Segment of Boston's "Big Dig" next to old double-decker highway.

In Praise of Engineering

After an act of unspeakable evil—the attacks on the World Trade Center (WTC)—the point that Ken Mandel has been trying to make for 15 years is finally gaining some traction: Civil engineers are a force for good in the world.

This month U.S. public television stations are airing *The Building of America*, a four-part series by Mandel, an engineer turned filmmaker, and his colleague Daniel Polin (www.pbs.org/greatprojects). The documentaries cover a century of civil engineering feats, from the Hoover Dam and rural electrification to the current "Big Dig" highway project in downtown Boston.

On 10 September, PBS will air another Mandel-Polin production, *America Rebuilds*, which depicts the role of civil engineers in the massive cleanup at Ground Zero after the terrorist attacks on the WTC towers. The show draws on the filmmakers' blanket access to every aspect of the recovery effort, from the logistics of holding back the waters of New York Harbor to the psychology of crowd management. "I like engineering, but I thought that people didn't appreciate its human side," says Mandel.

The National Science Foundation contributed $356,000 in 1987 to get the ball rolling, but Mandel says it took more than a decade "of fundraising hell" before the filmmakers had the $4.7 million needed for the series, which was completed last fall. In contrast, the million-dollar WTC project proceeded at blinding speed, bolstered by $700,000 from the Sloan Foundation.

Engineers hope that the shows will help erase their image as nerds and bolster enrollments, but Sloan's Doron Weber says that "we'll be happy if people come away with a better view of technologies that they now take for granted—and the people who build them."

Last Word on El Dorado

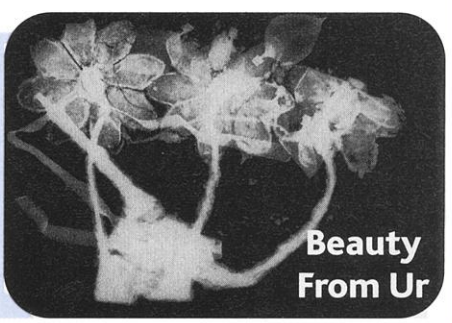
The American Anthropological Association (AAA) has completed an 18-month investigation into the conduct of famed anthropologist Napoleon Chagnon, clearing him of the most serious charges levied by journalist Patrick Tierney—but accepting enough of them that Tierney claims his argument is vindicated.

In November 2000 Tierney published *Darkness in El Dorado*, a 400-page indictment of the treatment of Venezuela's Yanomami Indians by Chagnon, a professor emeritus at the University of California, Santa Barbara, and the late James V. Neel, a prominent geneticist at the University of Michigan, Ann Arbor (*Science*, 19 January 2001, p. 416). The book's most alarming claim was that the two had performed unethical research on the Yanomami—and possibly spread a fatal epidemic of measles.

On 2 July, a five-member AAA task force released its report, which concludes that Chagnon and Neel actually saved Yanomami lives by prompt vaccination. But it says Neel failed to obtain proper consent for his blood-collection research. The report also criticizes Chagnon for using "highly suspect means to gain access to the Yanomami"—especially by cozying up to a group that was apparently seeking to set up a private fiefdom in mineral-rich Yanomami territory.

"The main charges of the book have been vindicated, however grudgingly," says Tierney, who views it overall as a "repudiation of Chagnon's lifework." Chagnon says that his information-gathering techniques were nothing unusual—rather, "I was honest enough to identify the characteristics of my informants." He dismisses the report as a "hostile" attack "by a bunch of politically correct anthropologists who use moral self-righteousness as a political tool."

Chagnon's most serious quarrel with the report is its presentation of an interview by panel member Janet Chernela with a Yanomamo who claimed to recall Chagnon offering tribe members cooking pots for killing people. Chagnon denies doing so and says the man would have been 10 years old at the time.



Beauty From Ur

Experts at the British Museum were recently x-raying 4500-year-old wax-covered crushed skulls in search of teeth to date when, to their surprise, the objects turned out not to be skulls. Excavated in the 1920s from a burial site at Ur in southern Iraq, they were actually two elaborate headdresses of gold, silver, and lapis lazuli, whose identity had been obscured by the blackened wax. Other headdresses of this type in the museum's collection have been heavily restored, so experts are excited about scrutinizing these nearly complete ones.

Wasps Like Us

Birds do it, but no one knew if wasps did it—recognize each other on sight, that is. Now a new study reveals that wasps might not be faceless ciphers to one another after all.

Theory holds that insects lack the brainpower to recognize individuals. But the wildly variable patterns of yellow and black blotches and stripes on the faces and abdomens of paper wasps (*Polistes fuscatus*) led behavioral ecologist Elizabeth Tibbetts of Cornell University to wonder if wasps use these marks to sort out their unique places in their pecking orders.

To test her notion, Tibbetts gathered worker and queen wasps from 23 nests. She then chose one wasp from each nest for a makeover. With a very small brush, Tibbetts painted half the wasps' faces with tiny black and yellow stripes. She did a "sham" paint job on the rest, painting over their natural patterns without altering them. After the wasps were returned to their nests, those with the altered markings were attacked more often than wasps whose paint jobs coincided with their original patterns, she relates in the 22 July issue of the *Proceedings of the Royal Society*.

The attacks stopped after about 2 hours, however, indicating that the wasps, which retained the chemical cues that they belonged in the nest, had regained their places in the hierarchy.

Animal behaviorist George Gamboa of Oakland University in Rochester, Michigan, says the results are "surprising because most of us who work with social insects assume that the communication in a colony is largely chemical."

CREDITS: (TOP TO BOTTOM) MTA; E. TIBBETTS; THE BRITISH MUSEUM