

NATURAL HISTORY

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Nigel Smith's curiosity was piqued when he read how Amazonian peoples' fear of spirits affects the conservation of resources and traditional morals. He has pursued this interest while doing fieldwork among fishermen along the Amazon River and among settlers along the Transamazon Highway and has just completed a book on the subject, *The Enchanted Spring: Amazon Folklore*. An associate professor of geography at the University of Florida, Gainesville, Smith is also concerned with the conservation and exploitation of crop genetic diversity. He writes for newspapers and popular magazines, as well as scientific journals, strongly believing that academics should communicate their findings to the taxpayers who support research.



During graduate school at the University of Wisconsin, **Charles E. Beveridge** realized that Frederick Law Olmsted the social commentator and traveler in the American South and Frederick Law Olmsted the landscape architect and city planner were the same person. With this knowledge, he was able to bring together in a single focus his interests in landscape design, city planning, and social history and to produce his Ph.D. dissertation, entitled "Frederick Law Olmsted, the Formative Years, 1822-1865." Beveridge earned his M.A. and Ph.D. in history at the University of Wisconsin and is now editing a twelve-volume edition of Olmsted's papers.

Anne Pusey and Craig Packer met in the early seventies in Tanzania's Gombe National Park, where both were studying primates. After they finished their doctorates—she at Stanford University and he at the University of Sussex—they married and returned to Tanzania to begin collaborative research on lion ecology and behavior, especially the life histories of each sex. Pusey and Packer plan to stick with the lions another five to ten years, gathering data on lifetime reproductive success, the role of roaring in intergroup relations, cooperative hunting patterns, and the effects of different nutrition levels on lion growth. The two are assistant professors at the University of Minnesota.



Leslie G. Freeman (left), codirector of the current excavations at El Juyo cave in northern Spain, is a professor of anthropology at the University of Chicago. His other projects include a restudy of Paleolithic paintings and engravings at Spain's Altamira cave and the editing of a monographic series on prehistoric archeology and ecology. **Joaquin González Echegaray** (right) is the director of the Altamira Research Center and Museum. The first to demonstrate the scientific importance of El Juyo, González Echegaray is codirector of the ongoing excavations. With Freeman he is coauthor of *Life and Death at Cueva Morín*.



Richard G. Klein (below), also at the University of Chicago, where he is a professor of anthropology and evolutionary biology, has analyzed the animal bones found at El Juyo. His research on the ecology of early peoples in southern Africa as well as in Spain has involved a variety of sites dating from the last five million years.



Enchanted Forest

Folk belief in fearsome spirits has helped conserve the resources of the Amazon jungle

by Nigel Smith

In the world's largest remaining jungle, Amazonia, extensive clearing of forest and overfishing of rivers are relatively recent. The accelerated destruction of natural resources in this 3-million-square-mile area is linked not just to population growth but also to a change in values. No aboriginal settlements rivaled the current size of cities in the region, but many of the rivers and inland jungles were more heavily settled before Europeans discovered the New World. The harvesting of resources was restrained, however, in part because of aboriginal beliefs in supernatural game wardens and forest demons.

Most Amazonian tribes have become extinct, but aboriginal ideas about the spiritual dimension of nature have trickled into the cultural reservoir of rural folk, where they continue to play a conservation role. The rural population of Amazonia, known as *caboclos* in Brazil, includes small-scale farmers, sharecroppers, ranch hands, hunters, fishermen, and itinerant miners. *Caboclos* are descended largely from Indian tribes, intermixed to varying degrees with Europeans and blacks. Although nominally Catholic, these country people firmly believe in a bewildering cast of supernatural creatures that daily influence their behavior. The world view of *caboclos* is thus an amalgam of animism and Christianity.

Caboclos assert that the forest is suffused with spirits. The diversity of legendary beasts mirrors the richness of the jungle's animal and plant life. Some spirits watch over game, while others have no specific task other than to harass those who venture deep into the woods. Several ghosts inhabit trees: others adopt human form and punish those who abuse nature's providence.

Rubber has dominated much of the economic history of Amazonia in the last one hundred years, making the graceful, gray-barked rubber tree the focus of considerable lore. When rubber tappers are overzealous in draining sap from the trees, *mãe de seringa*, the "mother of rubber trees," sometimes intervenes. *Mãe de seringa* may make her appearances along forest trails at any time, but she characteristically appears on Good Friday. She is

a short woman with long hair, and her arms and legs are gashed in a herringbone pattern, similar to that on the trunks of harvested rubber trees. She only challenges those who slice her children too deeply.

A sixty-year-old man who lives along the upper Rio Negro told me a story that illustrates the power of *mãe de seringa*. Some years before, a man had set up a temporary palm-thatch shelter on a river island for the duration of the six-month tapping season. As is customary, he had been grubstaked by a patron. The trees were not cooperating, however, and the sponsor was growing impatient. After being admonished by his patron, the tapper began inflicting severe wounds on the rubber trees along his twisting trail.

