

Remembrance Service for Victims To Be Held on Campus Nov. 15

A service of remembrance to honor members of the Columbia community who were lost in the Sept. 11 terrorist attacks will take place at noon on Thursday, Nov. 15, in Roone Arledge Auditorium of Alfred Lerner Hall.

The campus community is invited to the service.

Columbia President George Rupp will offer a tribute to the 39 alumni victims of the attacks in New York and Washington, D.C. and Pennsylvania and the many relatives and friends of current students, faculty, staff and alumni who died. Clergy from United Campus Ministries will offer prayers and words of assurance and student leaders of religious organizations will give readings. University Chaplain Jewelnel Davis will preside at the service.

Imam Syed Zafaruddin Sayeed of the Muslim Student Association will open the service, followed by a drum invocation by Columbia Drum Jammers. The Columbia Gospel Choir and Jubilation!, a Christian acapella group, also will par-

ticipate.

Words of Assurance will be offered by Rabbi Charles Sheer, Jewish Chaplain of Columbia Hillel; Monsignor Christopher Maloney of the Catholic Campus Ministry and Imam Sayeed.

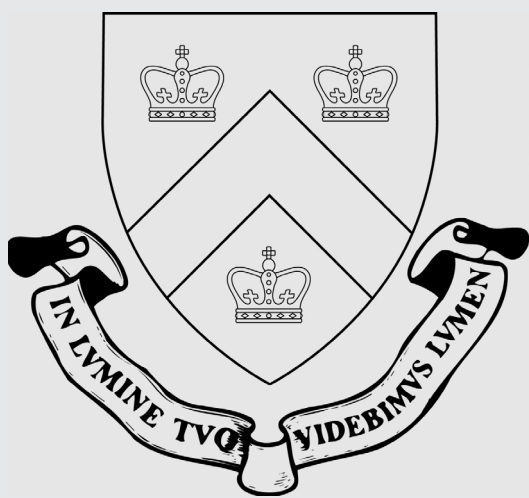
Readings will be given by Sridhar Prasad of the Hindu Student Organization; Supreet Kaur Anand of the Sikh Association of Columbia; Andra Belouz of the Baha'i Club; Elana Santo of Columbia Hillel, and Kevin Eng of the Intervarsity Christian Fellowship.

The Rev. Susan Field of the Baptist Campus Ministry and the Rev. T. Kenjitsu Nakagaki of the New York Buddhist Church will offer prayers and meditation.

Relatives of the victims are asked to contact Jennifer Brogan in the President's Office, 854-3811, to confirm their arrangements for their service.

For further information, please contact Suzanne Wong in the Office of the University Chaplain, 854-6345.

—Suzanne Trimel



Van Geen Wins NSF Grant for Arsenic Testing Device

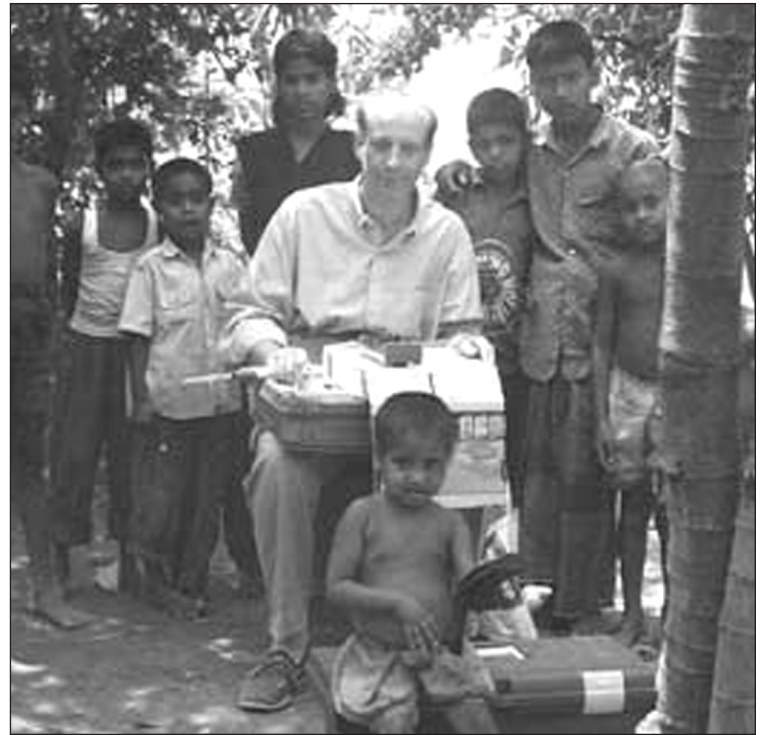
BY JENNIFER FREEMAN

An interdisciplinary team of Columbia scientists led by Doherty Senior Research Scientist Alexander van Geen has received a National Science Foundation grant worth approximately \$100,000 to further research on toxic levels of arsenic found in well water in Bangladesh. The grant was awarded by the NSF Biocomplexity in the Environment program, under the heading, Instrumentation Development for Environmental Activities (IDEA).

The grant will enable van Geen and his team to develop and test two portable instruments designed to measure arsenic levels and sediment structures in the field. At least 25 million people in Bangladesh are currently exposed to poisonous arsenic levels by drinking groundwater from millions of hand-operated tube wells. Ironically, tube wells in Bangladesh were initially dug with international development funding in an effort to lower infant mortality from microbially contaminated surface water.

