The energy inherent in these medical staff activities has spread throughout the hospital. Meetings have been held with local hospice workers and clergy to discuss how better to coordinate the mind-body-spirit aspects of treating patients with serious illnesses. A series of open dialogues has been attended by members of the medical, administrative, and nursing staffs. Those meetings led to the creation of a nondenominational spiritual healing logo, an image of a dove, to be posted in various places in the hospital as a reminder of the sacred nature of healing. Currently the hospital is applying for a grant from a benevolent foundation with which to obtain audiovisual aids and materials for art therapy; to create a sacred space, a chapel, in the hospital for prayer and meditation; and to provide educational and experiential programs for caregivers to learn ways to include the spiritual in their work.

An interface between alternative medicine and traditional medicine remains speculative. Meanwhile, Rural Sierra Valley District Hospital is acting on that possibility by adopting bylaws with a clear humanistic statement about the sacredness of healing and by granting alternative medicine practitioners membership on the medical staff.

Suggested reading

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Sorcery and science: responses to kuru and other epidemics

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"I can cure kuru, " Sila told me. I had been hiking with my guides on a trail along a steep ridge in Papua New Guinea, where I was conducting epidemiological field work on kuru among the Stone Age Fore group. My guides introduced Sila and me, evidently thinking that he, their local medicine man, could instruct me how to treat kuru effectively.

I squinted at him through the glaring sun. He was barefoot, and wore a soiled pair of shorts. What could I possibly learn from him?

"How well has your treatment for kuru worked? " I asked.

He listed his patients, most of whom, he said, had recovered. Over the previous few months, I had met some of these individuals and thought they seemed healthy. He also admitted that several of his patients had worsened.

"Who?" I asked. He listed several, all of whom I had been taken to see and had diagnosed with the disease. Our lists of current kuru patients were identical. "What's your treatment?" I asked, still suspicious. I wasn't sure he would tell me.

But he answered. He said he first uttered an incantation, then dispensed herbal medicines and prescribed several behavioral changes: for one week, patients were not allowed to drink water, eat any salt, or touch anyone of the opposite sex.

Sila's confidence puzzled me. I knew that dozens of Fore herbal medicines had been tested at the National Institutes of Health and shown to be ineffective. Kuru, caused by an infectious protein or prion—virtually identical to that responsible for Creutzfeldt-Jakob disease in humans, scrapie in sheep, and bovine spongiform encephalopathy (BSE) or mad cow disease—has no known treatment in the West. Here in New Guinea, the disease had wiped out most of the population in some villages. Fore members who developed headaches, backaches, or a host of other minor pains now automatically feared they had kuru. I labeled these cases as misdiagnoses and as hypochondriacal. But presumably these same people constituted Sila's "cures" and lent credence to the Fore belief that the disease was caused—and could be cured—by magic. The tribespeople thus had an explanation they could understand, giving them some sense of control over the epidemic.

Still, none of the patients whom I had diagnosed as having kuru had responded to Sila's therapy. Why, then, didn't he see a problem or feel troubled by the ineffectiveness of his medicine? I didn't want to offend him, but I felt compelled to ask, "Why are some people whom you treat still sick?"

"Very simple, " he replied. "They didn't follow my advice. They drank water or ate salt or touched a member of the opposite sex." In short, they were noncompliant. He blamed these failures not on the treatment but on the patients. They had been bad patients, noncooperative. Even though some of his clientele became sicker, the perception that others improved had demonstrated to the tribe that his remedy could work.

The Fore believed that a sorcerer caused kuru by stealing from his victim a possession, wrapping it with leaves around a stone, casting a spell on it, and burying it in the ground. The stone would start to rattle and, when it did, the victim would begin to shake and get sick. Rocks claimed to be such kuru stones had been dug up and displayed.

