"Savage Knowledge," Ethnosciences, and the Colonial Ways of Producing Reservoirs of Indigenous Epistemologies in the Amazon

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Abstract: This paper explores the intricate relationship between the concept of "savage knowledge," its significance during the ninteenth and twentieth centuries, and the emerging field of ethnoscience. It specifically focuses on the Amazon region as a pivotal area in the development of ethnoscience, examining the contributions of renowned naturalists Carl von Martius, Richard Spruce, and Richard Schultes, who each conducted scientific expeditions to the Amazon during this era. Their works are crucial in reevaluating the dynamic interplay between the Western perception of the "savage," the scientific principles that underpin it, and the geopolitics of knowledge exchange between countries in the global north and south. I argue that the contextual conditions which made possible the emergence of ethnoscience, including imperial assimilation, extraction, and coloniality, continue to exert influence on twentieth century political discourses concerning the integration of indigenous cultures into global politics. This influence is evident through the analysis of a UNESCO document in the second part of the paper. The study concludes that the incorporation of indigenous knowledge, systematised by ethnoscience,

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has often served as a pretext for controlling geographical areas historically regarded as "natural resources," ultimately transforming them into reservoirs of indigenous epistemologies.

1. INTRODUCTION

This study analyses historical and epistemic continuities between the European notion of *savage knowledge,* the colonial impulse toward bioprospecting, and the field of ethnoscience that—according to the conventional literature on the history of the field—emerged in the 1950s and 1960s. Wolff-Michael Roth (2019) describes ethnoscience—a term that originated in the 1960s—as the field of inquiry concerned with the "identification of the conceptual schemata that indigenous peoples use to organise their experience of the environment." Roy Ellen (2003, 47–74) suggests that "from about the mid-1960s, the tendency to marginalise local biological knowledge began to be reversed." According to Edvard Hviding (2003, 167), since the late 1950s, there have been many sub-branches of anthropological investigation bearing the prefix "ethno," most belonging under a "loosely defined umbrella concerning cognitive approaches to 'the native's point of view' concerning specific sub-branches of western science."

Arguably, from the 1990s onwards, the ontological turn reinvigorated this effort insofar as it consolidated an effort to study non-Western ontologies, defined in terms of underlying logical relations and cosmological assumptions. Consequently, the ethnosciences have developed a critical agenda of scientific and cross-cultural studies that include positive values informed by ontological mediations, in which indigenous ontologies are being translated into advisable environmental practices (Redford and Padoch, 1992; Ellen et al., 2000). However, despite this, it should be stressed that ethnoscience belongs to a discursive field that is inherent in the West's quest for a universal human nature—with different humans in different scales of civilization—and for natural resources. To visualize this, we must shift our analyses to a pre-1950s world, when the term ethnoscience did not exist as a formal construction. Broadly, it meant the recognition by westerners that indigenous people from the Americas—usually named the "red race" or "savages," among other derogatory designations by Europeans—also had some knowledge about nature (whether botanical, zoological, or medicinal), which could be recorded and adapted into a scientific taxonomy and applied in colonial scientific areas such as economic botany and medicine.

In this paper, I discuss some of the colonial roots of such processes and how Europeans conceptualized *savage knowledge* in the nineteenth century. It is noteworthy that the Western construction of *savage* as such, as both a literary trope and as a scientific object has been widely discussed (Fabian, 2002; Kuper, 2003; Trouillot, 2003), but the concept of *savage knowledge*—what Carl von Martius (1794–1868) called *Wissen der Wilden,* a knowledge belonging to the "wild," and its appropriation and conceptualisation in the fields of natural history and medicine, have not been well explored beyond the works of Lévi-Strauss (1966) and Ackerknecht (1971). I contend that the notion of *savage knowledge* and its variant "primitive" has endured into the 20th century, as a mediating notion**,** permeating discourses about ethnoscience—or the scientific investigation of indigenous knowledge—and grounding global policies based on the romantic ideal of salvaging and integrating indigenous knowledge, global development, and environmental conservation projects.

When it comes to the term ethnoscience, some authors use it to refer to "modern science" (Harding 1997, 37–64; *cf.* Latour 1987). However, I suggest that historically, the notion of ethnoscience is a construction of the Western discourse to characterize the knowledge of non-Western, non-modern, or extra-modern peoples. As examples, we have authors in the nineteenth century, such as Powers (1875), who coined the term "Aboriginal Botany" in 1873 to characterise the knowledge of indigenous people in California. A more influential example is the professor of botany at the University of Pennsylvania—John Harshberger—who defined "ethnobotany" as a field of study capable of investigating "the cultural position of the tribes," the "past distribution of plants," "the ancient trade routes," and "new lines of manufacture," following Frank H. Cushing's studies among the Zuni Indians of New Mexico in the 1880s (Harschberger, 1896). Harshberger's research on Amerindians from North America is not conceptually distant from other studies carried out in the nineteenth century in spaces such as Kew Gardens, the Staatliches Museum für Völkerkunde in Munich, and the Muséum National d'Histoire Naturelle in Paris, each of which provided a series of instructions, museum spaces, and networks for collecting indigenous knowledge with a strong focus on research in Africa, Asia, and the Americas (Salick et al., 2014).

