

Farming the queen conch

Tasty West Indian chowders, seviches and fritters all use conch, and vacationers collect the coiled, pink-lipped shells. Natural populations of the prized mollusk are being depleted from the clear waters of tropical seas. But at the University of Miami scientists have taken two steps forward in developing methods to raise large numbers of conchs.

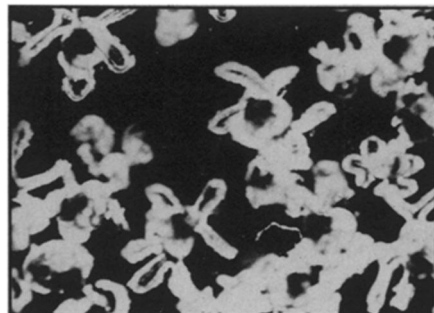
In the first mass rearing of queen conchs under controlled conditions, Scott E. Sid-

dall produced several hundred young conchs from fertile egg strands gathered during the summer spawning season in the Bahamas. When the eggs hatched, Siddall placed the larvae in tanks at constant temperature and salinity, while testing for optimal population densities and the best algae for conch feeding. By the end of the summer, hundreds of conchs had developed coiled shells and had dropped to the bottoms of the tanks to forage for food adult style.

Other experiments indicated that screened pens in shallow ocean waters could protect young conchs from predators. Edwin Iversen and assistants found that almost four times as many small conchs survive inside the pens compared with outside. Thus it may be feasible to grow juvenile conchs to market size in enclosures, perhaps after earlier development in artificial hatcheries. □



Photos: Scott Siddall



Scanning electron micrograph (left) shows juvenile conch, 4 millimeters long. In a larval stage (above), the mollusk uses lobes for swimming and food gathering.

The alcoholic's shrinking brain

Alcohol has profound effects on the mind, as any resident of a local bar stool can tell you. And those effects may not be temporary. Recent findings suggest there are density changes in the brains of young chronic alcoholics. Charles J. Golden and colleagues of the University of Nebraska Medical Center report in the Jan. 30 SCIENCE that computerized tomography (CT) scans of 11 chronic alcoholics averaging just over 29 years of age reveal reductions in density in their left hemispheres. No such reductions were found in their right hemispheres. These deficits reduced or eliminated the normal left hemisphere advantage in density seen in a control group matched for age and education. Three CT scans were examined for each subject. The scan levels were carefully chosen for maximum evaluation of higher brain areas. A printout was obtained for each scan, and the contour of the skull was identified using density numbers generated by the CT procedure. The numbers were then compared at the three predetermined levels, and the alcoholics' left hemispheres were found to be significantly less dense than those of the controls on two out of the three levels. The

differences between the alcoholics' right and left hemispheres were also significantly less than for the controls at the same two levels.

The results suggest that the left hemisphere is more sensitive physiologically than the right to the effect of alcoholism, and significant brain changes can occur at a fairly early age among alcoholics. The researchers acknowledge that traditional theories have assumed that the right, non-verbal hemisphere is more involved in alcoholism. They say, however, that left hemisphere damage from a slowly developing disorder like alcoholism may affect visual functions rather than the more resistant basic verbal functions. The right hemisphere may also be unable to take over these functions because of alcohol's long-term presence. Larger studies are needed to evaluate CT scan findings and discover more precise areas of reduced brain density, and the investigators caution psychiatrists and psychologists not to assume that alcoholics can be compared with brain-damaged patients in general. Density analysis, the researchers add, will prove to be a valuable tool in studying alcoholics. □

N.Y. blames U.S. in toxic waste dumping

The New York State Assembly has thrown a monkey wrench into Justice Department suits seeking cleanup costs from Hooker Chemical Co. and related parties for their contamination of four Niagara Falls sites, including one known as Love Canal. Interim findings of a task force commissioned by the assembly 18 months ago reported last week having unearthed documentary evidence implicating the Defense Department and its World War II contractors with extensive contamination of several western New York regions, including Love Canal.

For the state, this means there might be a way to recover at least part of the \$40.5 million that New York has already paid out for costs associated with the cleanup of the Love Canal site alone.

"A lot of this [contamination] happened in the context of a war, and it wasn't a war that New York State by itself was fighting against the Germans," Gordon M. Boyd explained to SCIENCE NEWS. Boyd, one of the report's principal authors, added that "if the contamination was a result of a national effort, there should be a national effort to remediate. So our position is that it should come at no cost to the state."

Boyd's panel found:

- Eyewitness evidence establishing "conclusively that Army personnel openly, concertedly and repeatedly disposed of drummed materials at Love Canal" in the 1940s and early 1950s. "[S]ubstantial quantities of chemical and hazardous wastes... were also disposed of at Love Canal, ostensibly by private civilian contractors" to the U.S. government.

- Declassified documents describing how Linde Air Products, a Manhattan Project contractor, disposed of more than 37 million gallons of radioactively contaminated liquid chemical wastes between 1944 and 1946 into shallow underground wells. Records show it occurred "with the explicit approval and knowledge of Army officials," and that the disposal method "was selected precisely because the source of underground contamination could not readily be traced to Linde or the Army."

- Evidence that radioactive materials buried and stored at the Lake Ontario Ordnance Works (LOOW) — eight miles north of Love Canal — have been migrating off the site through the air and through the surface-drainage system for 30 years, and
- Records that wartime TNT-production wastes were never removed from LOOW, nor were subsequent private owners warned of the wastes. One now operates a chemical-wastes facility there.

Besides turning up two previously unknown and potentially dangerous waste sites in New York, the report identified nine other "heavily contaminated" former ordnance sites around the country. □