location, including roads and settlement hierarchies, and the core ceramic industry, functionally tied to the processing and cooking of manioc and fish, and continuity in settlement location. These features enable detailed consideration of the person and technologies of the body in Amazonia.

Fractal Bodies

Recent discussions of personhood in Amazonia and other non-Western settings frequently invoke ideas of relational subjectivity, referring to partible, deictic, and multi-scalar properties of individual persons, notably congruent with social anthropology's primary concern with cross-sectional elements of individuals and social groups, in "partible" relations within human societies (notably affinal relations) and potential kinship within broader social universes of nature and supernature (Fausto 2008; Viveiros de Castro 2004a, 2004b). In the Xingu, in particular, this is also congruent and socially interactive with the potential kinship of consanguinity and ancestry, genealogies that have both backward and forward looking dimensions, back-and-forth between past and present (Barcelos 2008; Fausto 2008; Fausto et al. 2008; Franchetto 2011; Heckenberger 2005), Multi-scalar communities of practice are defined

in large part by the spaces they operate in or can. These spaces, defined in terms of geo-political territories and social boundaries, are further defined by situational variation (diurnal, seasonal, and ritual). Both are questions not only of how people conceive of self and other, but of how human bodies are distributed in time-space, as well as the self-scaling or “holographic” – fractal – qualities of human cultural systems (Wagner 1991) and how, as perspective changes, different dimensions of personhood are apparent.

In the Xinguano, self-scaling properties are marked in indigenous language by the difference between insiders and outsiders, basic principles of social alterity. *Otomo* refers to community, typically used is as a designation of the people of a place, although the term also means insider or kin, as opposed to *telo*, or outsider/affine (Franchetto 1986). *Telo* refers to non-relative, but is iterative depending on context, thus an *otomo* can be the local group, relatives and non-relatives and affines and non-affines, which are divided into classificatory and “true” siblings). *Otomo* is one’s kindred, which in the case of major chiefs, roughly divide villages in half, but in a way that is typically ranked, thus one’s house is a rough form of *otomo*, the *otomo* within the *otomo*, so to speak, one’s faction is also, as is the settlement, or typical *otomo*.

Otomo refers primarily – its conventional meaning – is a local plaza group, a single settlement, which is typically designated by a place: *Ipatse otomo* (the community of Ipatse Lake), *Kuhikugu* (place of the small fish *kuhi*) *otomo*, *Lahatua otomo*, etc. Today, the maximal group is the local plaza group with, as noted, ephemeral traces of the ancient regional polity (cluster) structure. In the past, the maximal *otomo*, or territorial group was the cluster, although there is evidence of loosely defined linguistic blocks, corresponding to the eastern, western and northern portions of the overall territory of Xinguano peoples. As described below, it is my contention that the maximal *otomo* is the galactic cluster in ancient times, and the pattern extends to regional clusters, as revealed in archaeology for the period from AD 1250-1650.

Things take place somewhere, in the presence of others, and it is

how these others interact in place that makes manifest subjectivity, the “unresolved tensions between body, self and social and political processes” (Biehl et al. 2007; Strathern 1992). In spatial terms, this self-scaling social calculus is isomorphic with dwellings – the houses or bodies of larger social or “moral” persons: the house, the household cluster or House, the community, and the region. In everyday *habitus*, basic principles of Xinguano society and cosmology are reproduced in the highly structured domestic and public space. Houses are laid out according to a precise calculus that includes proportionality, distance, and angle measurements. When a house is constructed the long axis is laid out by situating two to four central posts along a line and then placing two end posts along the same line, equidistant from the center. Houses are divided into a center and edges, front and back, right and left.

The house is an iteration of village space, a microcosm, or the village is a macrocosm of the house, oriented to a front (usually facing east) and back, left and right. House space is, at times, highly generalized, with open access to most areas, except to the private areas of individual families. At other times, it is highly specific, divided into areas dominated by certain age groups and gendered, as well. Space is also cued to specific key persons, which is to say where other people are situated is relative to one or a few primary individuals, the most important of which is the household head(s). The hammock of the household head is tied along the long house axis to the right as one enters the house.