The study is centered on the Amazon region as a pivotal area in the development of ethnoscience. I underline three cases that have not yet been explored in this complex network of naturalists. These constitute important landmarks for reflection on the field notion of ethnoscience and its colonial roots. I am referring to the naturalists Carl von Martius, Richard Spruce (1817–1893), and Richard Schultes (1915–2001), each of whom hail from different

regions of the Global North: Germany, England, and the USA, respectively. All undertook scientific expeditions to the Amazon between the nineteenth and twentieth centuries. Their works constitute fundamental historical material for rethinking the relationship between the Western construction of the *savage,* the scientific concepts underlying this construct, and the geopolitics of knowledge between countries in the Global North and South. More specifically, I develop the following aspects of analysis: (1) von Martius and the notion of *savage knowledge,* (2) Spruce and the colonial roots of English ethnobotany; (3) Schultes's reassessment of the ideas of von Martius and Spruce—the concept of the Amazon as a reservoir of knowledge for the Global North—and (4) UNESCO's political guidelines for indigenous knowledge as an instantiation of the ruptures and continuities of the colonial process in global policy proposals.

2. VON MARTIUS AND THE AMAZON: THE ANTIQUITY OF SAVAGE KNOWLEDGE

Literature on ethnobotany and ethnopharmacology presents von Martius as a key figure in collecting medicinal plants in the Amazon region in the nineteenth century (Breitbach et al., 2013). His seminal works, *Systema Materiae Medicae Vegetabilis Brasiliensis* (1843; hereafter "*Systema*") and *Flora Brasiliensis* (1840–1906), contain ethnobotanical information and plant annotations based on indigenous knowledge. A common trait in the works of botanists who emulated von Martius is a disjunction seen in a fundamental aspect of his scientific practice: his view of native plants as distinct from the views of the indigenous people of the Amazon and what he called *savage knowledge.* What was the nature of *savage knowledge* in a context in which nineteenth-century racial and civilisational classification schemes were informed by European notions about the peoples of the Americas as *savages,* lacking intellectual capacities?

The terminology used by von Martius demonstrates that the notion of the *savage* was central to his scientific works, as it was for other naturalists of his time (Arteaga, 2017). Along with their flora and fauna, his monographs included descriptions of the indigenous peoples, and their natural and mythological knowledge, which were considered part of the natural history of the Brazilian regions he visited. Von Martius travelled to Brazil as a member of an Austrian-Habsburg imperial expedition to South America in 1817. In Brazil, he travelled from the imperial capital of Rio de Janeiro through the hinterlands, from São Paulo to the Amazon Basin. The expedition ended in June 1820. In December of that year, after an absence of nearly four years, von Martius arrived back in Munich, where he engaged in the systematisation and

conceptualisation of the botanical and ethnographic materials he had collected in Brazil (Uchôa, 2019).

Back in Bavaria, in his correspondences with Johann Wolfgang von Goethe (1749–1832), von Martius admitted that he had been unprepared for his travel to the Amazon. The most striking sign of his lack of preparedness was the radical shift in his perception of the American race after what he called the "encounter with the savage." Von Martius observed he had grown up within a cultural environment of "ballets, dramas, and operas" which glamourized the figure of the savage, following Jean-Jacques Rousseau's idea of the *bon sauvage.* Consequently, when he travelled to Brazil, he carried this unchallenged image which associated the "state of nature" with the "wild man," and projected it on the people he met. Therefore, throughout the three volumes of *Reise in Brasilien* von Martius presents a Rousseauian view of the natives in their alleged state of nature, typified in a single example where, in his final remarks in Chapter VII of the third volume, von Martius states:

> it is possible to find here a certain state of well-being for the primitive state of the human race, a life of nature, something that we, in old historical Europe, no longer have any vestige or notion of (Martius 1992, 316).

As I argue elsewhere (Uchôa, 2021), von Martius changed his mind. He concludes that Rousseau was wrong and that instead of being in a "state of nature," the Amerindians were in a state of *ruins.* Ruins in von Martius's context constituted an index of antiquity. Therefore, the key to understanding von Martius's anthropology is that precisely by being extremely ancient, the American race had achieved substantial knowledge of nature and a form of "natural magic" recognisable in the medicinal practices of shamanism, which von Martius characterised as *savage knowledge.* In *Das Naturell, die Krankenheiten, das Ärzthum und Heilmittel der Uhrbewohner Brasiliens,* von Martius discusses this topic. The book was originally published in German in 1844 and later in Portuguese in 1939.[1] The section entitled "Medicine and Remedies of Brazilian Savages" begins with a description of the indigenous medicine man, which he called *pajé*, as an individual "distinguished by his spirit of observation, cunningness, and industriousness," who held considerable power in his community and who managed the vegetal kingdom with great skill. Von Martius pays particular attention to their healing practices and use of plants.

