

Aviation improvement is objective of researcher

Work on an anti-stall device for general aviation aircraft is in progress at Texas A&M University. Research directed by Howard Chevalier, Texas A&M aerospace engineering professor, will soon move to wind tunnel testing of a full-scale aircraft equipped with a stall prevention system. Tests will be conducted at Langley Research Center facilities in Virginia. The studies will involve major aerospace engineering majors like Faulkner of Bryan and Bruce Baker of La Feria. Chevalier and students ran similar tests in the Langley tunnel last summer. Full-scale flight tests are planned next fall. They are expected to produce a stall prevention system applicable to general purpose airplanes for the National Aeronautics and Space Administration. NASA funds the research. Stall and aircraft spins that frequently occur after a stall are the most single cause of aviation death and injuries. Stall occurs when a plane goes into a high angle of attack attitude and loses airspeed. Airflow separates from the top of the wing, causing a loss of lift. Chevalier has worked on a stall prevention device since he joined the Texas A&M faculty in 1969. His early efforts were unfunded but were backed by the Federal Aviation Administration. The system consists of a vane or spoiler attached to a plane's control surfaces. An altitude sensing device

activates a servomotor to deploy the vane or spoiler, preventing stall. The system has been test flown on single and twin-engine aircraft and demonstrated in flights at several national aerospace engineering conferences. "NASA wants a more up-to-date system, in a small black box of three by six inches, for installation near appropriate control surfaces," Chevalier said. "We hope we will also get the aerodynamics of the plane at high angles of attack to see what effect the system has," he said. "At that point, we will have a stall-proof plane and want to know what its aerodynamics are, now that they are in a range non-predictable according to theory." From those numbers, Chevalier added, it should be possible to work backwards and "see what the geometry of a stall-proof plane is. That's my goal, to achieve a stall-proof general aviation plane by its geometric configuration, rather than by add-ons." He said that such geometry would radically alter the appearance of aircraft. Major changes would appear in wing and tail design, said the former NASA research engineer. "Having a stall-proof general aviation airplane would increase its utilization by allowing a pilot more freedom," Chevalier said. "About one in five persons go past their first flying lesson," Chevalier said. "Approximately one in 10 continue past a private license. For some, the reason is money. But we don't know how much is stress. If we

Runaway hippo holding out

United Press International

IRVINE, Calif. — Bubbles was alive and well Tuesday and still eluding Lion Country Safari rangers who are confident they can return her safely to her 800-pound daughter at the wild animal park.

Rangers tried to fire tranquilizing darts into the two-ton hippo

popotamus during the night but were unsuccessful. Bubbles, who escaped from captivity Feb. 19, remained submerged in a lake.

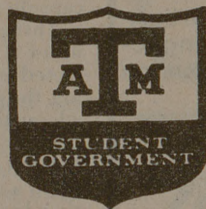
"Bubbles is alive and well," said park spokesman Jo Schetter shortly after dawn.

Pickets protesting reports Bubbles might be killed had created crowd control problems

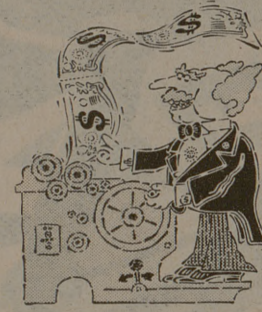
which Mrs. Schetter said actually endangered the hippo's life. "The rangers are going to have to shoot to kill if she endangers humans," she said. "The best thing they can do for Bubbles is to stay away from the area. We can bring her home if given time and no interference from outsiders. We have the trained manpower to bring that hippo in alive."

