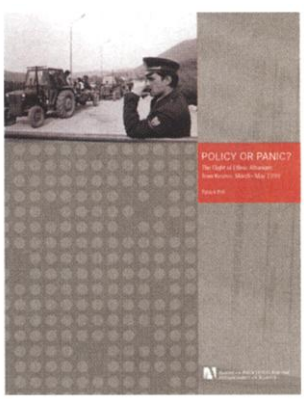
SCIENCE POLICY

Human Rights Program Asks, "Who Did What to Whom?"

For two days in mid-March, Patrick Ball, a statistician and deputy director of the AAAS Science and Human Rights Program, testified in the war crimes trial against Slobodan Milosevic in the Hague.

According to an Associated Press account on 13 March, "After weeks of emotional testimony from survivors, the U.N. war crimes tribunal heard a cold statistical analysis Wednesday from a U.S. scientist implicating Slobodan Milosevic's forces in the deaths of 10,000 Kosovar Albanians."

Ball's analysis of data gathered from exhumation records, Albanian border records on refugee crossings, and interviews with thousands of refugees fills 67 pages and applies the most sophisticated statistical and computer programming tools available.



Report published in 2000 by AAAS Science and Human Rights program

The report, which was coproduced by the American Bar Association's Central and East European Law Initiative, is the latest in the history of applying science to the work of human rights. The use of statistical analysis to document campaigns of rape, killing, torture, theft of property, and other abuses has taken Ball to Haiti, Guatemala, South Africa, and El Salvador. Under his direction in Guatemala, statisticians analyzed cases that accounted for 24,910 killings and demonstrated that death squads had targeted native peoples in two regions of the country, supporting charges of genocide.

Although the statisticians who do human rights work strive to produce their analyses with peer review and extensive documentation, they say they try not to lose sight of the human suffering reflected in the numbers they use.

"We as a group recognize the suffering at a very human level," says Herbert Spirer, an adjunct professor of international affairs at Columbia University who has cooperated with Ball on many of his projects. "We are trying to give back dignity to the victims and survivors. Our concern is the aggregate, the scope. We try to make the unimaginable, imaginable."

Science in Service of Human Rights

At AAAS, the process of applying science to human rights work began in 1975, when the board formed the Committee for Scientific Freedom and Responsibility. Initially, the committee's activities focused on making policy recommendations regarding sensitive topics such as informed consent and fetal research, but committee members began to think about the international arena and to speak up for scientists who were in trouble, while channeling information to associations and individual scientists who were willing to help. Then in 1984, at the request of a newly reformed Argentine government, AAAS sent a delegation of scientists to Argentina to help identify the remains of people killed by the Argentine military during that country's "dirty war" in the 1970s. The researchers were also asked to determine the cause and manner of death.

Three years later, Clyde Snow, a forensic anthropologist, had collected enough information in Argentina that his testimony played a major role in the conviction of the military officials who were in charge of the nation's "war on leftist subversion."

At the same time that Snow was doing his work, AAAS sent another researcher to Argentina. Mary-Claire King, who was then a professor of epidemiology at the University of California (UC) at Berkeley, used sophisticated DNA technology to help Argentine families identify children who had been kidnapped in the 1970s during the government campaign against leftists.

The Grandmothers of the Plaza de Mayo, a human rights group made up of family members of people who had "disappeared," had contacted AAAS after reading news accounts of a technology that could determine parentage.

"They came and asked if this science could be used to help them find their grandchildren," said Eric Stover, director of the Human Rights Center at UC Berkeley and head of the AAAS Science and Human Rights Program from 1980 to 1988. "The program really took off because it gave these scientists the opportunity to apply their skills."

Applying Statistics to Human Rights

As the AAAS Science and Human Rights Program expanded, AAAS began working with the American Statistical Association (ASA) to apply statistical methods to human rights documentation. ASA's concern about the number of statisticians who had been imprisoned or were otherwise in trouble with their governments made many of their members receptive to the idea of working with the Science and Human Rights Program.

"For us, the AAAS was the premier organization in science and human rights," said Spirer, who is also a statistician and represented the ASA in its collaborations with AAAS.

Audrey Chapman, director of the AAAS Science and Human Rights Program, said that in the early 1990s she began to consider ways in which scientific methods could contribute to the collection and analysis of large volumes of human rights violations. AAAS had begun to respond to countries that were forming truth commissions to identify perpetrators and investigate a past history of human rights abuses. In the process, AAAS staff met Patrick Ball in El Salvador. Then a graduate student at the University of Michigan, Ball had been working to design databases for collecting information on human rights violations committed by both the local militias and by the Salvadoran government in the 1970s and 1980s. "We had already begun to use the tools of science, but had been limited to focusing on specific cases," Chapman said. "Patrick led us into a new role as scientific advisers to truth commissions and other work involved in analyzing large volumes of cases of human rights violations."