1 Page numbers refer to the translated Portuguese version published in 1939.

It is worth recalling a passage that allows us to visualise von Martius's effort to translate savage knowledge embodied in the shamanistic practices of handling plants:

> These are harvested fresh, from trees or shrubs, by the shaman, and used internally, in infusion and decoction, or externally in poultices and washes. [...] These medicinal plants have, in addition, in the fresh state in which they are used by the savage doctor, the most effective medicinal virtue, and in many cases, they replace, with happy success, the chemical compositions of European medicine. (Martius [1844]1939, 233)

Von Martius's considerations—identifying the relations the indigenous people established between plants and treatments for the most diverse diseases—are extensive. According to him, "the number of medicinal substances from the plant kingdom that Brazilians usually use" was also vast, and he had seen many of the plants being handled by the indians; as for others, he had heard from the natives how to use them. Thus, he concludes, "that in several provinces of the great country, many more than 100 plants are used as medicines by the Amerindians" (Martius [1844]1939, 237), many of them unknown to Europeans.

Notice von Martius's allusion to the indigenous people's handling and use of plants. Both are essential in von Martius's interpretative project. They bring the naturalists closer to the plants and the *savage knowledge* in action, lending the plants a therapeutic connotation, which, he argued, could be useful for European medicine. Regarding what the indigenous people said about the medicinal uses of plants, von Martius stressed the hostilities against the European intruder, "so considered by the savage," who, consequently, "hide confidential information as much as possible" (Martius [1844]1939, 237). Von Martius seems to have been very attentive to the so-called "confidential information" of the *pajés,* as he described in the *Systema,* which includes detailed descriptions of the origin of indigenous plant names, scientific names and the traditional/medicinal use of 730 species.

In his *Das Naturell, die Krankenheiten, das Ärzthum und Heilmittel der Uhrbewohner Brasiliens (1844),* von Martius returns to the central thread in his assessment of the relationship between *savage knowledge* and the "current state" of the American races when he foresaw questions about the origin of such knowledge. Thus, he observed: "If one wonders where the knowledge of these numerous medicinal plants came from for the Indian, it will be seen that many have prehistoric relations with the aborigines" (Martius [1844]1939,

237). This very idea of a rich and deep past led von Martius to reconfigure the *savage knowledge* as a derived, second-order object from which he both learned and tried to afford a place in his science. The broader consequence was the transmutation of the notion of *savage knowledge* into what, late in the nineteenth century and early twentieth century, came to be called ethnoscience.

3. SPRUCE, ECONOMIC BOTANY AND AN ENGLISH IMPERIAL NETWORK

In the nineteenth century, one of von Martius's avid readers and correspondents was the British botanist Richard Spruce. Spruce, aged 31, sailed for the Amazon Basin in June 1849. During the 15 years that followed, his travels took him through Brazil, Venezuela, Peru, and Ecuador. His task was to investigate the flora of the Amazon Basin and send back collections of herbarium specimens to Kew Gardens. As indicated by many historians, Kew Gardens was the hub of a colonial scientific network, a central institution of a global network of scientists specialising in economic botany (Drayton, 2000; Bonneuil, 2002). In 1848, one year before Spruce travelled to the Brazilian Amazon, the botanist William Hooker (1785–1865), then director of Kew Gardens, set up a Museum of Economic Botany at Kew, where specimens of useful plants were available for study and reference in preparation for sending to British colonies in Africa and Asia (Cornish 2017, 188–214).

Botanists like Spruce received very well-defined instructions from the British government for botanical and ethnographic collection. Part of these instructions was published in 1849 in *A Manual of Scientific Inquiry: Prepared for the Use of Her Majesty's Navy and Adapted for Travelers in General.* In this work, at least three articles indicate the collection of botanical material in conjunction with associated native knowledge. Hooker's contribution comprises several passages wherein he speaks of the "Medicinal substances" that have a "vast importance and merit the attention of travellers in every country." (Hooker 1849, 400) Accordingly, Hooker writes: "With respect to many, it is not yet known, except to the natives who collect and prepare them, what are the particular plants that yield them" (1849, 422).

