



*It took six weeks of bulldozing to de-clam California's Delta-Mendota Canal.*

## The case of the Chinese clams: What to do?

They were first spotted in Oregon in 1938, after having gone undetected for possibly as much as half a century. Two years later they were found in San Francisco. Slowly they began moving eastward—it was 1956 before they were reported in Colorado—but then picked up speed. The following year they showed up in Ohio and moved down the Mississippi to Louisiana by 1962, thence spreading east to Florida by 1965, westward to Texas by 1968 and up the East Coast to Georgia by 1971.

Now they're up to the Delaware River, between Philadelphia and Trenton. *Corbicula manilensis* is here to stay.

*C. manilensis* is the Chinese clam, or perhaps more properly the oriental clam, since it exists throughout Asia and, in fact, was first found in the Philippines. Its foothold in the United States, however, is, to put it mildly, secure.

"It doesn't seem to have any natural enemies in this country," says Samuel L. H. Fuller, an invertebrate zoologist at the Academy of Natural Sciences of Philadelphia, who also found the creature last year in the Pee Dee River in South Carolina. Thus it is capable of getting a firm foothold in areas where the native species that must compete with it are developing more slowly.

In 1952, communities of the clams were found living on the bottom of California's Delta-Mendota Canal, which had been open little more than a year. They seemed to pose little if any reason for concern until the canal was partially drained in 1969. Engineers found the prolific creatures lining the canal in layers three feet thick, with as many as 5,000 clams nestled into a single cubic foot. It took a month and a half of shoving with bulldozers to clear out the 50,000 cubic yards of



U.S. Bureau of Reclamation

*Chinese clams: Tiny but unstoppable.*

clams that had infested the canal bottom.

Nonetheless, both Fuller and R. Tucker Abbott, a conchologist with the Delaware Museum of Natural History, agree that more study is needed before the clam is branded a major ecological hazard. Even then, Abbott believes, preventive or even curative approaches are unlikely to have much effect. "There's no sense in spending a nickel trying to prevent it from spreading," he says. "I don't think it can be stopped. It's like trying to bail out Boston Harbor with a teacup."

How the clams have spread across the country is unknown. Fishermen using them as bait may help inadvertently by dumping buckets of excess clams in previously unexposed rivers. Bottom material dumped from one river into another by construction engineers could be another factor, as could shell collectors or scientists disposing of excess samples.

An important experiment that ought to be done in the near future, Abbott maintains, would be to feed the clams to ducks to see if they come out alive in the ducks' feces. The shells may well be sufficient to protect *Corbicula* from digestive juices and high temperatures, he says, and the ducks would then suggest an efficient potential long-dis-

tance transportation system.

The clams still have places to go. New York and at least parts of New England are apparently not too far north, since the creatures are known in Oregon's Columbia River, and Abbott foresees them as far south as Panama.

Fortunately, they're at least edible. In Florida on a shell-collecting trip last month, Abbott says, "I made a great New England clam chowder. But they needed a little salt." □

## Psychologists and the Administration

Not everyone in Washington is totally preoccupied with Watergate. The Eastern Psychological Association met in Washington last week and a major topic of conversation was the Administration's handling of mental health priorities. The recent and continuing evaporation of training and research funds has hit psychologists especially hard. Many, on their way to the job placement center, were heard bemoaning their personal plight. But some were able to view the situation in a more philosophical light.

Neal Miller of Rockefeller University, for instance, discussed the values of basic research. In the fight against polio, he explained, some people wanted to put all the available money into iron lungs, crutches and wheelchairs. The battle was finally won, however, by fitting together bits and pieces of basic research from a variety of fields. Science is like a jigsaw puzzle, said Miller, and the current trend toward targeted research will not work. Hitler tried to work this way, said Miller, and managed to drive all the intellectuals out of Germany or he might have had the atomic bomb. "Brains are one of our greatest natural resources," said Miller, "if we fail to develop them by funding research we will go into decline."

Further evidence of the Administration's deemphasis on mental health came during the psychologists' meeting. Health, Education and Welfare Secretary Caspar W. Weinberger announced a major reorganization of the nation's health agencies. The Health Services and Mental Health Administration is to be split into three separate agencies—the new Health Resources Administration, the Health Services Administration and the Center for Disease Control. The National Institute of Mental Health, in what is regarded as a downgrading, is to be transferred to the National Institutes of Health and will lose the independent status it has held within HSMHA.

The restructuring is expected to cut 7,000 jobs from the Federal payroll. Weinberger says it will increase the

efficiency and effectiveness of HEW. Harold O. Buzzell of the Department of Labor was named by Weinberger to implement the reorganization and then take over as director of the Health Services Administration. He will be the first Federal official in charge of health services who is not a physician.