Chapman had worked in East and West Africa and had also served as the director of human rights and peace programs for a

church agency. Traditionally, Chapman said, researchers looking into accusations of abuse base their case analyses on evidence collected from various sources.

That work is still important, she said. "But only to the extent that you use scientific methodology can the tribunal have the standing to reach conclusions that are going to be accepted."

SCIENCE AND THE MEDIA

Writers Honored at 2002 Annual Meeting

On 15 February, during an awards ceremony held as part of the AAAS Annual Meeting in Boston, AAAS recognized 12 science writers for their outstanding contributions to science journalism in 2001. Four of the writers did not attend the ceremony.

Left to right (front row) Julia Cort, Betsey Arledge, Richard Monastersky, Heather Pringle, and Scott Shane; (back row) Robert Krulwich, Christopher Joyce, David J. Tenenbaum, and Terry Devitt

Sponsored by The Whitaker Foundation, the AAAS Science Journalism Awards in 2001 honored the journalists listed below in the six categories that make up the awards program.

Newspapers with a circulation of more than 100,000: Scott Shane of *The Baltimore Sun* won for his series "A Quiet Crusade" (22 to 24 October 2000).

Newspapers with a circulation of less than 100,000: Richard Monastersky of the *Chronicle of Higher Education* was recognized for "Nowhere Men: Scientists Debate What Happened to the Neanderthals," "Under the Volcano," and "Where Have all the Frogs Gone?" (8 September 2000, 30 March, and 20 April 2001).

Magazines: Heather Pringle of *Discover* won for the article "Secrets of the Alpaca Mummies" (April 2001).

Radio: Christopher Joyce of National Public Radio was recognized for "Wasp Observed Reprogramming a Spider to Adjust Web-building Technique," "How Life Got Started on Earth Researched," and "Stargazing 1: International Gemini Telescope Project" (20 July 2000, 29 January, and 4 June 2001).

Television: Betsey Arledge, Julia Cort, and Robert Krulwich of WGBH/NOVA won for "Cracking the Code" (17 April 2001)

Online: David J. Tenenbaum, Sue Medaris, Terry Devitt, Darrell Schulte, and Amy Toburen of The Why Files won for their online site "Buried Treasure" (5 October 2000).

IN FOCUS

Through the Eyes of a Science Writer

The writers who recently won the 2001 AAAS Science Journalism Awards share a passion for their work. Here, two of them talk about what they saw and what they learned in writing their winning entries:

It was during the World Congress on Mummy Studies in Arica, Chile, in 1998 that Heather Pringle first heard an American archaeozoologist speak of her plans for the 1000-year-old alpaca and llama mummies that had been found in Peruvian villages more than a decade ago.

"I couldn't recall ever hearing of a similar story," said Pringle, who lives in Vancouver. "All my bells and whistles as a journalist went off."

Jane Wheeler, the archeaozoologist, had discovered mummies with fleece "as soft as a baby's hair compared with that produced by the alpacas that are ubiquitous in modern Peru," Pringle wrote in her article, "Secrets of the Alpaca Mummies" (*Discover*, April 2001).

In her article, Pringle recounted how Wheeler established a major alpaca DNA bank in Lima, Peru, and told of the scientist's efforts to recreate the alpacas that the Incas once bred: "If only Peruvians could resurrect these lost breeds, [Wheeler] mused, they could produce textiles rivaling cashmere and, in the process, lift themselves out of poverty."

Pringle said that she was struck by Wheeler's sense of having found a mission worth pursuing.

"Jane was so committed," Pringle said. "As she studied the mummies, she began to realize the potential economic consequences, and she wanted to benefit the great number of people who had been economically impoverished."

Scott Shane, a science writer with *The Baltimore Sun*, was recognized by AAAS for his series, "A Quiet Crusade," a project that took him from Baltimore to Nepal and back. Describing scenes of poverty and heartbreaking sadness, he wrote about a Johns Hopkins University researcher and his studies that have demonstrated that vitamins can save the lives of malnourished people.

Shane said he wondered how he could draw his readers into the story.

"How do you get readers to care, when distant death can seem both a cliche and an abstraction?" Shane said. He began to look into the history of Baltimore's struggle against diseases that now seem so abstract. He found that mortality rates among the city's children had been as high in 1915 as they are now in Nepal, and that in the 19th century, Baltimore officials had struggled to contain malaria, cholera, and scarlet fever.

"Knowing that we [in the United States] had to go through the same transition made me more optimistic than I usually am about third world countries," Shane said. "If we were in this bad shape little more than one or two hundred years ago, that's a blink of an eye in human history."