Regarding the instructions for the topic *Medicine and Medical Statistics,* physician Alexander Bryson suggests that "Some curious information may be occasionally obtained in distant countries relative to the modes of treating diseases amongst uncivilised tribes; not that it is likely to prove of much value, but as a matter of history it may be worth recording" (Bryson 1849, 460). The physician James Cowles Prichard presents instructions for ethnology, mainly

collecting each person's physical and social characteristics. As for the natives' knowledge, he states: "The crude notions entertained by uncivilised nations on subjects within the scope of physical science are matters worthy of inquiry. Science they can hardly be said to possess" (Bryson 1849, 460). Indigenous knowledge thus constituted a useful part of colonial knowledge-gathering but was seen as hierarchically inferior than modern science.

As a member of a network spearheaded by Kew, Spruce diligently gathered a wide range of elements associated with healing practices. His efforts aimed to document the *matéria médica* of South America. This included, for example, the tools and objects employed by shamans in the healing rituals of the Vaupés region, located in the northwest of the Amazon. In his notes, he states:

> The apparatus and materia medica of the medicine-men of the region lying adjacent to the Upper Rio Negro and Orinoco, and extending thence westward to the Andes, are chiefly the following: The Maraca or Rattle; Tobacco juice and smoke; Niopo (or Parica), powdered seeds in snuff and Caapi (or Aya-huasca) stems in infusion (Spruce 1874, 187).

All these objects were eventually systematically collected by Spruce and taken to Kew Gardens. From letters sent by Spruce between 1851 and 1853, a series of at least 195 objects were identified as sent from the Amazon Basin to George Bentham (1800–1884) and William Hooker. For example, writing to William Hooker from San Carlos do Rio Negro, Venezuela on 27 June 1853, Spruce makes the first observations about a plant still unknown by Europeans in the second half of the nineteenth century—the *Banisteriopsis caapi,* one of the plants necessary to produce the sacred ayahuasca brew. In his letter, Spruce begins by explaining the delay in answering Hooker's last letter: he was completing a "small collection I have for your museum." The collection was collated during the period when Spruce was in the Vaupés region and on the Rio Negro, between 1851 and 1852, and contained seeds of Guaraná, several different kinds of palms (bacába, cunhaí, jará, and others), cashew wood, arrows, and rings of the kernel of tucumá, among many others.

Among the objects collected, Spruce mentions ayahuasca for the first time in a letter as "an intoxicating drink used by the Vaupés Indians in their Festas" (Spruce, 1853). Spruce witnessed the drink for the first time in 1852 in the context of a party called "Dabacuri" in the Vaupés region. His notes reveal that his attention was drawn to the many different types of vegetables used in the Dabucuri festivity context—the Caapi itself, caxiri, tobacco, coffee—and

on the musical instruments which Spruce identified in the Dabacuri fiesta as the Juruparis, or "devils," made from paxiuba palm. Four of these instruments were sent to the Museum of Vegetable Products at Kew after being stolen by Spruce in a scene described in a letter from 1853 to Hooker:

> Some of the trumpets used at this very feast are now in the Museum of Vegetable Products at Kew. To get them out of the river Uaupes, when I left for Venezuela in March 1853, I wrapped them in mats and put them on board myself at dead of night, stowing them under the cabin floor, out of sight of my Indian mariners (Spruce 1853, 71).

The theft, transmutation, and desecration of caapi and a variety of cosmologically interlinked objects—such as the pã flutes, which, in the context of Vaupés, mediated the experience around the use of caapi—is noteworthy. Similar to many other naturalistic travellers, Spruce separated the plant from its cultural context and sent its broken parts to Kew. The semiotic and sacred connections that gave cosmological meaning to botanical material were also broken: tobacco, caxiri, musical instruments, and gourds that gave meaning to the caapi for use among the Tukano (Spruce, 1853).

4. SCHULTES AND THE GUIDELINES FOR AN APPLIED ETHNOBOTANY

Spruce's attention to indigenous knowledge was understood as—and notorious for—being one of the main reasons that Harvard ethnobotanist Richard Schultes paid to attention to his work. In the twentieth century, Richard Schultes became the leading promoter of Spruce as an important initiator of ethnobotanical studies. Schultes's works reveal a substantial effort to revive the image of the Victorian naturalist. At the same time, it revealed a romantic verve nourished by naturalists like von Martius.

Schultes gained prominence during World War II while working for the Rockefeller Agricultural Mission in Mexico and Colombia. In the 1940s, he joined the efforts of the USA to source rubber from Amazon Basin countries. He continued to work in Colombia for the Rubber Development Corporation and the US Department of Agriculture after the war. After the Korean War ended and the worries of another rubber shortage decreased, he returned to the Peabody Museum at Harvard. There he soon imparted his knowledge of the "magic mushrooms" of the Aztec Indians to Gordon Wasson. Inspired by Schultes, this banker-turned-mycologist would prospect indigenous knowledge during his trips to Mexico. Wasson wasn't the only one

inspired by Schultes's work. Over subsequent years, Schultes's scientific papers built his reputation as the USA's leading expert on Amazonian rubber varieties, hallucinogens, and indian herbal medicines—all derived, unsurprisingly, from the works of Spruce.

