



Research through gloves demonstrated in maximum containment lab at Fort Detrick.

laboratory in its barracks-like building. It is the first U.S. facility certified for maximum safety requirements (P4) described by the National Institutes of Health guidelines. The National Institute of Allergy and Infectious Diseases, which operates the facility, expects recombinant DNA experiments to begin there by April 1, after a week of "dummy" experiments.

The facility is "essentially a box within a box," John Nutter, NIAID chief of specialized research and facilities, told reporters. Scientists manipulate materials in gas-tight cabinets by reaching into attached heavy rubber gloves. Within the cabinets are a microscope attached to a TV screen, a refrigerator, animal cages and access to an ultracentrifuge. All material leaving the interconnected cabinets is either steam sterilized or chemically disinfected.

The one-room laboratory containing the cabinets, as well as nearby rooms, a hallway and a staircase, is also sealed. The area will be under negative air pressure, so air would leak in through any break, not out. All people entering the area change into uniforms resembling surgical suits, and they shower as they leave. Materials leaving the area will be sterilized or disinfected. Nutter says the set-up provides "redundancy in safety."

In the first months, Martin and Wallace Rowe of NIAID, will do an experiment intended to help evaluate bases of concern over recombinant DNA research. They plan to insert DNA from polyoma virus (a mouse virus that can cause tumors in newborn rodents, but does not infect human cells) into bacteria and then feed or inject the bacteria into mice. Martin and Rowe will examine whether that viral DNA is transferred from bacteria to mammals, providing an indication of whether various types of recombinant DNA might spread throughout a population. A similar experiment is already in progress at Porton Downs, England.

After completion of that risk-assessment experiment, the P4 facility will be available to visiting scientists. NIH will soon make an announcement inviting applications. Another maximum contain-

ment facility for recombinant DNA research is also being readied in a mobile unit at NIH in Bethesda, Md. Finally, plans are underway for a more extensive national biological containment facility of P3 and P4 laboratories at Frederick to be operational in about two years. □

East coast booms: Pick a theory

Nobody just accepts the government's word anymore. In January, the Department of Defense bestowed the Naval Research Laboratory with the task of finding a cause for the mysterious East Coast rumblings heard from early December to mid-February. Dutifully, the NRL checked out all the possibilities: nuclear explosions, meteorites, winter lightning, methane bubbles, Russian laser attacks. On March 3, they released a summary of their 151-page report. Based on a theory by Harvey H. Hubbard and Domenic J. Maglieri of the National Aeronautics and Space Administration, the NRL blamed a combination of unusual weather and supersonic military aircraft that caused sonic booms to travel 50 to 200 miles. Past experience, notably similar events in Florida several years ago, and good correlation between flights, temperature inversions and strong winds satisfied the NRL that they had found the cause. They issued the summary, dusted their hands, sat back and that was that.

That wasn't that. On March 8, the Federation of American Scientists issued a press release saying, "The [FAS] charged today that the Naval Research Laboratory had erred in ascribing the cause of the booms...." The Concorde is the culprit, FAS says. In a press conference March 15, FAS director Jeremy J. Stone elaborated. The JFK-bound Concorde makes a turn near Cape Sable, just south of Halifax, Nova Scotia. The turn causes a "superboom" — shock waves from both sides of the turn focused at the same spot. Stone correlated most of the East Coast booms with French and British Concorde arrivals

and departures. And, with some elaborate mathematics and help from IBM physicist Richard Garwin, he accounted for a few more by hypothesizing "hyperbooms." Hyperbooms, he says, are shock waves that travel faster than the Concorde and reach the coast as much as an hour and fifteen minutes before the plane. The hypothesis is based on the fact that sound waves travel faster in warm air. Garwin said the shock wave from acceleration will travel into the very thin and much warmer thermosphere, speed up and be reflected back to earth. By bouncing and gaining speed, it arrives before the plane. Not only that, but all these postulated bouncing booms could be "doing something to the thermosphere." Though NRL did attribute similar events in Nova Scotia to the Concorde, Stone says they didn't look far enough for an East Coast-ssr link.

Meanwhile, the man with the measurements, William Donn of Lamont-Doherty Observatory, says the booms are "unequivocally, not the Concorde." Neither are they weather-enhanced military booms, he says. They are either "direct booms from close-in planes in a series of exercises" or "something entirely different." Donn has several reasons for his strong statements. Foremost, he says, is that the sounds detected by the Lamont, Charleston and Wilmington stations all originate in the south. And they are different from ssr signals the station has picked up since the start of the flights, he says. Second, the bouncing hyperbooms would dissipate in the thin thermosphere. "[Stone] just made his hypothesis without listening to the physics of it." As for NRL's theory, Donn says there was no unusual weather, particularly in December, to support it.

The NRL plans to look at Stone's theory, and Presidential Science Adviser Frank Press will recommend an independent review. In the meantime, theories are booming. □

Smoking and memory

"Caution: Smoking may be hazardous to your... memory." No one is about to stick that warning on cigarette packs as yet, but there is reported evidence that nicotine can impair both short-term and delayed memory. The results come from a UCLA study reported in the February AMERICAN JOURNAL OF PSYCHIATRY.

UCLA researchers divided 23 "habitual smokers" into two groups and tested each on a series of 75-item, free recall lists containing professions, names, animals, vegetables and minerals. The subjects were first tested before smoking anything and found to be roughly equivalent in free-recall learning ability. (Tests consisted of an experimenter reading the list at a rate of one word every one to two seconds, then giving the volunteers three minutes to recall as many words as they could.)