What does all this mean to psychologists? George Albee of the University of Vermont and past president of the American Psychological Association foresees more and more psychologists turning to private practice. The possible inclusion of psychotherapy in any national health insurance program and the limited number of openings for psychologists in academia will also force psychologists into private practice. This will be unfortunate, says Albee, because the expense of private practice usually limits it to middle- and upper-class patients. Albee further predicts this trend will turn the APA into another American Medical Association, a protective rather than a scientific organization. □

## Readying Rio Blanco

*Technicians of Lawrence Livermore Laboratory lower the first of three 30-kiloton nuclear explosives into the ground at Project Rio Blanco near Meeker, Colo. The AEC-sponsored project is scheduled to set off the devices one mile underground on May 17 to free trapped natural gas in the Piceance basin. Eleven conservation groups this week petitioned President Nixon to halt the project, contending it could endanger groundwater that eventually flows into the Colorado River, which provides drinking water for 27 million people.*

ESN



## C-141 jet will carry 36-inch telescope

The crash of the research aircraft Galileo last month (SN: 4/21/73, p. 256) left a gaping hole in the airborne science research program at NASA's Ames Research Center. Coming when it did, the crash took some of the shine off the arrival of its partner in research—a C-141—that arrived at Ames last month for its finishing touches prior to flight missions in the fall.

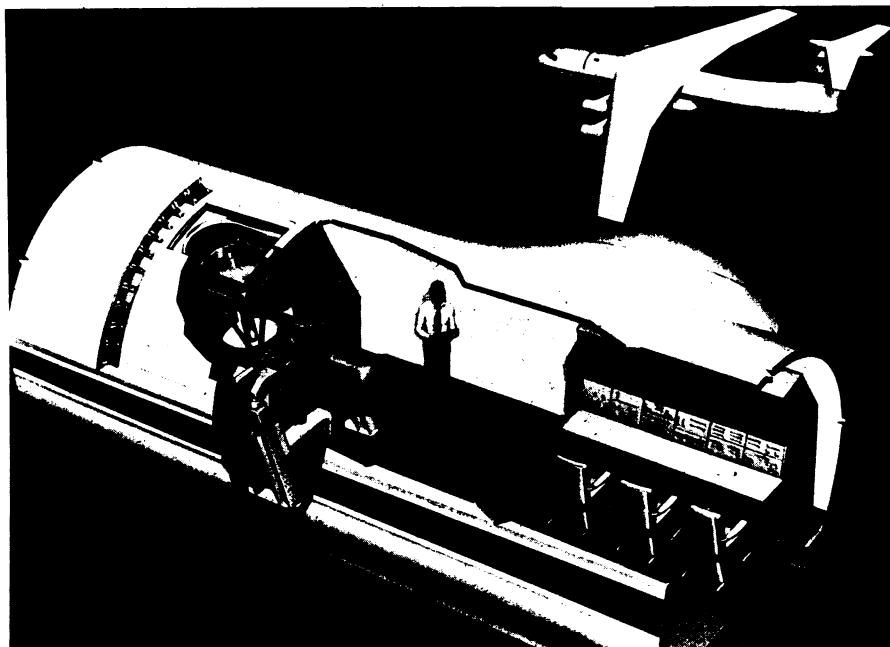
The C-141, a Lockheed Model 200 Starlifter, has been modified extensively and equipped with a 36-inch telescope

for infrared astronomy. The aircraft can cruise for seven hours at altitudes around 45,000 feet carrying heavy instruments, scientists and crew. Such astronomy flights would provide at least three hours observational time. At those altitudes, the telescope is above 85 percent of the earth's atmosphere and more than 99 percent of the water vapor, which is the major attenuator of infrared emissions from stars and galaxies.

The Galileo (see related story p. 309), the C-141 and a modified Lear Jet that has been in use for several years were the core of the airborne science program. Each aircraft was to be used in a complementary, but slightly

different, mode. The Galileo was flown primarily for earth resources research, the Lear Jet for astronomy but with a smaller telescope (12 inches), and the C-141 was to be primarily for astronomy. During its first year of operation, for example, the C-141 would be able to fly about 60 astronomy missions. The Lear Jet and the C-141 are the only aircraft for infrared astronomy.

With the C-141 now almost ready for use, NASA is trying to replace the Galileo. The agency has asked the Department of Defense for a C-135B aircraft, but no one is ready to speculate yet just when or how the Galileo will be replaced. □



NASA

*The C-141, with its telescope, will concentrate on infrared sources in space.*

## Light flashes no danger for short space flights

The light flashes and streaks seen by astronauts have long been attributed to high-energy, heavy cosmic particles (HZE) passing through the eyes (SN: 5/30/70, p. 523). The phenomenon was first reported during Apollo 11.

Three years of space flight and ground-based research into the biological effects of these heavy particles is assessed in a new report released by the National Research Council's Space Science Board. The report concludes that the particles are not a serious hazard for short trips to the moon or earth-orbital missions such as Skylab. The astronauts would have to spend about two years in flight outside the earth's magnetosphere or in a high-inclination earth orbit before the radiation would be dangerous. The report recommends that at least one particle accelerator be modified for heavy-ion experiments. □