In 1947 Schultes cofounded *Economic Botany,* a journal that published his scientific findings and promoted commercial exploitation of Amazonian flora. He did likewise in 1975 with the *Journal of Ethnopharmacology.* Spruce's work on the Amazon and the materials extracted and stored at Kew were presented as fundamental for ethnobotanical research in both journals. Schultes's initial articles in these journals directly reference Spruce's works, especially concerning *Hevea brasiliensis* and hallucinogens such as *Banisteriopsis caapi.* The Spruce collection stored at Kew was the object of Schultes's pilgrimage for several years. Schultes published about 20 papers on Spruce's ethnobotany based on this collection and Spruce's notes. The publications ranged from articles reviewing Spruce's ethnobotanical value to unpublished letters on the theory of evolution and the "potential for European settlement of the Amazon" (Schultes 1978a, 131–39; 1978b, 159–61).

One letter, written by Spruce in 1857 and published by Schultes 121 years later in 1978, portrays Schultes's understanding of ethnobotany. The corresponding article, published in the prestigious *Botanical Journal of the Linnean Society,* sought to draw attention to the economic value of Spruce's works as well as his collections at Kew. Spruce had written the letter to George S. Pritchett of the English Ecuador Land Company in response to inquiries on the feasibility of forming a colony of Europeans in the Forest of Canelos.

Schultes restates Spruce's environmental, racial, and colonial concerns in this letter. In the introduction, he describes the contents of Spruce's letter as "indicative of his down-to-earth interest in the man and the biosphere" (Schultes 1978a, 132). Schultes's endorsement of the letter's content is indisputable: "could have been written this year." Schultes endorses Spruce's assertiveness in responding to Pritchett that the Ecuadorian Amazon region "possesses the desirable requisites of a fertile soil in which gold is distributed almost everywhere, and a temperate climate," and that "the native Indians inhabiting this district are now few in number" and are "well-disposed to the whites." Spruce cites cacao, coffee, palm trees and many other plantations as being cultivated by the Jivaros Indians thus proving that the region is promising for planting. "The negro race," according to Spruce "does not exist in it, and is indeed very rare in the adjacent cultivated and peopled districts of Ecuador, so that the repugnance which white men so generally feel to work by the side of blacks would here have no place" (Schultes 1978a, 133).

In an earlier article, Schultes champions the importance of Spruce for ethnobotany (Schultes, 1976). There he echoes the economic orientation of Spruce. According to Schultes, "The Indians of the northwest Amazon, especially of the Brazilian and Colombian region of the Rio Vaupés have a rich ethnopharmacological lore." Schultes was particularly interested in the "wealth of knowledge of the presumed medicinal properties of plants" which he had only recently "come to the fore," but which was in a state of "disappearance in the face of advancing acculturation and the inroads of civilisation." (Schultes 1976, 65). Schultes's view echoes the colonial notion of "salvage ethnography." This practice entails the collection of cultural customs and artefacts from indigenous communities before they disappear, but it fails to acknowledge that colonial powers are primarily responsible for the decline of these communities. The notion of salvage ethnography has become strongly present in the statements of organisations such as the World Wide Fund for Nature (WWF), the World Bank (Briggs and Sharp, 2004) and UNESCO since the 1990s (more on which below).

The WWF, for example, was a leading promoter of Schultes's ethnobotanical works. One of the most influential works in the field of ethnobotany and ethnopharmacology was published in 1990. Schultes's *The Healing Forest* (authored with the pharmacologist, Robert Raffauf) focused on medicinal and toxic plants of northwest Amazonia. Not surprisingly, Schultes and Raffauf establish the purpose of the work along economic lines: "to emphasise the importance of what has come to be known as ethnobotanical conservation and to call attention to the distinct possibility that from some of these plants might come new chemical compounds of eventual value to modern medicine and industry" (Schultes and Raffauf 1990, 9). The work was prefaced by the then President of WWF, Prince Philip, Duke of Edinburgh, who highlighted his interest in and concern for "tropical forests and their products, and especially their medicinal products" (Schultes and Raffauf 1990, 9). The seriousness of such a call was based on the "sadly inevitable" disappearance of the "valuable plant species and the tribes which understand their use" (Schultes and Raffauf 1990, 7). Plants and "savages" are perceived to be at the same ontological level of endangered nature.[2]

In 1993, Schultes edited *Ethnobotany: Evolution of a Discipline* which became a landmark in the field of ethnoscience. In it, ethnobotany is defined as the study of the "use of plants in primitive societies" (Schultes and von

2 The epigraph of the book was provided by Louis Agassiz (1807–1873), a renowned Harvard professor who was both a student of von Martius and a prominent advocate for the concept of the racial inferiority of indigenous people.

