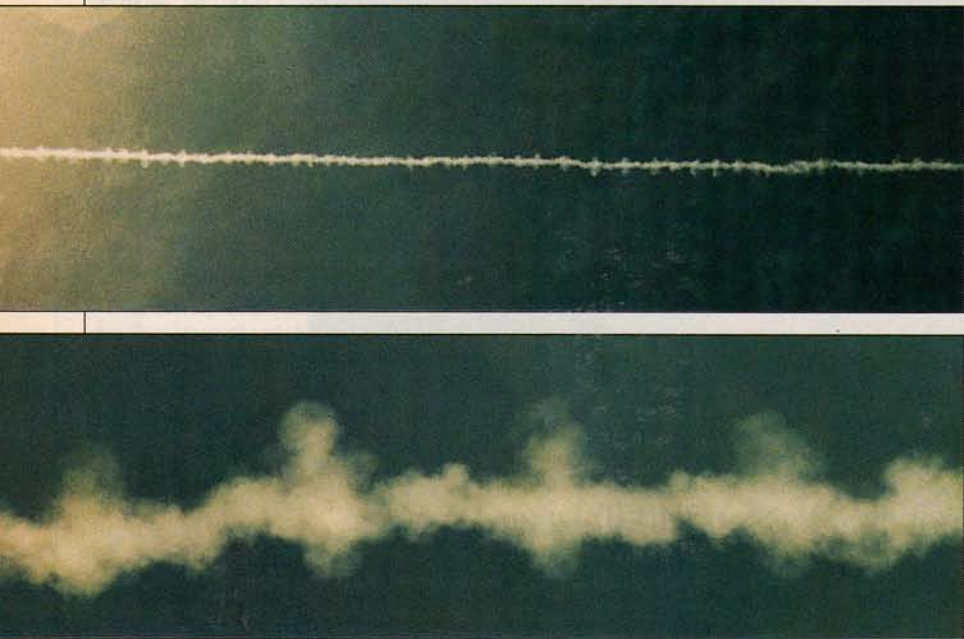
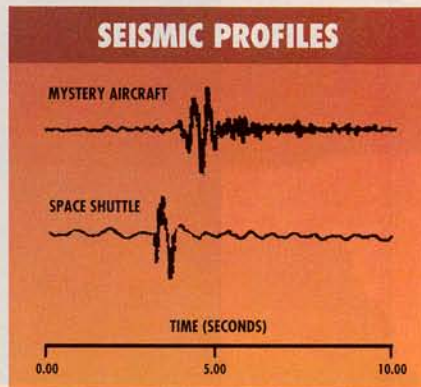


Science Newsfront

Edited by DAWN STOVER



AVIATION WEEK & SPACE TECHNOLOGY/STEVEN A. DOUGLASS, U.S. GEOLOGICAL SURVEY



These photos (left) of the unique, pulsing exhaust contrail of an aircraft flying at high altitude over Amarillo, Texas, were taken on March 23. The plane passed out of sight before the photographer could locate it. U.S. Geological Survey seismic profiles (above) show the space shuttle's distinctive N-shaped sonic-boom waveform and the mystery plane's more complex signature.

What hypersonic airplane?

Something very strange is flying around at terrific speeds. Although no one has managed to photograph the craft itself, its radar image, unique exhaust contrail, engine sound, and sonic boom have all been characterized in multiple reports by observers in the Western United States and Great Britain. Yet questions directed to the prime suspect in mystery-plane cases—the U.S. Air Force—yield only denials of any knowledge.

The aircraft betraying its shadowy presence may be a high-altitude hypersonic spy plane code-named "Aurora" that's presumed to have replaced the retired SR-71 Blackbird ["Revealed! Mach 5 Spy Plane," Nov. '88]. On five occasions since June 1991, the U.S. Geological Survey's extensive network of earthquake-monitoring seismographs in Southern California has recorded window-rattling sonic booms produced by an airplane traveling northeast at several times the speed of sound.

The booms have all occurred on Thursdays at about 7 a.m., says U.S. Geological Survey seismologist James J. Mori at the California Institute of Technology in Pasadena. "We call them airquakes," he says. "This mystery plane has a distinctly different sonic-boom waveform than other large, supersonic aircraft like the

space shuttle and the SR-71. We track it because people have been calling us wanting to know if there's been an earthquake."

Many observers in several states have reported hearing very loud, deep rumbling and pulsating sounds coming from an aircraft moving at high speed. An aircraft emitting these sounds was spotted this past February taking off at night from Beale Air Force Base near Sacramento, Calif. Its propulsion system may be a pulse detonation wave engine—a known type that develops thrust in intermittent bursts, rather than continuously—according to reports in the trade journal *Aviation Week & Space Technology*.

Bill Sweetman, an expert on classified "black" military programs, suggests in *Jane's Defense Weekly* that the aircraft may be capable of reaching Mach 6 (4,000 mph) burning liquid methane or hydrogen fuel. He believes the plane is returning from hypersonic (greater than Mach 5) flights over the Pacific Ocean and decelerating over the Los Angeles area as it heads northeast for a landing at the highly classified flight test base at Groom Lake, Nev.

Sweetman reports that a Royal Air Force air traffic controller tracked an aircraft leaving the remote NATO-RAF base at Machrihanish in western Scotland last November at a speed of Mach 3. No acknowledged aircraft

capable of such speed is based there.

Call it Aurora, the mystery plane, or whatever. The ultrafast, groundshaking high-flyer may be one of the latest in the long line of exotic aircraft that have resulted from Lockheed Corp.'s fabled Skunk Works. Financial analysts note that the company's budget and work force can only be fully accounted for by one or more substantial black programs secretly funded by the Pentagon—and perhaps the intelligence services.—*Stuart F. Brown*

Gloves for astronauts

Nobody likes cold hands, says Peter E. Glaser—least of all, astronauts in the frigid vacuum of space. "Working in the pressurized space suits is hard," explains Glaser, vice president of space operations at Arthur D. Little Inc. of Cambridge, Mass. During rest periods, astronauts' hands get cold because their gloves can't be made too bulky. "Too much insulation hinders finger movement," says Glaser.

Now researchers at Arthur D. Little, working under the President's Space Exploration Initiative, have a potential solution: gloves that can store heat when hands are warm and release it when the temperature drops.

The key is packets of a gallium alloy inside the glove. The packets are located atop the hand; a fluid pumped over them distributes heat evenly. "The al-