Warfare Over Yanomamö Indians

Brazilian anthropologists say that descriptions of violence are contributing to the Yanomamö's downfall; but "fierce" or not, greater forces are at work, as gold prospectors invade the forests

FOR 25 YEARS, Napoleon Chagnon has studied the Indians who dwell in the rainforest that straddles the border between Brazil and Venezuela. His ethnographic portrait of an aggressive people pursuing endless cycles of blood revenge has captivated a worldwide audience. In a popular book, Chagnon called his subjects "The Fierce People." The image stuck. For most of the world, the Yanomamö Indians will be forever fierce.

But some Brazilian anthropologists are now saying that the academic image of fierceness created by Chagnon to describe the Yanomamö is being used to rob the Indians of their land. In recent months, as many as 70,000 gold prospectors have invaded an area in northern Brazil traditionally occupied by 7500 Yanomamö. More miners, poor but dreaming of gold, come everyday. They bring diseases that are killing the Yanomamö, whose numbers in Brazil and Venezuela total no more than 15,000.

At a time when the Brazilian government was deciding how much land to give the Indians, articles in the Brazilian press based on Chagnon's recent work were telling readers that Yanomamö were "killers." The Brazilian anthropologists say that Chagnon's academic work is being used to destroy the very people he has spent his life studying.

At the center of the bitterness between Chagnon, an anthropologist at the University of California at Santa Barbara, and his Brazilian critics are questions about an anthropologist's place in a political drama. The Brazilian anthropologists contend that by focusing on the Yanomamö's supposed penchant for violence, the writings of Chagnon are well suited for manipulation by the powerful mining and timber companies that want to exploit the riches of the Yanomamö territory.

"To do anthropology in Brazil is in itself a political act," says Alcida Ramos of the University of Brasilia. "We don't separate our interests as anthropologists from our responsibility as citizens." To which Chagnon responds: "People have been killing Indians for 500 years without ever knowing the word anthropology."

Over the years, in books, articles, and dozens of documentary films, Chagnon has presented the Yanomamö as a vibrant, violent, and exotic people. The Indians plant simple gardens; they raid each other's villages and abduct each other's women; and they blow a hallucinogenic snuff called *ebene* up each other's nose. But most of all, says Chagnon, the Yanomamö must be understood in terms of the violence that permeates their society. Violence is the way the group resolves conflict, with levels of violence that escalate from shouting, to choreographed duals of chest pounding, to fights with clubs, to raids with homicidal intent. According to Chagnon, the men must act "fierce" or they will be dominated by other, more aggressive males.

The current imbroglio began with an article by Chagnon that appeared in the pages of *Science* 1 year ago. In the article, Chagnon reports that 44% of adult Yanomamö males have participated in killing someone, and that approximately 30% of all adult male deaths are due to violence. More tantalizing still, Chagnon's data suggest that the killers have more wives and more offspring than men who have not killed, an indication that in the Yanomamö world, being violent increases one's reproductive success (*Science*, 26 February 1988, p. 985).

At the end of his scientific paper, however, Chagnon adds an anecdote about the importance of law and order in society. Chagnon writes: "A particularly acute insight into the power of law to thwart killing for revenge was provided to me by a young Yanomamö man in 1987. He had been taught Spanish by missionaries and sent to the territorial capital for training in practical nursing. There he discovered police and laws. He excitedly told me that he had visited the town's largest *pata* (the territorial governor) and urged him to make law and police available to his people so that they would not have to engage any longer in their wars of revenge and have to live in constant fear."

This last section was particularly upsetting to the Brazilian anthropologists, who maintain that it provides the State with arguments for complete control over the Indians.

Chagnon's *Science* article was picked up by the press in the United States and then Brazil. Many newspapers referred to the Yanomamö as "one of the most violent societies on Earth." Some reports quoted Chagnon as saying that when the Indians are not hunting or collecting wild honey, they are often killing each other, despite the fact that Chagnon's *Science* article notes that "warfare has recently diminished in most regions due to the increasing influence of missionaries and government agents and is almost nonexistent in some villages."

In a fiery exchange of letters between Chagnon and his critics in the January issue

John Saffirio

The old days. *Before the arrival of outsiders the Yanomamö lived naked in the forests and made their living by tending simple gardens and hunting.*

of *Anthropology Newsletter*, the past president of the Brazilian Anthropological Association, Maria Manuela Carneiro da Cunha, warned her colleagues of "the political consequences of academic images" and "the extremely serious consequences that such publicity can have for the land rights and survival of the Yanomami in Brazil." She also spoke of how "wide publicity of Yanomami violence in racist terms" was being used by the mining lobby in Brazil to incite public opinion against the Indians.

Bruce Albert, an anthropologist at the University of Brasilia, says that news reports on Indian violence based on Chagnon's article appeared in the Brazilian press at the same time the government was deciding how much land to give the Yanomamö. The present plan calls for allotting the Indians some 2.4 million hectares of land spread out across 19 separate "islands." Albert and his colleagues say that the "islands" are part of a plot to divide and conquer the Yanomamö, whose traditional lands sit on rich deposits of gold and other precious minerals. Albert says that the government justified the arrangement by stating that the Yanomamö are violent and need to be kept separate so they will stop killing each other, though Albert cannot demonstrate a direct connection between Chagnon's writings and the government's Indian policy.