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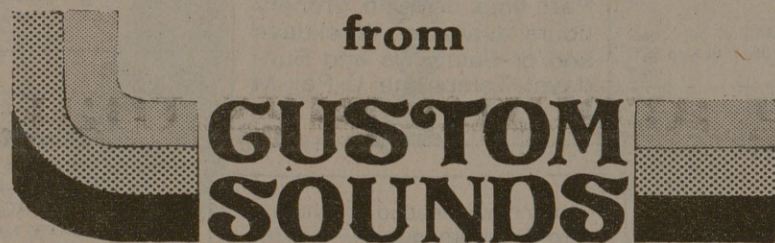
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Sea fights pollution by filtering process

A race is taking place on the seafloor of the world, and a team of oceanographers from Texas A&M University is on hand to see who is ready. Sailing off the coast of Africa to the mouth of the Mississippi, a research ship from the Texas A&M oceanography department has begun its first year of study. The study is a result of a \$77,400 grant from the National Science Foundation. Team leaders Dr. John Johnson and Norman Guinasso Jr. were the prime movers in getting the work funded next year. "We are trying to develop a long-range understanding of how the ocean regulates its composition," said Dr. David Schink, another team leader. "As we damage the ocean with pollutants, the sea fights back removing these materials through natural filtering processes. We measure how this is done. Essentially, we want to find out how badly man can treat the ocean without causing irreparable damage. There is a constant interplay of forces between this interaction on the seafloor." "What it comes down to is actually the balance between what goes in and what goes out," Schink said. "We measure that rate." The race is studied by actually sampling around the world gathering samples from the sea floor. Most of the sampling is done off the 174-foot Y Gyre, the University's primary research vessel. Samples have al-

ready been taken off the coasts of Africa and South America, the East Coast of the United States, and in the Caribbean. Next year the Texas A&M team plans to examine the floor of the Pacific. "The sea floor is under constant change," said Schink. "Mud, bacteria and a variety of marine organisms play an important part in mixing, filtering and turning over the ocean floor. The sea bed acts as a filter. We are interested in the rate these organisms in the mud stir the sea floor." "The atomic age and nuclear testing has provided the Texas A&M researchers a means for measuring the sea floor's mixing or filtering rate," said Schink. "By bomb testing, man has spread a small trace of plutonium across the land and oceans," said Schink. "Using radioactive sensing equipment, we can measure the amount of plutonium on the ocean floor. Mud accumulates very slowly. If there were not mixing, the plutonium would lie just on the surface of the ocean bed. By looking at the plutonium below the surface, we have a way to measure the rate of stirring. In 25 years, the traces of plutonium have been sifted some 10 centimeters into the ocean floor. The actual rate and depth varies around the world, but one of the higher ratings we have found is around the mouth of the Mississippi River."

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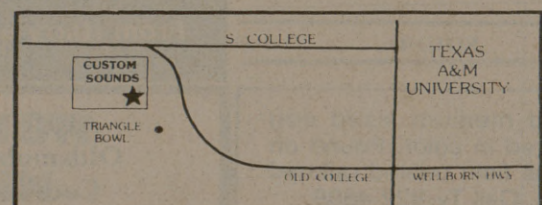
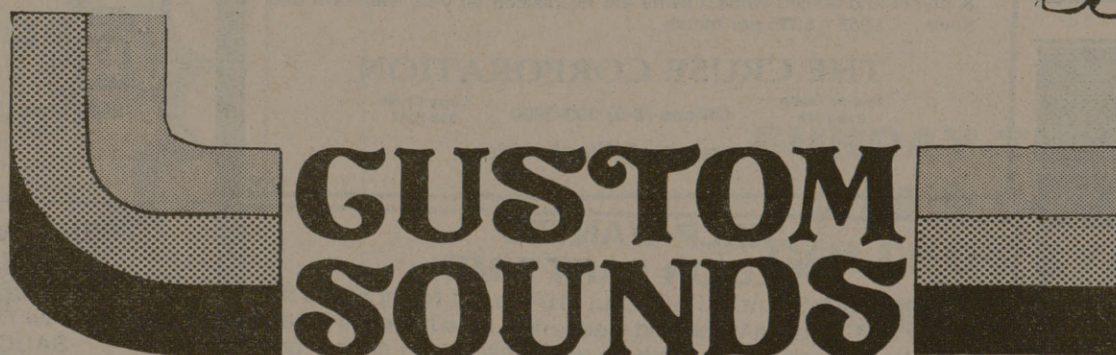


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