One day, he was deeply gouging a rubber tree when something tapped him on the shoulder. He spun around and came face to face with an ugly, light-skinned

woman with fair, tousled hair. "You are mistreating my daughters, draining away all their blood. Stop cutting them!" commanded the hag.

The surprised tapper explained his predicament. "My sponsor is pressuring me to come up with more rubber to pay off my debts, but the trees seem to be drying up and I am broke." Reacting with compassion, *mãe de seringa* offered to leave a large ball of smoked latex in the man's fire-hut each night from October until March if he would leave her daughters alone. She warned him never to tell anyone about their accord, however, for if he did, he would join her. The tapper thus spent the remainder of the season loafing, hunting, fishing, and making easy money.

During the next tapping cycle, the secret bargain was renewed. When the tapper brought his first load of rubber to his patron's floating store, the boss was suit-



mãe de seringa

Illustration by Ken Rincian



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ably impressed. His credit thus restored, the tapper immediately bought a bottle of *cachaça*, a potent alcoholic drink made from sugar cane. The crystal-clear liquid soon took effect and the effusive tapper began boasting about his special relationship with the mother of rubber trees. Shortly after returning to his makeshift hut, the indiscreet tapper ventured into the forest where he was bitten by a venomous snake. A neighbor later found his lifeless body slumped on the trail leading to some rubber trees.

A spirit protector guards another commercially important Amazonian tree, the piassava, a palm that grows on sandy patches in the Rio Negro watershed. The piassava produces a thick, dark-brown mane of fibers, which extends from the base of its elegant fronds to the ground.

One day, he saw a woman sitting on a thick branch that had fallen across a narrow jungle trail; she was stroking her coarse hair with a comb made of stiff piassava bristles. Her hair looked like strands of piassava, only it was light in color. The uncle hesitated, for it was most unusual for a woman to be alone in the forest, especially so far from any settlement. Then, curious, he proceeded toward her. As he did so, however, the woman stopped grooming, got up, and walked down the path away from him. Her flowing locks dragged behind her like a bridal train. Before long she turned off the path, looking back momentarily to make sure that she was still being followed.

The uncle hurried to the spot where the woman had vanished into the wall of trees but could not see her. He sought her in the trackless forest, but to no avail. Although he found no trace of her, he soon happened upon a large, uncut grove of mature piassava.

That night, after a strenuous day harvesting the palms, the uncle quickly fell asleep. In a dream, *mãe de piassava* appeared and spoke to him. "I felt sorry for you, that is why I led you to the virgin piassava grove," she said. "Please cut piassava properly and do not destroy it." The nephew suggested that God had sent the spirit in response to his uncle's prayers.

Piassava gatherers are alert for other, potentially harmful supernatural creatures in the forest. A widowed, middle-aged woman who resides in Tapurucuara, a village on the upper Rio Negro, remembered a close call her son had had at the age of nine while the family was cutting piassava in the headwaters of the Rio Parahá. The parents suddenly noticed their son was missing, and when they called out, there was no response. They concluded he had been led astray by *curupira*, a hairy, boylike figure whose feet are turned backward. Making a cross of sticks and placing it on the trail, they prayed, and the spell that held their son captive was broken: he finally acknowledged their urgent calls. But when the mother and father located him, the boy was afraid and quite unlike himself. He did not recognize his parents or seem relieved to see them. He behaved like a zombie; *curupira* had stolen his shadow. A spiritualist healer cured the boy with a ritual smoking and some incantations, but the family never ventured along the Parahá again.

Another supernatural denizen of the Amazon forest much feared by rural folk is the *capê-lobo*, or "wolf's-cape." (The peculiar name of this apelike creature may reveal the influence of European lore



curupira

The stiff bristles are cut by hand, tied into long bundles, and sent downriver to the bustling port of Manaus, where they are fashioned into brooms, brushes, doormats, and crude rope.

An elderly man who lives along the Rio Negro recalled his uncle's unusual experience while looking for piassava. The uncle had been combing the forest in the vicinity of Rio Preto, a tributary of the Rio Negro, but he was not having much luck. All the piassava groves he found had been recently trimmed. The uncle grew worried because he was short of cash and his patron was pressuring him for payment.

about werewolves.) The horrifying creature materializes when an old Indian withdraws from his village to live his last days alone in the jungle. Instead of dying, though, he is gradually transformed into a foul-smelling, hairy ape with an eye protruding from his forehead. This forest cyclops is armed with awesome fangs and walks upright on footless legs that leave rounded prints in the soil, like those left when a bottle is pressed into soft earth. A *capê-lobo's* scream can buckle the knees of even the most robust hunter.



capê-lobo

Some years ago, two hunters and their dogs were probing the forest flanking eastern Amazonia when they encountered a *capê-lobo*. Fanned out in front of the men, the dogs were sniffing the ground for fresh spoor. Suddenly, they started yelping and whining. The hunters rushed to their distressed hounds and found them writhing in agony. A burly *capê-lobo* was hurling the animals against the tree trunks with great force. As the hunters rushed into the fray, they were almost overcome by the vile odor wafting from the beast's matted fur. The gasping men promptly developed throbbing headaches and felt dizzy. They managed to stumble home, but were ill for a month afterward.