"I am not saying that Chagnon's writing is causing genocide, but his insistence on focusing on violence gives way to sensationalism in the press and this has serious political implications. . . . When you write that a people are violent or that a people are killers, that can be used against them," says Albert, whose own work on the Yanomamö stresses the Indians' mythology and downplays the role of violence in the society. Albert and his colleagues also point out that in 50 months of fieldwork among the Yanomamö, Chagnon has never actually witnessed a killing. With one exception in 1967, Chagnon has done all his field work with Yanomamö living in Venezuela.

For his part, Chagnon responds that he too is concerned about the Yanomamö's continued survival. And indeed, Chagnon is now in the midst of forming a group called the Yanomamö Survival Fund, which he says will be used to channel funds to Indian cooperatives being organized in Venezuela, where the situation is much more stable than in Brazil, and where the Indians continue to live in a relatively undisturbed environment. Chagnon adds that he has never stated that the Yanomamö are "the most warlike people on Earth," and indeed his published data show disease to be the primary cause of death among the Indians. Chagnon says that it is not necessary for him to actually witness a death, as long as he gets the information from reliable informants and as long as he corroborates the data.

As for the suggestion that his work is used by others to harm the Indians, Chagnon says that is untrue. Chagnon believes that the Brazilian anthropologists are frustrated because of their failure to secure for the Yanomamö a large national park. Chagnon says the Brazilian anthropologists are lashing out and he happens to be a good target.

"If you went to FUNAI (the Brazilian agency responsible for Indian affairs) and asked them how my work has affected their policies, they wouldn't know who the hell I was," says Chagnon.

The anthropology community's response to the whole affair is mixed. Ted Macdonald, an anthropologist with the advocacy group Cultural Survival, in Cambridge, Massachusetts, believes that researchers should be extremely wary of presenting a group like the Yanomamö as if they were living in political isolation. Says Macdonald: "The Yanomamö are living in the real world, not an academic world."

Other anthropologists prefer to downplay the influence their field has. "Compared to the enormous forces changing societies, anthropologists are rather small potatoes," says Clifford Geertz of the Institute for Advanced Study at Princeton University. In his own work in Bali, for example, Geertz says that the Green Revolution and tourism have been the driving forces behind change in Balinese society.

Raymond Hames, an anthropologist at the University of Nebraska who has studied the Yanomamö, says that no matter how Chagnon described the Indians, it could possibly have been used against them by people who coveted their land. "Any kind of contrast becomes handy," says Hames. In Brazil, in addition to being portrayed as highly aggressive, the Yanomamö are also portrayed as irrational, or as childlike, or as pagans, says Hames.

"Anthropologists should be concerned about how governments interpret our work, but there is nothing short of not publishing to stop this kind of thing from happening," says Roy Rappaport of the University of Michigan and president of the American Anthropological Association. Rappaport doubts that Chagnon's work has had much effect in Brazil.

The whole debate may soon be irrelevant, as far as the Yanomamö in Brazil are concerned. John Saffirio, a member of the Consolata Society, a Catholic missionary order, has spent the last 20 years working among the Yanomamö in northern Brazil. Trained as an anthropologist, Saffirio says: "I think that the Yanomamö are a dying people."

Since gold was discovered in the state of Roraima in northern Brazil several years ago, prospectors have flooded the area. Saffirio estimates that there are presently 70,000 miners in Yanomamö territory. However, more conservative estimates place the number of prospectors in the area at around 40,000.

According to Saffirio, the capital of Roraima, Boa Vista, now supports some 150

John Saffirio

The Yanomamö today. *Highways and an invasion by gold prospectors have rocketed the Indians into the 20th century.*

shops to buy and sell gold. The airport services hundreds of small planes and helicopters, which are used as air taxis to ferry the gold panners from Boa Vista into the jungle, which is dotted with clandestine air strips. Everything, including guns, ammunition, prostitutes, and drugs, is bought and sold with either gold or U.S. dollars. The miners compound their impact on the environment by using mercury to extract the gold from the stream and river beds.

The miners bring with them not only mercury and a hunger for gold, but tuberculosis, influenza, malaria, measles, and venereal diseases. "Many Indians have died in the areas where the miners are," says Dom Aldo Mangiano, Bishop of the Diocese of Roraima. But, says Saffirio, "It is not just the Indians. The poor prospectors, they die like flies, too." The miners are killed by the dangerous work, or by disease, or by fighting among themselves.

"It's like the Wild West down there," says Hames, who with Saffirio authored a paper on the dramatic changes that occurred among Yanomamö Indians living near the newly constructed Northern Perimeter Highway in Roraima. Many Yanomamö along the road now dress in Western clothes, smoke cigarettes, buy their hammocks, shoot guns, wear watches, and use outboard motors in aluminum canoes. Some stop using their kinship names and say they are no longer proud to be Yanomamö.