Reis 2008, 12). Again, as in *The Healing Forest,* the objectives that Schultes describes as being fundamental to ethnobotanical research are representative of the union between science and industrial interests. The first objective is to study "the psychological aspect of how aboriginal peoples interpret and treat their useful plants," the second, "concerns the possibility of finding new species valuable for agriculture or industry of discovering and salvaging chemicals from the wild floras of the new worlds" (Schultes and von Reis 2008, 12).

Both these books incorporate the three nineteenth century and imperial traditions of approaching indigenous knowledge: the focus on the epistemology of the natives (or *savage knowledge,* according to von Martius); the useful and commercial aspects of economic botany (Schultes and von Reis 2008, part 1), and; the concept of environmental conservation linked to the notion of "salvaging" (Schultes and von Reis 2008, part 6). At the semantic heart of such elaborations are the notions of *ruined savage* by von Martius, the *medicine men* in Spruce's writings and Schultes's *primitive peoples* as part of a complex process of elaborating ethnoscience and the possibility of formalising a geographical space for the cultivation of a tropical environment. In this environment, nature and culture are not divided—culture denoting indigenous knowledge about nature—and the conservation of natural areas is seen as the material assurance for the cultivation of the relationship between indigenous people and the environment. This is not solely the natural environment, or exclusively the indigenous peoples, but the notion of savage knowledge mediates its relationship.

This becomes much clearer when we analyse the movements of initiatives since the late 1980s to institutionalise guidelines on a global scale to transform so-called traditional knowledge into something identifiable, codable, and manageable as a natural resource (Bonneuil, 2019). One of these guidelines originates from UNESCO, which in its manual *The purposes and teaching of Applied Ethnobotany* takes the works and teachings of Schultes as foundational to the field of ethnobotany and particularly the sub-area of applied ethnobotany, a historical derivation of the economic botany of the nineteenth century (Hamilton et al., 2003)

5. ETHNOSCIENCE, UNESCO AND THE CONUNDRUM OF THE NATION-STATE

The notion of *primitive* was never abandoned in the Global North and remained central in most ethnobotanical works in the second half of the twentieth century. An influential work in the field of ethnobotany in the 1970s

was *The Nature and Status of Ethnobotany.* The work, organised by biologist Richard Ford, presented Schultes as one of the central figures in the field of ethnobotany in the twentieth century. It is among the first collective works in the ethnosciences to contain an exploratory section on the relationship between ecology, sustainable knowledge, and indigenous knowledge. In the book's second edition, Ford (1994, ix) presents a circular diagram (fig. 1) that outlines a knowledge organisation. The chart features various fields of investigation in its internal spheres. At the centre of Ford's sphere are the terms "primitive people" and "useful plants," referring to the epistemological and colonial notions derived from the cases discussed above.

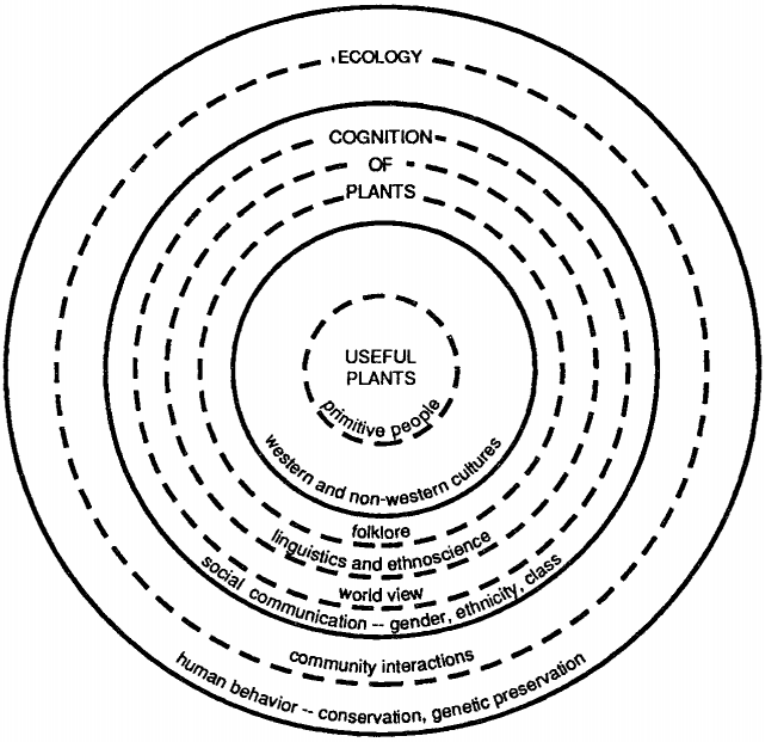

Figure 1. Growth of ethnobotany

It is worth remembering that knowledge organisation is an epistemological as well as a political act. It presupposes certain values and is a critical device in the world's structuration (Foucault, 1994; Alfonso-Goldfarb et al.,

2013). Ford's formulation places and crystallizes the notion of *primitive* at the centre of the graph. In the margins, he postulates several fields of investigation, including ecology, conservation, and genetic preservation, as different modes of investigating the same object: the *primitive* and its relationship with nature and culture. This model is representative and archetypal of formulations of indigenous knowledge developed by organisations such as UNESCO since the 1990s, especially the conservation notions that have become associated with ideas of sustainable development (Raina and Chakraborti, 2020).