After kuru initially broke out, people in hamlets that had all lived in one area now moved away from each other for protection. When deaths continued, the survivors spread even further apart. Still kuru raged. The Fore guarded their belongings more fiercely, to prevent theft. It was then rumored that a sorcerer no longer needed to procure one of his victim's possessions to cause disease, but could make do merely with bits of potato peeling the victim had han-

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Residents of a Fore hamlet

dled, or shreds of sugar cane the victim had chewed. Hamlets erected stockades to keep enemies out. Neighboring groups that had once intermarried with the Fore now stopped, fearing the Fore's dangerous sorcery. The Fore were shunned.

"But kuru is caused by a tiny lifelike thing," I explained to Sila and the others now. "Smaller than an insect—a virus. Not sorcery."

"Show it to us," Sila said.

"It is too small to see with your eye and requires a special instrument to view."

"What does it look like?"

"We aren't sure exactly."

"Has anyone ever seen it?"

"It's not clear anyone has."

They all laughed at me. "You white men don't make sense. Kuru is caused by kuru bundles, which we have all seen with our own eyes."

"But you have only heard about the sorcery. There is no proof."

"No. We have seen the kuru bundles ourselves."

"But kuru is decreasing because cannibalism is no longer practiced. The infectious agent has spread through cannabalistic feasts."

"No. Fewer die of the disease because the sorcerers have finally heard our pleas and have seen the evil they have done. Besides, only the older generation knows the poison. The younger generation doesn't possess the knowledge."

"How come anyone dies then?" I asked, thinking I would stump them.

"Because a few old-timers are left here and there who still practice the sorcery," one man answered.

"But small children no longer die of the disease," I said, summarizing the epidemiologic data that colleagues in the past and I had found. "The youngest patients used to be children and are now adults."

"That's because children haven't lived long enough to anger the sorcerers," another man told me. "But others still die. My own brother died of kuru last year."

They all knew people who fell victim each year, and thus they viewed the epidemic in personal, not abstract statistical terms. Even my guides believed in sorcery, though they had worked closely with leading Western scientists, including two Nobel Laureates, D. Carleton Gajdusek, from the National Institutes of Health, and Stanley Prusiner, from the University of California at San Francisco.

My inability to convince the Fore frustrated me. Why couldn't they see that my views were correct? These barefoot villagers, born in a Stone Age society and lacking a written language, were challenging scientific truths and the scientific method itself—achievements considered to rank among the high points and defining accomplishments of Western culture. These New Guineans readily refuted to their satisfaction and dismissed the "universal truths" I had been taught and had accepted. I couldn't disprove the Fore people's arguments without first persuading these villagers that hypochondriacal cases existed, and that my definition and diagnostic criteria for the disease—rather than that of the Fore—were accurate and should be followed.

Yet they had seen and known the disease intimately their entire lives, while I had just landed in their country a few weeks before.

Sila now turned to me. "If you white men think you know what causes kuru," he asked, "why haven't you cured it? We've cured the disease. You haven't!" The natives all believed that Sila's treatment was effective and that his theory was thus correct.

"But discoveries in the West take generations—even hundreds of years," I explained. The group wasn't impressed. The concept of a year had just recently been introduced by missionaries, to mark the arrival of Christmas. Traditionally the Fore lacked a sense of time extending more than a few days forward or backward.

Still the coherence and strength of the Fore's logic impressed me. In fact, years later, as a young doctor, I would also hear arguments similar to Sila's used to explain the successes or failures of treatments in American hospitals. Doctors, too, often blame therapeutic failures on patients' poor compliance or low motivation rather than questioning the efficacy or limitations of the treatments employed.

The year I left New Guinea and returned to the United States, 1981, was the year that the initial cases of AIDS were reported. As the AIDS pandemic spread, I saw how Western reactions resembled Stone Age responses to kuru. Both diseases are fatal. In AIDS, too, fears spread widely. Those infected or suspected of being infected—including gay men and injection drug users—were shunned. For the first 15 years of the epidemic, a desperate search for cures ensued with new advances heralded, often prematurely, and new remedies sought, frequently at considerable expense. Pressures to change culturally sanctioned behaviors that had led to the spread of the disease—sexual and drug use behavior—met with enormous resistance.

