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THE CHRONICLE OF HIGHER EDUCATION

Research & Books

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Blood Feud

A controversy over South American DNA samples held in North American laboratories ripples through anthropology

By DAVID GLENN

In early 2002, an elder from a Yanomami village deep in the Brazilian rain forest traveled more than 2,700 miles to a conference at Cornell University. In his public remarks — which were made in his indigenous language and translated by the anthropologists Janet M. Chernela and Gale Goodwin Gomez — the elder, who is known as Toto Yanomami, asked the assembled scholars for help. He wanted them to secure the return of blood samples that were taken in his village decades earlier by American anthropologists and medical researchers.

"The blood belonging to the Yanomami is here in this country," he said. "We met in our communal longhouse to talk about this. We thought that it had been thrown out. But it still exists. So I came here to find this blood and take it back. ... I don't want to return empty-handed."

According to Mr. Yanomami and certain other activists from his community, the Yanomami originally thought that the blood samples — many of which were gathered in the late 1960s — would be used only briefly for medical research and then destroyed. They now realize that samples from thousands of individuals are still frozen, nearly 40 years later. The problem is that many of those individuals are no longer alive.

"During Yanomami funerary rituals, all body parts and social remains of the dead must be ritually annihilated," writes the anthropologist Bruce Albert in an e-mail message. Mr. Albert, who is a senior anthropologist at the Paris-based Research Institute for Development and a vice president of the Pro-Yanomami Commission, a private organization in Brazil, wrote his dissertation at the University of Paris-Nanterre in the mid-1970s about Yanomami mortuary practices.

"It is totally horrifying to them," says Ms. Gomez, a professor of anthropology at Rhode Island College, "to think that even small parts of their grandparents or great-grandparents might still be in a lab. It's like the reaction Westerners might have at the thought of human skin being made into lampshades."

This may sound like a relatively simple story: Yanomami activists ask for the return of the blood samples. The scientists who have worked with the samples — many of whom were not aware of the group's funeral practices — decide to return them. Or they don't. The world keeps turning.

But the quarrel over the Yanomami samples is not nearly so neat. It is deeply entwined with a decades-old battle about anthropological ethics that also started with the Yanomami and that has seen allegations of bad faith thrown from all sides.

Now a public prosecutor in Brazil has entered the fray: In July 2005, Maurício Fabretti, a state attorney based in the upper-Amazon city of Boa Vista, sent letters to 15 institutions worldwide that he believes hold Yanomami blood or DNA samples. As of mid-February, he had received replies from only five, and only two of those had agreed to return the samples. Mr. Fabretti's next step, according to Jankiel de Campos, an anthropologist on his staff, will be to "study the adoption of legal measures."

Calls for the return of the blood samples began in 2000, when the journalist Patrick Tierney published *Darkness in El Dorado: How Scientists and Journalists Devastated the Amazon* (W.W. Norton). Mr. Tierney accused two prominent American scholars of

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gross misconduct in their work with the Yanomami over a 25-year period — and some of his accusations directly concerned the samples.

Mr. Tierney's book has generated several overlapping waves of ill will. Kenneth M. Weiss, a professor of biological anthropology and genetics at Pennsylvania State University who holds some Yanomami blood samples, says that some of the scholars campaigning for their return are posturing demagogues who, just for the sake of wanting to appear to be fighting for the rights of indigenous people, want to score points "in an anthropological food fight."

The campaigners reply that the scientists who hold the samples — several of whom, unlike Mr. Weiss, have maintained a stony silence — are callously neglecting the Yanomami's deeply held beliefs.

Meanwhile, other anthropologists and pro-Yanomami activists worry that the blood-sample controversy diverts attention from other crises facing the Yanomami, who are increasingly battling malaria and pressure on their land from gold mining and other extractive industries.

Battle of the Book

In a mid-February interview, Davi Kopenawa, a Yanomami activist who is the founder and president of Hutukara, a civil-rights organization, said that as he travels to various Yanomami villages in Brazil, he is constantly asked about when the blood samples will be returned. (Mr. Kopenawa spoke in Portuguese, and his comments were translated simultaneously, in a conference call, by Ms. Gomez.) "I understand that there is a lot of bureaucracy and paperwork," he said, "but until the blood is returned, the community remains very sad."