An example of this can be seen in the 1999 speech in Budapest by the director-general of UNESCO, Federico Mayor Zaragoza. He announced that the conference's purpose was "to map a course for science in the years and decades to come." Zaragoza highlighted two movements as fundamental to the new millennium: (1) the organisation of knowledge and (2) a new social contract for science for the twenty-first century. Among the characteristics of this new contract were policies governing the "sustainable use and management of natural resources." Indigenous knowledge was inserted into this topic, and ethnoscience was incorporated as the field that systematically organises the study of indigenous knowledge. Consequently, ethnoscience was seen to be a core element to the organisation and viewed by Zaragoza as central to the new millennium.

A document, *Science Agenda—Framework for Action* (2000), developed out of this 1999 UNESCO Budapest meeting, "contains among its agendas the item *Modern science and other systems of knowledge*" which represents UNESCO's concept of ethnoscience as: "a scientific approach to traditional knowledge" (UNESCO, 2002). It is, accordingly, the key by which the content of ethnosciences can be observed. The document states in paragraph 83:

> Governments are called upon to formulate national policies that allow a wider use of the applications of traditional forms of learning and knowledge, while at the same time ensuring that its commercialisation is properly rewarded. (UNESCO 2000, 482–3)

The document establishes some of the historical tools for perpetuating colonial domination insofar as the "national" entity is placed as the founding agent of the proposition. At no stage is it suggested that the very notion of the *national state* is alien, and even violent, to many indigenous peoples, as it is arguably the case in Amazonia (De Castro, 1992; Scott, 1999; Clastres, 2012). The document presupposes that states are agents of global decisions within this "new pact." The document has clear indications of inheriting a

bureaucratic framework that positions national states as central actors. It is worth remembering that all the expedition projects mentioned in this study—von Martius, Spruce and Schultes—were forged from colonial programs promoted by their respective imperial states in conjunction with the Brazilian state over an area traditionally exploited: the Amazon.

Not surprisingly, the term "extraction" does not disappear from the document guidelines. Instead, it is forcefully harmonised with traditional knowledge. In paragraph 85, the document states that "Countries should promote better understanding and use of traditional knowledge systems, instead of focusing only on extracting elements for their perceived utility to the S&T system." These guidelines assume the extraction and application of indigenous knowledge as a fundamental principle, a concept that has been present since von Martius's works. Consequently, the commercialisation of such knowledge is also considered an unquestionable assumption. Paragraph 86 of the document states:

> Governmental and non-governmental organisations should sustain traditional knowledge systems through active support of the societies that are keepers and developers of this knowledge, their ways of life, their languages, their social organisation and the environments in which they live, and fully recognise the contribution of women as *repositories* of a large part of traditional knowledge. (UNESCO 2000, 483, emphasis added)

Significantly, the instructions in this paragraph suggest an apparent consideration of indigenous knowledge—particularly female knowledge—to specifically address what has become the political application of the notions derived from studies in ethnoscience: the existence of a reservoir of knowledge in geographically communities intended to be extracted, managed and marketed by the national states in a global chain (Bonneuil, 2019). Moreover, notions of "repositories" or "reservoirs" constitute colonial archaisms of control and management of space transposed in gendered language to the same extent that traditional knowledge, as defined by UNESCO landmarks, characterises such knowledge as holistic, nurturing, feminine, spiritual, and local, among others (Bala and Joseph, 2007).

The 1999 Budapest conference identified the need to develop more specific guidelines for which a working group was established to elaborate such guidelines based on the notion of indigenous knowledge. The guidelines appeared in the 2002 report *Science, Traditional Knowledge and Sustainable*

Development. Defects of origin remained in these reports, together with other problems. For example, the document adopts the notion of *salvage ethnography* (UNESCO 2002, 12), which since the 19^{th} century has supported scientific actions for the creation of reservoirs of native knowledge (natural areas in colonial spaces or artificial reserves such as museums) subject to administration by national states (Gruber, 1970).