The Columbia Earth Institute is at the center of a 5-year, \$11 million interdisciplinary initiative to understand and address the arsenic problem in Bangladesh and in the U.S. This initiative is funded by the U.S. Environmental Protection Agency's Superfund Basic Research program administered by the National Institute of Environmental Health Sciences, and by Columbia University and includes seven different research projects. The work of van Geen and his colleagues led to the realization that measurements of dissolved arsenic and of the sediment structure in existing wells could significantly contribute to ongoing remediation efforts.

Arsenic concentrations in the ground water in Bangladesh can vary greatly within very small spaces due to the way in which geological formations under the Ganges/Brahmaputra delta evolved. Van Geen hopes the new tools will improve understanding of how arsenic levels in ground



Lamont-Doherty Senior Research Scientist Lex van Geen, center, analyzing well water with the prototype of a new field-kit for arsenic—part of a 5-year epidemiological and earth science study of the arsenic crisis in Bangladesh.

water relate to sediment structure, and how these are linked with other potential variables, such as monsoon runoff and irrigation.

“As a complement to our current work in Bangladesh, we hope to develop and test two portable devices that measure key properties of the subsurface by taking advantage of the enormous array of existing tube wells. At the same time, we will begin to develop the statistical tools needed to interpret and integrate the complex data sets that can be generated with these instruments,” van Geen said.

The arsenic detection device is being developed in conjunction with Professor Pietro Perona, director of the California Institute of Technology's Center for Neuromorphic Systems Engineering, as part of the Center's outreach program.

“Along with our colleagues from Cal Tech, we intend to set the stage for a full-scale, 5-year, NSF Biocomplexity proposal for the spring of 2002 aimed at improving our fundamental understanding of the complex set of interactions,

including microbial and societal factors, that have resulted in a human tragedy of staggering dimension,” he added.

In addition to van Geen, other members of the award-winning Columbia team include: Associate Research Scientist Roelof Versteeg, Adjunct Associate Research Scientist Yan Zheng, and Adjunct Research Scientist Martin Stute of the Lamont-Doherty Earth Observatory as well as Professor of Statistics Andrew Gelman of Columbia University.

The Lamont-Doherty Earth Observatory is the leading research center in the world examining the planet from its core to its atmosphere, across every continent and every ocean. From global climate change to earthquakes, volcanoes, environmental hazards, and beyond, LDEO scientists continue to provide the basic knowledge of earth systems that must inform the difficult choices needed to maintain the health and habitability of our planet. For more information, visit www.earth.columbia.edu.

Columbia Co-Hosts Largest Ever Conference in Cyberspace Following WTC Tragedy

BY LAUREN MARSHALL

Columbia was recently one of 25 hosts of the largest ‘virtual’ conference ever to be held on the Internet, which linked more than 600 academics, technology experts and researchers from institutions nation-wide for four days to discuss Internet 2 and ongoing research on the capabilities of broadband Internet.

The conference was originally scheduled to take place in Austin, Texas, but fear of flying and post-World Trade Center attack travel restrictions forced the conference onto Internet 2 (I2), where the rapid network allows interactive, real-time videoconferencing.

As the only virtual conference host in New York City, interest among conference participants in the impact of the World Trade Center collapse prompted a discussion on the network and steps

taken toward recovery. Representatives from NYSERNet, an organization working to develop I2 for research and education of which Columbia is a founding member, Rockefeller University, New York University and Columbia informed colleagues nationwide of the status of the network and each institutions' efforts to respond to needs on campus and beyond.

Immediately following the World Trade Center attack on Sept. 11, the Internet became the lifeline for family and friends, who, fearing for the safety of loved-ones in Manhattan, reached for the phone only to hear a busy signal. For most, email was the only means of reliable communication and remained so for days.

“If the Network had gone down, it would have been catastrophic,” said Doug Carlson of NYU. “We needed the Internet to keep not only students and faculty, but people

off campus informed.”

For NYU and Columbia, the Internet became the source for updated information on the status of the University and the ongoing responses by schools and volunteer groups to World Trade Center events. The network was also tapped as an alternative to telephone service through a technology known as Internet Protocol telephony, which is currently being developed.

Within hours of the attack, network technologists set up two I2 phones in Lerner and six others in the Fu Foundation School of Engineering and Applied Science allowing students to call home. Email at Columbia increased by 40 percent and Columbia's Academic Information Systems (AcIS) deployed additional servers to accommodate the spike in use. Columbia's network technologists also responded and are still responding to the barrage of

Internet-borne viruses, which have increased significantly since the attack.

But some institutions and households lost their connection to the Network entirely. To assist the New York Academy of Medicine, a neighboring institution two miles from Columbia, technologists from AcIS set up wireless networking from a tall Columbia building to extend Internet connectivity keep the Academy online.

The service gave them a faster connection than what they had before. NYSERnet and Rockefeller University worked together to extend Internet service to Mount Sinai School of Medicine. And for the thousands of homes on Long Island that lost Internet service, NYSERnet worked with Internet service providers to extend bandwidth dedicated for Internet 2 to the ‘commodity’ Internet, used for every-day household and business

Internet use, allowing them to restore service.

“The Internet protocol suite was initially developed by computer scientists funded by the Defense Advanced Research Projects Agency (DARPA). One of the goals of the DARPA Internet was to build a highly robust, flexible, survivable network,” said Alan Crosswell, director of network and computing services. “This event is one more example of the success of the Internet meeting that goal.”

Columbia is one of over 180 Internet 2 member institutions working in partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet. Internet 2 is recreating the partnership among academia, industry and government that fostered today's Internet in its infancy.