Mr. Fabretti is seeking samples that were gathered by several different teams of scholars — but the largest and most famous collections of Yanomami blood samples were gathered by the two scholars criticized in Mr. Tierney's book: Napoleon A. Chagnon, a professor emeritus of anthropology at the University of California at Santa Barbara whose many books about the Yanomami are staples of Anthropology 101 courses, and the late James V. Neel, who was for many years a professor of genetics at the University of Michigan. The two men often worked in concert, and the campaign to retrieve the blood samples has been at times subsumed into the larger controversy in anthropology over Mr. Tierney's charges about their work.

Mr. Tierney accused Mr. Chagnon of exaggerating the degree of violence among the Yanomami, of fostering violence himself by distributing weapons, and of fabricating data in a 1988 paper that purported to demonstrate that the most-violent Yanomami men tend to have more wives and children. (Some of Mr. Chagnon's colleagues have strenuously denied each of these points, and a lengthy report by scholars at Santa Barbara found many of Mr. Tierney's allegations to be false or misleading. Mr. Chagnon himself has generally remained silent, and he declined to be interviewed for this article.)

The most sensational — and, most observers say, the flimsiest — charges in *Darkness in El Dorado* involved Neel's conduct during a measles epidemic in 1968. After the epidemic began, Neel and his colleagues administered a vaccine in several Yanomami villages. Mr. Tierney argued that the researchers chose an inappropriate live vaccine that actually made the epidemic worse. Moreover, the author suggested that the vaccine was not chosen out of carelessness, but rather because Neel wanted to study aspects of the Yanomami's resistance to measles. He also alleged that Neel devoted less than his full energies to stopping the disease: "Neel barely slowed his pace of blood collecting or filming, both of which required massive payments of trade goods, a reckless policy during an epidemic."

Mr. Tierney's allegations threw the American Anthropological Association into turmoil. In the summer of 2002, a special committee of the association released a rambling 304-page report, which concluded that Mr. Tierney's allegations about the measles epidemic were largely false, but that many of his other points were well founded. (*The Chronicle* repeatedly attempted to contact Mr. Tierney for this article, but did not receive a reply.) Three years later, however, the association's members voted to rescind their acceptance of that report, in part because of concerns that the committee's composition was biased and that the association was ill equipped to judge individual scholars' conduct.

The end result is that the six-year Tierney debate sits undigested, with no faction feeling much gratification or closure.

Blood Drive

Enter Robert Borofsky. Mr. Borofsky is a professor of anthropology at Hawaii Pacific University, and he is widely known in the association as an ethics crusader — in some eyes, a nuisance — who has vast social networks. (He has corralled several prominent anthropologists into a well-respected series that he edits for the University of California Press.) At the association's meetings, Mr. Borofsky sometimes seems to be in every room, wearing his trademark lei, talking up a petition on one issue or another.

Last year Mr. Borofsky published *Yanomami: The Fierce Controversy and What We Can Learn From It* (University of California). Mr. Borofsky is quite critical of Mr. Chagnon's and Neel's conduct — he believes that Mr. Tierney's indictment was at least half-correct — but he has also cultivated friendships with a few of the accused scholars' most prominent defenders. (Two-thirds of his book are devoted to round-table discussions in which six scholars on various sides of the debate sort through their points of agreement and disagreement.)

Mr. Borofsky believes that there is a simple way to move forward and to pull the association out of the recent miasma: Return the thousands of blood samples collected by Neel's teams.

That, he says, is a basic task that people on all sides of the Tierney debate ought to be able to agree on. "In some ways, people would like to forget the Yanomami controversy," he says. "People are comfortable dealing with platitudes and abstractions, but not so comfortable dealing with the situations of real, concrete people." Returning the blood samples, Mr. Borofsky says, "is not the only thing, or even the main thing, that American anthropologists could do. But it seems like a first step. It's a way of seeing if we can be effective."

And so Mr. Borofsky has aimed his considerable political machinery at winning the return of the blood samples. He did not prompt Mr. Fabretti's legal campaign — that was the work of Yanomami activists in Brazil — but he has amplified it in various ways. In an elaborate Web site connected to his book, Mr. Borofsky has encouraged undergraduate anthropology students to write letters to administrators at institutions that hold Yanomami samples.

Two weeks ago, Mr. Borofsky sent a bundle of such letters to Graham B. Spanier, president of Penn State, which holds the best-known and perhaps the largest set of Yanomami samples, with more than 3,000. ("Return the samples," wrote Charlie Brummitt, a freshman at the University of Wisconsin at Madison, "and you save the public face of anthropology.")

But in the eyes of Penn State's Mr. Weiss, who did his graduate work at Michigan and who inherited some of the Yanomami samples from Neel's lab, Mr. Borofsky is dealing in platitudes.