Plazas

In the horizontal dimension, plazas exhibit two primary elements: (1) a concentric dimension, expanding outward from a public and sacred core (where cemeteries, the ceremonial house, sacred flutes and masks, and formal public ritual are located), and passing through a plaza peripheral ring, which is cleared but less sacred, a domestic ring, a village periphery, a countryside, and forest maximal periphery and (2) a system of partitioning based on first a bisection of the plaza,

into northern and southern halves, by the east-west road, and then a quadripartition and eight section division created by adding N-S features, with houses or roads, and intercardinal axis, that are also marked by house, roads, or commonly both. The term is also used to refer to smaller and larger kin groups, importantly chiefly kindreds, which split villages in half (primary chiefs, which as described below, are recursively defined by place (N or S position on plaza, which is right and left as one enters a community along the formal road), and then again halved into a quadripartite division of the community.

The plaza is this simultaneously a social history and a physical cartography. It is a road map of the surface of the earth in the two-dimensional lateral plane and of the cosmos oriented to a vertical axis mundi that organizes history, the relations between the living and the dead or immortal ancestors. All plazas create a center – a spatio-temporal core and *axis mundi*, and simultaneously divide the world into halves, built upon an angle that is more or less E-W (although keyed to – and marked in indigenous language – the entrance and exit of the sun, specifically during the ritual season, June and September). The plaza is then halved again, according to N-S, and then again according to the 45 degree angles between E-W and N-S, as most clearly seen in the configuration of X13. These roads also create a precise grid, linking sites within clusters, and across the broad region. As long noted in Amazonian studies, circular plazas divide the world according to basic social principles of social alterity, others, and mimesis, in this case the reproduction of foundational mythic persons and events in ritual.

Relational or indexical systems of knowledge include several basic principles, beyond the establishment of a center. All primary dwelling places start with a centre, which is a burial place, as well as a place for meeting, dancing, wrestling, and other ritual things. This center is littered with bodies, although sometimes far more than others. The major permanent standing structure (keeping in mind that few Amazonian peoples used any kind of stone architecture), is a large oval – “beehive” – structure (*kuakutu*), almost identical to regular houses (*üne*), laid out to a very exactly plan. Its long axis is

perpendicular to the E-W line, or formal road (*tangiña*), and creates a fixed N-S axis, which creates the basic conditions of the coordinate grid, at the village scale, which is mirrored by houses, at a smaller scale, and regional clusters, at a larger scale.

There is no doubt in such a partitioned world who is who, but if there were there is also an easy formula to follow: on the right, as you enter a house, is the owner, *iine oto* perpendicular to the door, and, if he is a ranking chief, on his right will be the ranking wife; on the house's left is the secondary owner. As one enters a village, along the formal path, this geometry is maintained, and one typically finds the chiefs house – the *tajühe* - on the right (or sometimes left). Like the body, social asymmetry is weighted to the right. In prehistoric regional clusters, which consist of multiple plaza communities, in a galactic pattern, tied to an exemplary (and largest) center, where by each node is a reproduction or model of the exemplary plaza center, the same basic principle applies, and with this added (regional) dimension, we can see that these iterative principles of the fractal person extend from the human body, house, and village to the region.

Plazas first and foremost draw things in, unify, and create a space for group or public social interaction. Plazas also split things up, into sides, and quarters, neighborhoods, and the like, and centers and peripheries. They partition the world into greater and lesser places, and greater and lesser bodies, depending on how individual human bodies mingle in these spaces. It is in this sense that we can analyze plaza space, even in the relatively small-scale and “egalitarian” societies of the Amazon basin, as a form of disciplinary power, whose force rests on this masking – or naturalization, as it is commonly called – of a political power.

Galactic urbanism: garden cities

Archaeological research (1992-94; 2002-06) has identified 20 prehistoric plaza settlements in the study area (~1200 km²), roughly conforming to the traditional territory of the Kuikuro community. Colonization of the region and establishment of agricultural economy

resulted in initial forest conversion, dated to ca. 500-700 CE or earlier at three sites (X6, X11, X13). At ca. 1250 CE, settlements were significantly expanded and integrated through major road-building projects, clearly indicated by well-dated earthworks at the three sites. By ca. 1250 CE, most or all settlements were integrated into two hierarchically organized “galactic” clusters, which represent small territorial polities (~ 250 km²). The elaborate regional plan linking settlements in clusters is revealed by mapping of major earthworks, including excavated ditches around large settlements (up to 15 m wide, 5 m deep, and 2.5 km long), linear mounds along roads and plaza areas, and wetland constructions, such as raised causeways, bridges, river obstructions (weirs), canals, and artificially modified ponds.

