Critical follow-up. At CUIP, the hardware installation is just the beginning. Paid and volunteer technical help from the university and the school system is now preparing teachers to make the most of the technology. Among the most remarkable of the volunteer programs is Science Partners, founded 2 years ago by a duo of astrophysics graduate students, Lucia Muñoz-Franco and Luisa Rebull. Since then, with varying degrees of success, the program has paired off dozens of teachers with researchers at the university for 8- to 10-week stints of communicating via e-mail, discussing the use of Web resources for the curriculum, and even arranging classroom demonstrations by the researchers, many of whom want to learn how to become better teachers themselves. "Getting the hardware into the schools is difficult, but it might be the easiest part," says Rebull. "If people aren't trained, the equipment is not going to be used."

Laurie Mann, who teaches sixth-grade science at the Louis Wirth Experimental School, agrees. "I had never used the Internet before it was brought into the school," she says. Her partnership with Zoa Conner, a postdoc at the university, "made me aware of [the Internet] as a tool in teaching and a tool of communication among educated people," says Mann. "That's something I just wasn't privy to before." The partners are using Web resources to help teach the students about scales of measurement, from centimeters and inches to astronomical units like light-years. But, says Mann, although her course has become more current, there are still some barriers to overcome: She says she is disappointed that the students have shown little interest in surfing for information themselves.

At the Ray school, computer coordinator Yvonne Whittier tries to encourage just that kind of exploration during the students' once-weekly visit to the computer lab. "You should be able to go to Yahoo [a search engine] and find something," she tells Widelyne Rosier, whose project for the science fair involves acids and bases. Some already have the hang of it. "I'm doing this project because of my little brother," says George-Marie Garber. "Every time he drinks orange juice he gets hyper." The reason, she theorizes while scrolling through sites with information on orange juice, might be that he is drinking a brand with a lot of sugar.

Even the computer-savvy Whittier calls the university's follow-up programs "invaluable" when technical glitches come up and when teachers have questions about specific academic topics. When Ray teacher Mary Cobb's sixth-grade class was studying Mesopotamia, for instance, they downloaded images and text about rare artifacts at the university's Oriental Institute, before arranging a physical tour. "They were excited that they knew about and then saw the actual artifacts," says Cobb.

Virtual contact with the university will increase still further if a new project comes to fruition: an easily searchable, trillion-byte library that should overcome some of the chaos of the Web by including only materials targeted to kindergarten through 12th-grade students. Meant, in part, to bypass the severe shortcomings of inner-city libraries, the Digital Library has attracted widespread interest in the university's libraries and computer science department, says Jay Mulberry, a Chicago Public Schools principal attached to the project. CUIP has also caught the attention of virtual educators elsewhere. The CUIP schools will, for example, serve as a long-term testing ground for STScI's "Amazing Space" package for teaching science over the Web using images from the Space Telescope.

MATTHEW GILSON

Hands-on. Students at William H. Ray Elementary School use the Web for science fair projects.

Whether all of this activity will lead to higher educational performance, no one is quite sure yet, because those assessments haven't yet been done. But Bennett Brown has at least anecdotal evidence that his efforts created some sparks among his students. He sometimes runs into former students of his who are attending the University of Iowa, where he is now a graduate student. "When I'm meeting their friends," he says, "they'll usually introduce me as someone whose class they really enjoyed."

–James Glanz

PUBLIC HEALTH

Yale Virus Collection Needs a Home

It is the end of an era or a going-out-of-business sale—perhaps both. Since 1964, Yale University's School of Public Health has been home to one of the great reference collections of insect-borne viruses—nearly 600 distinct viruses and thousands of freeze-dried strains, not to mention antigens, sera, and reagents. The Yale Arbovirus Unit (YARU) collection was split in 1994, when two senior staffers left for the University of Texas Medical Branch at Galveston and took a duplicate set of samples with them. Now U.S. Army funding for the original collection has ended, all the university's arbovirus experts have left, and Yale is looking for any takers for the collection.

"Many in the field are very concerned," says James Meegan, a virologist at the National Institute of Allergy and Infectious Diseases. "It's an especially valuable collection, as we're facing the emergence of new viral diseases. It should be in the hands of someone who is going to take care of it actively, use it, and train people on it." Meegan and others think that the benefits of having complementary centers of arbovirus research justify the $150,000 cost of maintaining the collection.

The Yale collection dates back to the late 1920s, when the Rockefeller Foundation in New York began its international studies of yellow fever. In 1964, the Rockefeller arbovirologists moved to Yale with their samples and became YARU, with an endowment from Rockefeller and funding from the National Institutes of Health and the Army. Over the next 30 years, the collection continued to grow. "YARU had a truly remarkable history of diagnosing outbreaks," says Meegan, as well as providing expertise when epidemics struck throughout the world.

By the early 1990s, however, the climate for arbovirus research had chilled as researchers paid more attention to problems such as unraveling the AIDS epidemic. Government funding grew scarce and fewer young researchers were entering the field, says former Yale virologist Mark Wilson, who is now at the University of Michigan, Ann Arbor. After virologists Bob Shope and Bob Tesch left for Galveston 3 years ago, the remaining YARU arbovirologists emigrated to other institutions, citing factors including a lack of internal support for the program. "Everything disappeared from Yale very quickly," says Meegan. "They really lost quite a research group." Michael Merson, dean of Yale's School of Public Health, acknowledges that Yale is now giving priority to hiring experts on non–insect-borne viral diseases such as influenza or AIDS.

For the collection itself, the end came in October. Funding for the single technician responsible for the collection ran out after she concluded an 18-month effort to catalog the samples.

Virologists hope that Yale's collection will become the core of a new arbovirus research program elsewhere. "It would be tremendous to have two universities, each with equivalent collections," says Bruce Ennis of the Walter Reed Army Institute of Research. "It doubles the odds that one of the two programs is going to sustain itself." So far, however, Yale has found no takers.

–Gary Taubes