

related] dementia is a by-product, and the brain is an innocent bystander." The absence of cell death directly due to viruses may mean that the dementia could be reversed, he says.

This premise is supported by results from a recently reported study, in which a small number of AIDS patients treated with the drug zidovudine (formerly known as AZT) showed improvement of dementia. That success, suggests Gurney, may have been due to reduced competition: "If you control the infection, you reduce the gp 120 and the neuroleukin can start acting again."

But Gurney says there are many questions without answers. The current results come from experiments in embryonic, rather than adult, nerve tissue. Neuroleukin's exact role in the adult brain remains unclear. That discrepancy, he says, creates a "weak part in generalizing our results to dementia in adult AIDS patients." He and his co-workers are planning to inject gp 120 into the brains of adult laboratory animals, and watch for signs of dementia. Another question the researchers say must be answered is whether gp 120 also interferes with the immune-system functions of neuroleukin.

— D.D. Edwards

Hybrid particle mimics AIDS virus

By exploiting peripatetic pieces of yeast's genetic material called retrotransposons, British scientists are hoping to hasten the development of effective AIDS vaccines. "Transposable elements"—DNA segments that readily move from one location on a chromosome to another—were first discovered in maize more than 30 years ago, and later in fruit flies and bacteria. When researchers found several years ago that these restless chunks of DNA can transfer traits like antibiotic resistance between bacteria, they began using them as carriers of foreign DNA in genetic experiments (SN: 10/23/82, p.260).

Scientists at the Oxford-based British Bio-technology Ltd., the University of Oxford and the University of Kent in Canterbury used similar technology in their experiments with yeast retrotransposons, reported in the Sept. 3 NATURE. The retrotransposons code for a group of yeast proteins that assemble themselves into harmless "virus-like particles"—which the researchers have

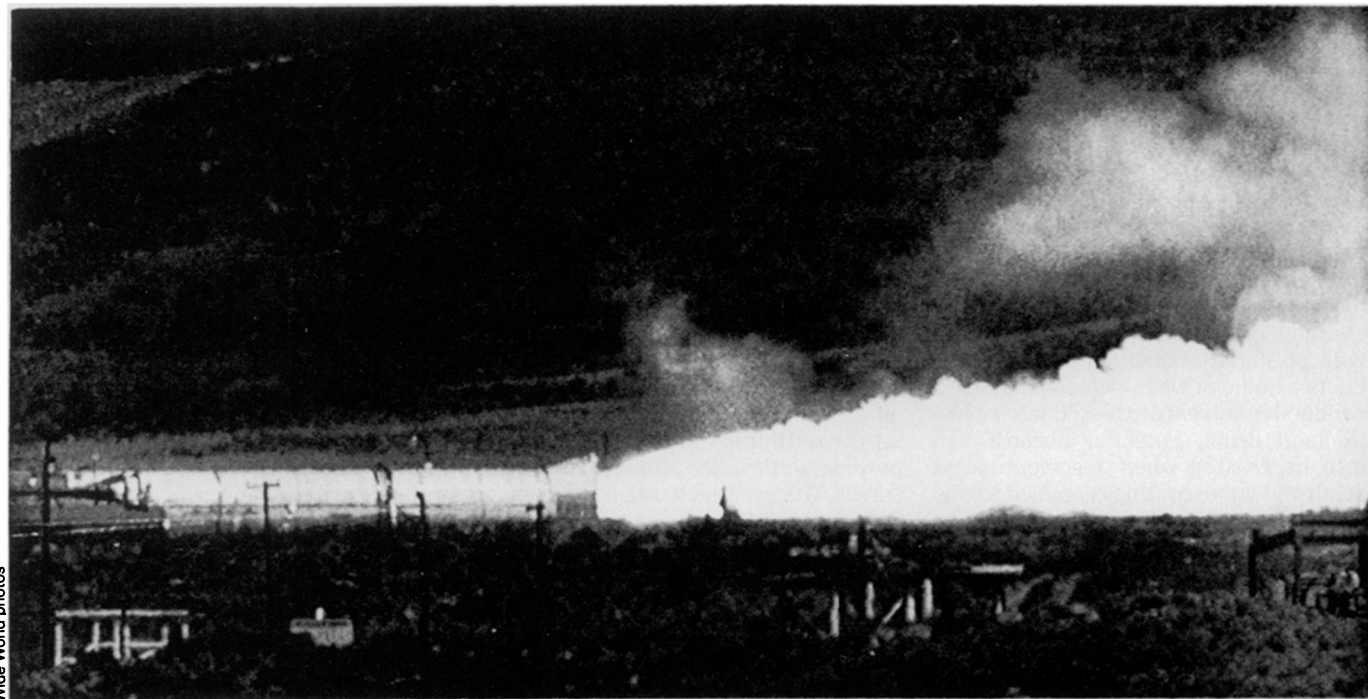
tricked into accepting segments from the HIV viruses causing AIDS.

These hybrid *faux-virus* particles may be useful in developing both AIDS vaccines and diagnostic tests to detect the HIV viruses, say the scientists. Oxford's Susan M. Kingsman told SCIENCE NEWS that 100 copies of the HIV segments can be incorporated into each "ball of protein" that forms the custom-made particles. The presence of so many repeated units of HIV antigen is likely to elicit better immunity when injected into an animal, she says. Yet-unpublished work by the British researchers suggests that a wide range of proteins, including those from viruses other than HIV, could be inserted into the retrotransposons, says Kingsman.

Noting that the hybrid particles are simple to construct and then purify, the authors also report that rabbits injected with the recombinant particles develop antibodies against the HIV component of the particles, suggesting a "new approach to vaccine production."

— D.D. Edwards

First test-firing for redesigned shuttle booster rocket



It may seem like a tiny step in the long line of U.S. space achievements, but this week's test-firing of a redesigned version of the shuttle booster rocket is critical to the resuscitation of the space program, which has suffered a string of mishaps, beginning with the tragic explosion of the space shuttle Challenger on Jan. 28, 1986. Detailed results of the test, which was conducted in the desert near Brigham City, Utah, are expected to be known shortly. Success of the test is crucial if NASA is to meet its target date of June 1988 for the resumption of shuttle flights. Initial responses of

officials from NASA and the rocket's manufacturer, Morton Thiokol, Inc., indicated there were no early signs of problems with the firing. The test was postponed for three days due to problems with various electronic and water-cooling systems, which did not relate directly to the performance of the rocket itself. Analysis of the results will focus on whether any exhaust gas leakage occurred in the joints that connect the booster's main segments. Such a leak, in the rubber O-rings that seal the joints, is believed to have triggered the explosion of Challenger.