Clusters were comprised of walled towns (20-50 ha), some likely ranging over a thousand inhabitants, and non-walled villages (<10 ha), as well as small (non-plaza) hamlets and special activity sites. Largest settlements were over ten times the size of contemporary villages (~5 ha and 100-350 persons) and two dozen settlements occupied the Kuikuro area, home to one to three settlements during the 20th century. Known walled towns from across the region document at least 15 such clusters, likely similar to those in the study area, which constituted a peer-polity extending across the Upper Xingu ($\geq 20,000$ km²). There are likely more clusters, since most of the region is unstudied. We estimate substantial variation in size and elaboration of clusters, likely ranging from <1,000 to >2,500 for individual clusters. The two known clusters are interpreted as large, but unstudied areas may reveal even larger clusters. Overall regional population is estimated at 30,000 to 50,000 or more.

The galactic urban core was composed of an exemplary ceremonial center (X11 and X13) and four major satellites, with several smaller plaza satellites and hamlets. The core area of galactic clusters defined by the center and four satellites (~50 km²) were rigidly planned and highly self-organized landscapes, including well over one square kilometer (>120 ha) of residential areas. Major satellites were regularly positioned in relation to centers, equidistant (3-8 km) east

and west and north and south. They were linked by a region-wide system of broad, straight roads. Like today, ancient villages always had a formal entry road, oriented east-west: the axis of the sun at about the mid-year solstice ($\sim 67^\circ/247^\circ$), which is the height of the dry season and the annual ritual calendar. They also had roads radiating out to the north and south ($\sim 157^\circ/337^\circ$), as well as secondary roads and paths crisscrossing the landscape. These orientations provided the basis of a system of spatial dispositions, a cartography, which extended across the entire Upper Xingu basin in 1500.

Today the regional system is composed of essentially autonomous villages, integrated into a regional cultural system of peer communities. In 1500 CE, planned clusters of settlements were linked in a region-wide system of broad, straight roads, physically marked by the contiguous road-plaza mounds. Galactic clusters represent an intermediate level of political and spatial organization, between the autonomous village and the regional peer society, which declined precipitously after ca. 1650 due to depopulation, culminating in the two level (village-region) political organization that characterize historic social formations. Like today's peer-villages, ancient polities were linked by intermarriage, formal exchange, and co-participation in elite rituals. Social hierarchies were based on genealogical rank and ordered in rigid regional settlement hierarchies.

Each residential center, together with its non-walled satellites, was somewhat autonomous in basic agricultural and fishing production. Rather than centralized economic administration, political economy, in particular, was a key feature of integration in galactic polities. Major inter-polity ritual were tied to exemplary centers, as best seen at X13 where domestic refuse is tightly concentrated in the plaza area, which contrasts with the extensive domestic refuse noted at X6 and X18 in the northern cluster. The organization of X13 suggests political and ritual centralization, likely tied to polity-wide and inter-polity ritual, in contrast to primary and secondary plaza satellites where local plaza ritual were administered by local elite. Special elite houses (1250 m²) and special burial chambers, known historically, were tied to a scalar system of ritual, whereby highest

ranking (polity-wide) chiefs were commemorated in exemplary centers and lower ranking elite in satellite walled and non-walled residential centers. Spatial and socio-political patterns in hierarchical clusters also reflect dualistic and quadripartite systems, reflected in the north-south centers (3-5 km from center) and more distant (8-10 km) east-west centers, each with their own rank hierarchies. In the southern Kuhikugu cluster, X11 is both residential and ceremonial center, approximating more closely the classic core-hinterland model of socio-political organization and settlement hierarchy.

Pre-Columbian systems fall within the range of what would be considered small urban polities elsewhere in terms of the size of largest settlements (~50 ha), the size of territorial polities (~250 km²), and the regional peer-polity system (≥20,000 km²). Notably, these small-scale formations conform to features with a model of multi-centric urban development, termed “garden cities” proposed a century ago by Howard, a forerunner of the “green movement.” The Xingu multi-centric system is characterized by a scalar gradient between large and small settlements, with walled settlements being larger or self-scaled versions of small, non-walled plaza villages. Multi-centrism dictates against a simple urban-rural distinction, although five-node core areas are substantially different from the surrounding “green belt” of working forest and wilderness between clusters. In terms of regional planning, integration, communication networks, Xinguano polities are more developed than many small-to medium-sized central place urban polities in other parts of the world. They show a remarkable degree of self-organization, creating highly textured and resilient anthropogenic landscapes is equally socio-cultural as biophysical, as seen in other major world forests, particularly in the tropical world.