In the fall of 1987, at least one miner and four Yanomamö were killed in an exchange. The Brazilian government ordered outsiders, including missionaries, journalists, and anthropologists, out of the area. Missionaries and anthropologists were accused of inciting the Yanomamö to violence. During the year that the priests and scientists were kept out, the miners kept coming into the region. "The government has lost control of the area," says Saffirio, who was recently allowed to return to his mission in Indian territory.

A spokesman for the Brazilian embassy in Washington says that the government intends to remove miners from the Indian lands, but concedes that enforcement is difficult over such a large area. The government is also trying to restrict the use of mercury. The Brazilians are committed to developing the resources of the Amazon.

"The questions of fierceness are now meaningless," says Saffirio. "The fierceness of the Yanomamö is nothing to compare with the terrible and powerful violence being done to them by the outside world."

■ WILLIAM BOOTH

Eric Stover of AAAS Office of Scientific Freedom & Responsibility did Spanish and Portuguese translations for this article.

And Now for a Real Crab Nebula . . .

The mysterious object shown here, serendipitously discovered during a routine survey and previously known only as the star He2–104 in the constellation Centaurus, has now been given the inevitable name of "The Southern Crab": unlike its famous namesake in the northern sky, which is an imaginatively named supernova remnant in the constellation Taurus, it is the very image of a crustacean.

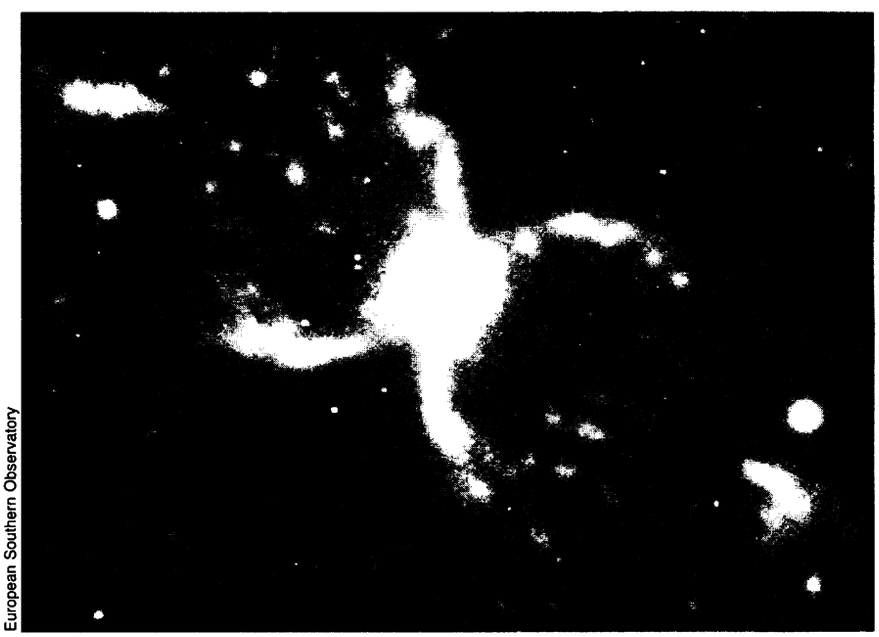
"We're still discussing our interpretation," says Colin Aspin of the United Kingdom Joint Astronomy Centre in Hawaii, who discovered the object along with Julie H. Lutz of the Washington State University and team leader Hugo E. Schwarz of the European Southern Observatory. One clue comes from spectra of the crab, which suggest that the bright central component is a "symbiotic binary": a hot, compact star in close orbit around a cool, distended red giant star. Such binaries are fairly common, says Aspin, although no others are known to have these appendages.

In trying to understand what makes this binary different, the three astronomers start from the fact that a red giant is just a normal star that has exhausted its supply of hydrogen, and that is going through a brief period of expansion before subsiding into a cosmic cinder. At its maximum, such a giant will spend a few thousand years emitting a dense, smoky "wind" of gas and dust, which expands into interstellar space to form one of the delicate, glowing bubbles known as a "planetary nebula."

To understand how such a bubble could have been distorted into a crab, says Aspin, assume that, before the red giant began to emit a wind, it had already expanded so much that its outer layers began to spill across to its compact companion. If so, the orbital dynamics may very well have swirled the material into a huge disk surrounding both stars, he says. Once the wind did start, moreover, such a disk would have naturally channeled it into back-to-back streams flowing out along the path of least resistance: the axis. These streams would then tend to expand as *two* bubbles, one above and one below the disk. And this is precisely what we seem to be seeing: the legs of the crab are just the edges of the bubbles.

The three astronomers are the first to admit that this model does not explain everything. Between both pairs of arms for example, there are faint, curving lines. What are they? To the upper left and lower right, furthermore, there are two elongated blobs of material that are moving away from the center at roughly 100 kilometers per second. They seem to have been shot out of the center by narrow, high-speed jets. Does this mean that something has focused the billowy red giant wind into a pair of back-to-back cosmic fire hoses? Or has some new energy source been activated?

■ M. MITCHELL WALDROP



European Southern Observatory

The Southern Crab.