A fantastic array of monsters and spirits also lurks in the region's waters, and many of them help to conserve the forest as well as the fish. Flood plain forests cloak an estimated 30,000 square miles of the Amazon Basin and provide sustenance



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tapirê-iauara

for numerous food fishes. Jungles on alluvial soil shower the high waters with fruits, seeds, flowers, leaves, and insects that are consumed by fish and turtles. *Tapirê-iauara*, or the tapir nymph, is one of the supernatural creatures that patrol the flooded forests and keep out fishermen. This cow-sized beast has a jaguarlike head and broad, feline paws. Its huge ears droop down the sides of its head like those of Brahman cattle. The characteristic crashing sound made by the creature's pendulous ears as they flap on water warns people that the pugnacious, evil-smelling beast is approaching.

Some thirty years ago, a fisherman working in a flood plain forest near Juriti in the middle Amazon fell victim to a tapir nymph. The fisherman and a companion had set out baited trotlines to catch the much prized pirarucu fish. At nightfall, they retired to their hammocks suspended between trees above the murky water. They were both asleep when a *tapirê-iauara* launched out of the water and tore one of the hammocks. Before the occupant had time to flee, the creature reared up again and grabbed him. The hapless victim was dragged into the turbid water and never seen again. The other fisherman escaped by scrambling out of his hammock and hastily climbing a tree.

Tree spirits also keep people away from patches of flood plain forest. For example, in the swamp jungle surrounding Lago de Cucuí, near Maués in the middle Amazon, two men were setting out trotlines when they heard a voice commanding them not to fish there. At first the men thought it was another fisherman selfishly trying to secure the area for himself. They made a search, but found no one. Then from a towering *miratinga* tree, the booming voice repeated the instruction to leave. The men promptly fled, leaving their fishing gear behind.

Locations haunted by plant, animal,

and human spirits are often referred to in Brazil as *lugares encantados*, or "enchanted places." Such places may arise when people drown, for in *caboclo* lore, humans cannot reach heaven if they lose their lives in water. Enchanted waters are typically characterized by cock crows, dog barks, the mournful lowing of cattle, human voices, and music. People shun these places because they can lose their shadows there.

A farmer who lives along the recently opened Transamazon Highway recalled coming across an enchanted spring late one afternoon in the forested municipality of São Miguel do Guamá in the Brazilian state of Pará. Hopeful of bagging some game that night, he was making his way to an *ingá* tree where, earlier that day, he had noticed deer tracks. The elongated pods of this leguminous tree encase seeds whose spongy, white coating is much appreciated by wild animals as well as humans.

Dusk was approaching rapidly as the farmer ducked into the cool, dim interior of the forest. As he walked by a spring, gun slung over his shoulder, he heard a cock crow. Chickens normally avoid the dark jungle, preferring to scrounge scraps in backyards, fields, and weedy lots. Assuming that one of his prize cocks had become lost, the farmer walked around the spring looking for the bird. Then a dog barked; the sharp sound came from the cool, bubbling water. As the farmer stared into the translucent spring, voices drifted from its depths and the chorus of village sounds continued, although no people or livestock could be seen. It was time to leave, especially with night enveloping. The farmer never hunted close to that spring again.

In this way, forest ogres and spirits help preserve forest resources by creating no-hunting and no-fishing zones. Biological reserves created by superstition are scattered across the vast landscape of Amazo-

nia. If no more unearthly creatures are seen or heard in an off-limit area, people eventually resume activities there. But as supernatural protectors vacate some areas, they take up new haunts elsewhere.

A tidal wave of development projects and a flood of settlers are now eroding these cultural checks to overexploitation. Traditional ideas about the supernatural are challenged and even ridiculed by newcomers, but scientific management that would compensate for this loss has barely gained a foothold in the region. Although some 116,000 square miles of Amazonia have been set aside for preservation by governments that occupy the region, this places less than 5 percent of the basin within park boundaries, and many types of forest habitats are unprotected.

Governments in the Amazon Basin have taken commendable steps to preserve parts of one of the world's few remaining wildernesses, but adequate conservation has not yet been assured. Only a handful of wardens have been hired to patrol the far-flung reserves, many of which exist only on paper. Squatters invade the perimeters of many reserves, and roads pierce officially designated parks. Folklore beliefs could be tapped to strengthen conservation efforts in the region. The location and size of parks are usually determined on economic and ecological grounds, and the local people are apt to perceive these decisions as technocratic intrusions into traditional life. If cultural criteria were also included, people would be more likely to respect the boundaries of reserves. Locals should be canvassed about the location of enchanted places and the rumored haunts of monsters, and their lore should be incorporated into planning. Legislation, science, and lore can work hand in hand to bolster conservation efforts in the region, for the ultimate survival of any reserve depends on its acceptance by the neighboring people. □