This core urban area, or multi-centric “garden city,” was an active agricultural countryside and parkland comprised of a complex, interlinked system of modified upland forest and wetland areas, including artificial ponds, lake spits, causeways and weir footings, fish farming. As noted above, these systems operated with the same basic materials of today, including staple manioc agriculture,

supplemented by arboriculture of tropical fruit trees, “house gardening” of ADE. Surplus production for ritual events (e.g., fish, first fruit, and manioc flour “payments” and communal manioc gardens, processed and stored by hereditary leaders for feasts). Today, patchy, open agricultural landscapes are composed of manioc plots (*Manihot esculenta* spp.), orchards of pequi fruit trees (*Caryocar* sp.), and large areas of *sapé* grass (*Imperata* sp.) interspersed and interconnected with secondary forests, within rotation systems that extend over generations.

The highly ordered partitioning of the landscape documented archaeologically reflects fixed and intensive patterns of land-use by the densely distributed prehistoric communities, as well described in ancient urban agricultural landscapes in lowland Bolivia. Like today, these would have incorporated diverse forest and wetland management strategies, including sequential multi-cropping in long-term rotational cycles of agriculture and arboriculture, large-scale wetland management, and patchy land-use and forest “connectivity” through habitat corridors. Even at their height, ca. 1250-1650 CE, the semi-intensive agricultural technologies did not denude the landscape of trees, as commonly practiced in modern developmental practices. Large tracts of high forest were restricted to the more lightly occupied – rural – peripheral zones and even deeper forest wilderness between clusters.

Land-use and agricultural production differed from contemporary patterns, including how much land was converted, what patterns of agricultural land-use and resource management were in place in late prehistoric times. Although heavily impacted by epidemic disease after ca. 1550-1650, Xinguanos were isolated from interaction with colonist populations and preserve traditional practices of semi-intensive land-use today, which are far more intact than almost anywhere in Amazonia. Today, forest and wetland ecologies themselves preserve an unparalleled record of the post-contact (post-1500 CE) “fallowing” of the landscape associated with demographic collapse of Amerindian populations.

Amazonian pasts and futures

Rather than conceived as something less, or lacking, one or two steps down the evolutionary ladder, patterns such as those recognized in the Amazon for such societies suggest alternative solutions and strategies and historical trajectories, pathways, of early domestication, rank and regionality, intensification, and urbanism. These indigenous complex societies not only change the way anthropologists consider Amazonian cultural variation but also add novel cases to world history, changing the way scholars view both nature and the nature of socio-political complexity and urbanism. Indeed, as noted by many scholars in the Americas, Africa, Pacific and other areas, what passes for a state in the Old World would be called a chiefdom in the New World, or in Africa, the Pacific or a wide range of other non-Western settings. Basically, states have cities, among other things, and chiefdoms don't. Clearly, such tacit correlations between political institutions, or bureaucracy, and built environment, urbanism, the human footprint, favor certain things and hide other linkages. More recent scholars recognize great variation in transitional social formation between non-state and state societies.

Increasingly Amazonianists recognize that domestication in the region not involved changes in species, including significant co-evolutionary change in plant and animal communities, but more importantly changes in landscape ecologies within broad built environments, the "domestication of landscape," including economic reorientations that concentrated exploitation of specific plants and animals, notably palms, fruit trees, root crops, and aquatic fauna (Balée and Erickson 2006). By 1492, these domesticated landscapes had achieved a degree of techno-economic sophistication and scope fitting well within the range of complex societies in most parts of the globe at that time. Today, most researchers agree that in terms of human bodies, the average "traditional" native Amazonia lived in a settled, regional society quite different than the groups described centuries later in the late 19th and 20th century. In many areas, population numbers reached their lowest, the demographic nadir,

precisely when they were being described in ethnographic studies.

