may exist. For example, Salcedo says, in South America it was possible to document the influence of certain Argentine-trained interrogators. "Whenever they moved into a new area," Salcedo explained, "about a month or two later you'd start to see reports of torture with electricity."

But it is not clear whether Haiti—where resources are scant and records are chaotic—will yield such clear results. For example, one candidate site for forensic investigation—an abandoned prison of the "Papa Doc" Duvalier era called Fort Dimanche—has been set aside because it contains a jumble of human remains dumped over decades. Sorting the bones would be time consuming and might yield little new evidence on events during the Cedras years. Another site known as Titanyen was passed up because it has long been a grave for paupers and a dumping ground for murder victims. Bodies often were lost because they were left above ground. Salcedo says, "The damn pigs made off with the evidence."

The lack of infrastructure also makes research difficult. Burns, who led forensic investigations of mass executions in Argentina and Guatemala, says Haiti presents a special challenge. The State University hospital in Port au Prince, where investigators are examining the remains, has inadequate plumbing. Even the pathology lab lacks running water and a sanitary disposal system for diseased tissue. The crematorium cannot be used; its stack is too short and ashes come down on the hospital grounds. Meanwhile, unclaimed bodies of the poor are accumulating at an alarming rate in the hospital morgue.

In these circumstances, the AAAS investigative team has decided it will be enough simply to use modern forensics and not attempt more exotic methods of analysis. Although the Truth Commission has identified some mass graves, the recovery efforts have focused on well-defined sites, such as those in the cemetery at Gonaïves. Neither the Truth Commission members nor the AAAS team is ready to say how many deaths have been explored or documented. These details will be released later, according to Boucard.

As the investigations proceed, one of the goals of the AAAS team is to instruct Haitians—starting with the government's prosecution staff—in criminal investigation techniques. Until now, it appears, Haiti has not had access to modern forensics. But Burns and her colleagues have already begun training a small cadre of Haitians in field methods. One of the good things that may come of Haiti's terrible upheaval in the 1990s, they hope, is an increased respect for evidence and investigative procedures.

–Eliot Marshall

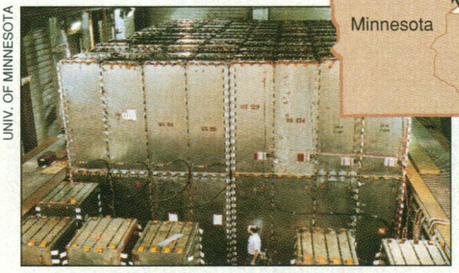
HIGH-ENERGY PHYSICS

Mass Migration Plan for Neutrinos

Nothing attracts interest like playing hard to get. Take the neutrino, a particle that interacts with matter so weakly that even the largest existing detectors can count only a handful of neutrinos in months of running time. That elusiveness has made neutrino experiments notorious for poor statistics and suspect conclusions, especially about the hottest and most contentious question in the neutrino field—whether the particle has mass (*Science*, 22 September, p. 1671). And it has now put neutrinos high on physicists' official most wanted list. A report drafted last week by the Department of Energy's High-Energy Physics Advisory Panel (HEPAP) has recommended that DOE give high priority to an experiment that could make neutrino sightings almost routine.

The experiment, called NuMI for Neutrinos at the Main Injector, would send the most intense beam of high-energy neutrinos ever created from the Fermi National Accelerator Laboratory, outside Chicago, through the Earth to a 10,000-ton detector in a defunct iron mine 730 kilometers away in northern Minnesota. The detector should record thousands of neutrinos per year, which researchers could compare with separate measurements at Fermilab to see if the particles had "oscillated" from one type to another en route—evidence that they have mass.

Proposed by researchers from dozens of institutions in the United States and abroad, the arrangement should yield "the definitive experiments on neutrino oscillations based on accelerators," says Pieramaria Oddone, acting chair of HEPAP and deputy director of Lawrence Berkeley National Laboratory. He cautions, however, that the data wouldn't start flowing until the turn of the century, at best, and DOE budget constraints make funding for the $135 million project far from certain.



Trail's end for neutrinos. A successor to this detector in a Minnesota iron mine would watch for neutrinos generated at Fermilab.

The neutrino beam would owe its intensity to Fermilab's Main Injector—a synchrotron particle accelerator whose main purpose when it is completed in 1999 will be to inject intense proton beams into a higher energy accelerator. For NuMI, bursts of 120-billion-electron-volt protons siphoned from the Main Injector would smash into a graphite target; the pions and kaons in the debris would then decay down a long tunnel, on a beeline for the bottom of the iron mine 150 kilometers north of Duluth. The decays would produce mostly muons and one of the three neutrino types, muon neutrinos.

An absorber at the tunnel's end and the bedrock itself would stop everything but the ghostlike neutrinos, which would continue through the rock and, after a couple of hundred meters, encounter two detectors below the grounds at Fermilab. The first would check for the presence of tau neutrinos—an indication that the muon neutrinos had already oscillated—and the second would concentrate on muon-neutrino counts. "If [muon neutrinos] change that quickly, it tells you they have a large mass," says Regina Rameika, a Fermilab physicist and the NuMI project manager. Masses in that range would mean that neutrinos could make up some of the "dark matter" cosmologists think must permeate the universe.

Hundreds of kilometers farther in their travels, the neutrinos would pass the Minnesota detector, at the bottom of what was once the state's first iron mine. It would make the experiment sensitive to much slower oscillations, indicating smaller masses. Those oscillation rates, says Rameika, could explain another theoretical puzzle: a deficit in the number of muon neutrinos seen in the particle showers produced when cosmic rays hit Earth's atmosphere.

While endorsing the NuMI proposal, HEPAP accepted a subpanel's recommendation not to back a Brookhaven National Laboratory proposal for a less expensive oscillation experiment on a faster schedule, using lower energies and intensities. According to subpanel chair Frank Sciulli of Columbia University, the panel reasoned that money wouldn't be available in time for the Brookhaven experiment because of other ongoing projects. But the rivalry between the two proposals made the meeting "a bit contentious," says Fermilab Director John Peoples.

NuMI's success leaves Marvin Marshak of the University of Minnesota, a project collaborator, with an entirely different kind of problem: how to attract physicists to the chilly reaches of northern Minnesota. "We have a [Native American] gambling casino nearby," he says hopefully. "We have fishing."

–James Glanz