Moreover, the report maintains absent indigenous conceptualisations about their knowledge, which clearly prevents non-Western alternatives from shaping the UNESCO guidelines for the commercialisation and industrial application of indigenous knowledge. In the 2002 report, capitalist trade, the central role of national states and the asymmetric exchange of knowledge are indisputable assumptions, even if veiled in the language of "mutual benefit" (UNESCO, 2002). In this sense, the report follows the guidelines of the *Science Agenda—Framework for Action* (2000, 483): "Governments should support cooperation between holders of traditional knowledge and scientists to explore the relationships between different knowledge systems and to foster interlinkages of mutual benefit."

The meanings and struggles around such "mutual benefits" have been discussed extensively in other works (Carneiro Da Cunha, 2018). From a historical perspective, I emphasise that the mutual exchange between modern and extra-modern societies implies the reproduction of a deep colonial logic. There is no mutual benefit without historical reparation. Historical reparation, briefly, refers to recognizing the violent experiences that various communities have endured in the past and taking steps to provide them with both symbolic and tangible reparations. Absent this, it is both cynical and colonial to refer to a relationship as having "mutual benefits" when that relationship has been historically defined by the injustices and violence of colonialism and the perpetuation of stereotypes about indigenous people.

The report also adopts the notion of modern science as a form of ethnoscience, as some scholars advocate (e.g., Harding 1997, 39). The incorporation of such discourse only serves to conceal, under the guise of criticism, that the concept of ethnoscience is a Western invention. Although modern science has its origins in mythologies and particular religious views, historically, the term "ethnoscience" arises from areas such as economic botany which if firmly based within colonial attitudes of extraction, deterritorialisation and assimilation of knowledge and indigenous bodies. UNESCO, for example, has maintained the basic Western structure of colonisation instead of founding a new social contract, as suggested in the opening speech at the

Budapest Congress in 1999.[3] It has reinforced the notion of knowledge "reservoirs" managed by national states, supported by global governance, and predominantly interested in maintaining the flow of ethnobotanical knowledge from the Global South to the North (Shinn et al., 1997).

6. CONCLUSION

The present work has analysed historical and epistemic continuities between the general notion of *savage knowledge,* its usefulness in the nineteenth and twentieth centuries, and the emerging field of ethnoscience. Based on the cases analysed—von Martius, Spruce, Schultes and UNESCO—and as part of the broader geopolitics of indigenous knowledge, it is possible to infer that there is a historical continuity in the broader field of ethnosciences. These conditions are born in imperial contexts of assimilation, extraction and coloniality and continue to permeate twentieth-century political discourses on the *primitive* in global politics—discourses that are legitimized by notions such as the development and conservation of the natural world (Escobar, 1998).

The geopolitical—North and South—and racial relationships that marked the emergence of ethnosciences have also shaped, to a large extent, global discourses on indigenous lands as reservoirs of knowledge. I have analyzed one such instance embodied in UNESCO guidelines as represented in *Science, Traditional Knowledge and Sustainable Development* (2002). Through this analysis, the following tension is revealed: the *savage*—constructed in modern Europe—remains a structuring category of the ethnosciences and for the so-called "new contract" festively promoted by UNESCO. However, the Amerindians—themselves objects of such categorization—are continually marginalized from decision-making and conceptual processes. This enables a continuing and radical refusal on the part of the West to reimagine geopolitical and racial relationships—which instead continues to see nation-states and global markets as structuring actors in relations between the West and indigenous peoples (Hayden, 2003; Stavenhagen, 1992). Arguably, this is not due to the lack of activism on the part of indigenous communities. On the contrary, despite the technocratic and neoliberal policies of nation states like Brazil, indigenous historical activism has influenced global initiatives regarding the uses and management of indigenous knowledge (Scherer-Warren, 2010; Porto-Gonçalves, 2012; Vitale and Nagamine, 2022).

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3 On the permanence of social and mental structures in the context of UNESCO, see Gil-Riaño (2018).

In the global arena, the *savage* as a Western reification or the "savage slot,"—to use Michel-Rolph Trouillot's formulation of the savage as an alter ego the West constructed for itself—has not disappeared from scientific and political discourses. On the contrary, it has been taken up again in the context of climate concerns and transformed into an "ecologically noble Indian" (Nadasdy, 2005). This is precisely what Douglas Nakashima, head of the Local and Indigenous Knowledge Systems program, suggests when he says that "indigenous knowledge has emerged as a new and increasingly influential contribution to the global science-policy interface" guided by the Intergovernmental Panel on Climate Change (IPCC) report of 2014 (UNESCO 2015, 15). However, in any of the cases mentioned in this study, a decolonising agenda (McAlvay et al., 2021), the challenge to capitalism, nation state regulations, and neoliberal policies are considered. It can be concluded that the incorporation of indigenous knowledge, systematised by ethnosciences, has been largely a pretext for regulating geographical reservoirs that have historically been used as repositories of "natural resources" and that, in the twentieth century, incorporated the function of reservoirs of indigenous epistemologies.

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