Similarly, in the first half of the 1990s, I was surprised to see friends in Great Britain eating beef. In September

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1990, I attended a friend's wedding in Yorkshire, and the next day went to a pub with 12 English friends. Our group ordered 11 portions of roast beef and Yorkshire pudding. I ordered chicken.

"Aren't you afraid of mad cow disease?" I asked my companions, astonished. Five years earlier, in 1985, the first cases of this disease had been found in British cattle. By 1988, hundreds of cows had become ill, and the British government banned giving bone meal feed made from the ground remains of sheep, which can have scrapie, to cattle and other animals as a protein supplement. Still, thousands of cows died. In May 1990, a cat died of the disease. British beef consumption fell, then slowly rose back.

"The beef is now safe," answered Mark, another physician among us, surprised at my question.

"But the virus can take decades before it affects someone," I said. "If even one infected cow gets through, people could become infected and die."

"But the government has experts," Susan argued. "They said the beef's okay." She lifted her fork and bit a piece of pink meat. This willingness to accept government assurances shocked me, given the potential risks.

"I think it's better to be careful," I argued.

"Don't be silly," Susan said. "They have killed all the sick cows. Besides, we grew up eating beef. It's a British tradition."

"But the disease can take 10, maybe 20 years to show up or affect you." They all looked at me like I was crazy.

"It's never been transmitted to man," Mark replied.

"But it's been transmitted to other species," I said.

"That's different. How do you know, anyway? You're an American."

"Yes. But I once studied a similar disease in New Guinea," I said. "Kuru."

It wasn't until three years after this Yorkshire dinner that the first cases of human disease acquired from mad cows were reported. A huge public outcry erupted and almost toppled the British government at the time.

Yet even in that pub, I had seen my friends resisting the notion of these infectious diseases—new, little understood, and having such long incubation periods.

Even in the face of a plague, behaviors involving sex, death, food, and mourning are deeply rooted biologically, imbued with extraordinarily powerful meanings, and hence difficult to change. Individuals seek rationalizations to continue established behaviors: the disease can't happen here; it won't happen to us; results from sorcery and can be reversed by countersorcery; the problem has been solved by government experts; the illness affects only gay men who are promiscuous or don't know their partners.

My experiences with the Fore suggested the need in medicine to examine closely how illnesses and treatments get defined and framed. Diseases aren't givens; they are constructed by cultures in differing ways. I saw how medicine consisted not merely of decision-making trees—as I was taught in medical school—providing definitive solutions to problems, but of events unfolding, shaped by cultural settings and biases. In modern hospitals and clinics, however, these contexts and interpretations usually get ignored.

I have observed closely three major epidemiological outbreaks: kuru, BSE, and AIDS. In all three, people feared the illness but had difficulty understanding it. It was difficult to accept the concept of long incubation periods and equally difficult to change deeply rooted behaviors—eating humans or British beef, having unsafe sex, or using dirty needles. Also, those affected—the Fore, cows, gay men, and injecting drug users—were rejected and shunned. Despite differences in the scientific knowledge base, theories of disease, and cosmological beliefs, basic reactions to these diseases resembled each other. In the absence of clear, visible evidence of infection, disbelief and pseudoscience persisted.

Belatedly, the lessons of these diseases have begun to sink in. Many individuals at risk for HIV have begun changing their behaviors. Still thousands of new cases of infection still occur every year. The British government eventually slaughtered millions of cows.

Over upcoming years, other epidemics will arise, as technology alters environments and human lives, linking formerly isolated regions of the world such that infectious agents harbored in one ecosystem can escape to others. New plagues will no doubt prompt fear, resistance, and denial, furthering the spread of disease, and inspiring desperate searches for answers and solutions, such as I saw in New Guinea.

New Guineans dismissed my views and I could dismiss theirs. But similarities remain.

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