Mr. Weiss insists that he has acted in good faith. He suspended all work with the Yanomami samples — "to the detriment of at least one student," he says — as soon as he learned of the funeral-rites controversy in 2001. He has been reluctant to return the samples, he says, only because he has not yet been satisfied that Mr. Fabretti speaks on behalf of all the relevant Yanomami stakeholders. Among other things, Mr. Weiss says that many, perhaps most, of the samples were originally collected in the northern portion of the Yanomami territory, which is in Venezuela, not Brazil. He would also like assurance that the returned samples would not somehow be drawn into intercommunal conflicts among the Yanomami.

As far as Mr. Weiss is concerned, Mr. Borofsky is clumsily meddling in an affair that he knows little about, and he is interfering with the natural course of negotiations between Penn State and Mr. Fabretti's office.

Mr. Fabretti's legal inquiries are one thing, Mr. Weiss says. But Mr. Borofsky's student-letter campaigns, he believes, can only be understood as a means of posturing in the Chagnon-Tierney debate. Why pick on Penn State? he asks. Why not go after other

institutions — most importantly the University of California at Irvine and the National Cancer Institute — that also inherited samples from Neel's original collection?

"If one visible person is singled out for some nice juicy publicity," Mr. Weiss says, "that shows that this is not entirely a sincere effort on behalf of some misused Indians, but is for the greater glorification of the pot-stirrers."

Deeper Crises

Meanwhile, says Mr. Kopenawa, of Hutukara, the Brazilian Yanomami face several crises. There are a number of steps that American anthropologists could take to improve the situation of the Yanomami, says Fiona Watson, the campaigns coordinator of Survival International, a London-based advocacy organization.

Gold mining and other extractive industries have recently brought new diseases to the Yanomami, says Ms. Watson, who has worked periodically in Brazil since 1987. "Every time the gold miners come in, there is more risk of infection — and not just malaria. There's a very big issue with HIV, which, again, the Yanomami hadn't been exposed to, but they are now." Ms. Watson, like Mr. Kopenawa, said that anthropologists in the United States could be much more aggressive about raising public awareness of the Yanomami's plight, and also in raising money for their health and education projects.

As for the blood-sample question, it is far from certain how it might move forward. In January, Mr. Fabretti sent a letter to Penn State in which he tried to address Mr. Weiss's objections to returning them. If the samples are returned, Mr. Fabretti promised, he will keep them under guard in Boa Vista "until the Yanomami leaders reach a consensus on the best way to proceed."

Mr. Weiss was encouraged by Mr. Fabretti's letter, but not all of his concerns have yet been answered. (Above all, he is reluctant to send Venezuelan samples to Brazil.) "There are still numerous issues," he says, "but this may serve as progress, at least, and at last."

A small collection of Yanomami samples is also held at the State University of New York at Binghamton by D. Andrew Merriwether, an associate professor of anthropology. Mr. Merriwether declined to be interviewed, but a university spokesperson said that he, like Mr. Weiss, suspended all work with the samples when the controversy arose a few years ago.

"There are multiple institutions that have these samples," says Gerald Sonnenfeld, Binghamton's vice president for research. "We have been in discussion with Penn State, and we want to have a unified response to this. We very much want to do what is right, but we're not sure at this point what is right."

A unified response may be slow in coming because administrators at two of the major holders of Yanomami samples — the University of California at Irvine and the National Cancer Institute — have only recently become fully aware of the role they play in the controversy. When Mr. Fabretti contacted Irvine last summer, officials there erroneously replied that they held no samples. Only when contacted by *The Chronicle* did those administrators learn that Douglas C. Wallace, director of the university's Center for Molecular and Mitochondrial Medicine and Genetics, holds a significant collection. (The administrators' mistake was perhaps understandable because Mr. Fabretti's letter did not name Mr. Wallace, and Mr. Wallace and his collection arrived at the university only recently, in 2003.)

Christina K. Hansen, Irvine's assistant vice chancellor for research, would not comment further until she learns more about the issue. Mr. Wallace declined to be interviewed.

The Venezuela Question

A similar story unfolded at the National Cancer Institute, which erroneously reported to Mr. Fabretti last September that it did not hold any samples. (Again, Mr. Fabretti's letter had not named any individual scientists, and administrators at the institute say that they made a good-faith effort to canvass their many labs.) When prodded by *The Chronicle* in February, the institute made another search and found a collection of samples that Robert J. Biggar, an epidemiologist, inherited from Neel in the early 1990s.