Oddly enough, one of the best models was provided by Ebenezer Howard in reference to sustainable futures for 20th century urbanites around London in his revolutionary vision in *Garden Cities of To-morrow* (1902). There much to be learned from this alternative, but retrodicted into the past: linkages, networks, planning, communication and integration, and rather than raw settlement size, socio-economic function, or, surely, a fixed trait list to define the urban, these patterns, linkages, which are highly diverse in form and motion, may be a view to past social formations common in many parts of the world, such as Amazonia, or, more broadly, the “global south.” The take home message might be phrased: had he known of them, the Amazonian case of the Upper Xingu, which I discuss here, might have merited a passage in his book, “garden cities of yesterday.”

These indigenous complex societies not only change the way anthropologists consider Amazonian cultural variation but also add novel cases to world history, changing the way scholars view both nature and the nature of socio-political complexity and urbanism. Recent studies not only prompt trenchant critique of views of pristine biodiversity, but offer vital clues to viable resource management strategies, particularly in indigenous reserves that constitute the majority of remaining forests in the southern Amazon “arc of deforestation.” The Upper Xingu is one example of complex socio-ecological systems in the southern Amazon transitional forests. It provides unique insights into the development of anthropogenic landscapes and how these functioned to support much larger populations in the past, including semi-intensive systems of resource management. It also provides important clues to crucial issues of land management, ecological integrity, and sustainable development. Thus, in thinking about the Amazon, and urbanism there, we might note that understanding the dynamics of coupled natural-human systems over the past millennium in the Upper Xingu basin, suggest new pathways of ecology, historical change and socio-cultural resilience with respect to small-scale urban polities and the forest parkland ecology associated with them.

The implications of revisionist views of the pre-Columbian Amazon have obvious relevance for how the region and other tropical forests are viewed by scientists. We can conclude is that these areas, in particular, were radically transformed by the settled complex societies, with diverse complex systems of techno-economic infrastructure and monumental landscapes. The distribution of populations in surrounding upland areas, with their own highly variable characteristics in terms of size, political integration and landscape orientations, including some large confederated groups, enmeshed in regional political economies thus, little can be seen to have evolved outside of the orbit of human influence, although this does not preclude a very light touch, in terms of genetic/species biodiversity, in a variety of settings, however this remains to be demonstrated not assumed. This also implies the critical implications in terms of cultural heritage and patrimony, indigenous pride of place, but these systems are home grown examples of semi-intensive wetland and agricultural land-use in urbanized bottomland areas and descendant communities are willing partners in developing sustainable futures, including those of indigenous and rural populations.

Note

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Resumo

Em *Garden Cities of Tomorrow* (1902), Ebenezer Howard propôs um modelo urbano de desenvolvimento sustentável como uma alternativa ao urbanismo industrial. Um precursor do movimento urbano verde, seu modelo de urbanismo “galáctico” propôs redes totalmente integradas das cidades, gravitando em torno de uma área pública central, orbitando em torno de uma cidade central e ligados por um sistema de transporte bem desenvolvido com redes de comunicação. Esta forma multicêntrica produziu uma gradiente sutil entre as áreas urbanas e rurais. A arqueologia recente e a história indígena na região do Alto Xingu do sul da Amazônia brasileira revelaram pequenos grupos de assentamentos (ou cidades jardins), compostos de uma praça central e quatro assentamentos (praças) satélites, posicionados cardinalmente. Estes foram totalmente integrados pelas principais estradas e rodeadas por uma paisagem mosaico de campos, pomares, jardins e florestas. Longe de serem modelos estereotipados de pequenas tribos da floresta tropical, esses padrões mostram paisagens cuidadosamente projetadas para trabalhar com as ecologias florestais e zonas úmidas em complexas redes urbanizadas. Tais formas multicêntricas em rede eram bastante comuns, se não típicas, em muitas partes do mundo pré-industrial, especialmente nas regiões florestais importantes. Este estudo explora o uso da terra e a mudança dinâmica nos sistemas humano-naturais (ou diversidade bio-histórico), durante o milênio passado no Alto Xingu. Em particular, examina como a arqueologia e a memória histórica são os meios para acessar a Amazônia de 500 anos atrás. Também tem implicações importantes para as questões urgentes de sustentabilidade, de patrimônio cultural e dos direitos em face da rápida mudança da paisagem relacionada ao desenvolvimento econômico no sul da Amazônia e o “arco do desmatamento”.

Palavras-chave: Amazônia. Urbanismo pré-moderno. Ecologia histórica.