Shelia H. Zahm, deputy director of the institute's division of cancer epidemiology and genetics, says that the samples have only been used in two studies. (As part of a broad effort to study viral mechanisms behind particular cancers, Dr. Biggar and his colleagues were interested in testing the prevalence of certain viruses in the blood of people who had little contact with Europeans.) Ms. Zahm says that the institute has now prohibited any further use of the samples, and on February 16, she sent a letter to Mr. Fabretti, saying that the institute is very willing to return the samples "to Yanomami representatives from Brazil and Venezuela."

Here, as with Penn State and Binghamton's collections, the Venezuela question looms as a potential stumbling block. When asked whether the institute could sort through the samples and send those of Brazilian origin to Mr. Fabretti, Ms. Zahm says that she does not know how feasible that is.

"We have some paper records, which we have started to look at," she says. "The question is, are we going to be able to know, on a vial-by-vial basis, which specimens came from which location? And I don't know the answer to that yet."

Mr. Kopenawa concedes that he has very little communication with villages on the Venezuelan side of the border, and he cannot directly testify about their opinions on the blood-sample question. (The Yanomami region is huge — more than 70,000 square miles — and some villages, especially in Venezuela, are extremely remote.) Ms. Watson of Survival International says that the Yanomami in Venezuela are much less politically organized than those in Brazil, and it is unlikely that any Venezuelan authorities will take up the cause of the blood samples.

One person who has recently visited Yanomami villages in Venezuela is the Brazilian filmmaker José Padilha, who is best known for the documentary *Bus 174*, about a hijacking in Rio de Janeiro in 2000. Mr. Padilha is now at work on a film about the Yanomami. In an e-mail message, Mr. Padilha says that conditions for the Yanomami in Venezuela are considerably worse than on the Brazilian side. "They are dying of malaria and dysentery at high rates, and the Venezuelan government and the local anthropologists have not been able to help them out, especially the most isolated ones."

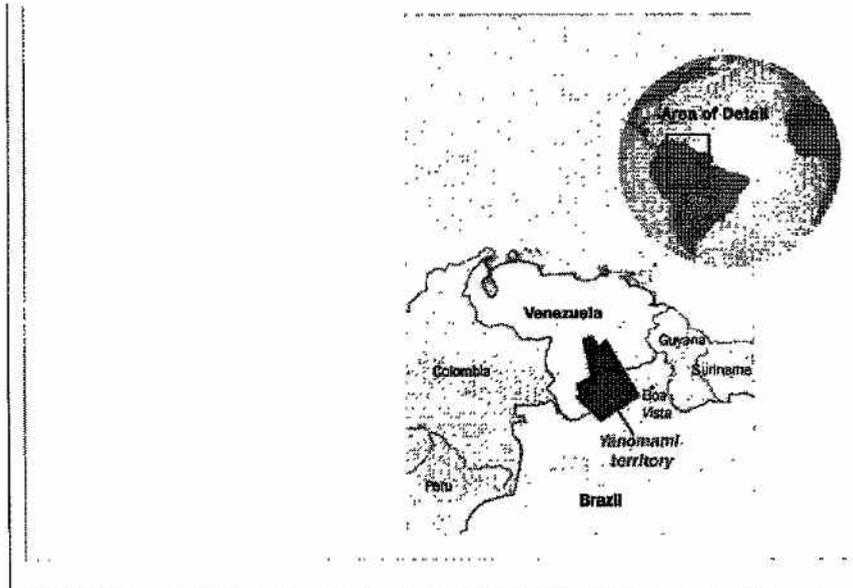
Mr. Padilha expresses a certain impatience with the blood-sample fracas. "I do not believe that giving the blood samples back will solve the most important problems the Yanomami face," he writes. "Why should it?"

That question hangs over Mr. Borofsky's campaign: Is this a purely symbolic effort to "ritually annihilate" (as Mr. Albert might put it) the real and alleged past sins of American anthropologists?

Mr. Borofsky says that he is aware of that question, and that he believes it is also important to provide material aid to the Yanomami. But after seeing various post-Tierney committees and task forces move very slowly, he also wants to do something — almost anything — to demonstrate some movement. "My God," he says. "Why is it always paper shuffling? It strikes me that the good intentions have not been manifested in action."

BORDER CROSSINGS

A public prosecutor based in Boa Vista, Brazil, has urged laboratories around the world to return blood samples collected from members of an indigenous group known as the Yanomami. But many of the disputed samples were gathered in the territory's northern portion, which lies in Venezuela. Scientists at three of the foreign laboratories have said they would like to hear from public officials in Venezuela before they take any action.



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