

the Lockheed vehicle is air-launched, boosted to flight speed by a solid propellant rocket, and recovered without damage by means of parachutes and a ground-penetrating nose spike. These flights have provided supersonic free flight operational and performance data of great value to engine manufacturers who design and develop supersonic ramjets.

By-products of the Lockheed program have been significant contributions to high-speed parachute deployment, and transonic and supersonic aerodynamic data which are of value to air frame manufacturers and the armed forces.

Military Planes Proposed

Recently, three major American aircraft manufacturers, North American, Boeing, and Convair, presented preliminary proposals to the Air Force for a manned ramjet-powered bomber capable of operating at an altitude close to 100,000 feet, at a range of 10,000 nautical miles, and at a speed in excess of Mach 4. All three companies are experienced in the flight application of either turbojets or ramjets. North American built the NAVAHO powered by Curtiss-Wright ramjets, Boeing fabricates the BOMARC powered by Marquardt ramjets, and Convair is the producer of the B-58 HUSTLER bomber powered by General Electric turbojets.

In all likelihood, ramjet engines similar to the ones now being developed by Marquardt Aircraft Corporation of Van Nuys, Calif., and test flown with the Lockheed X-7A vehicle will power commercial aircraft by 1966.

Probably, these commercial aircraft, structurally resembling our most advanced fighter-bombers, will utilize twin engine installation slung beneath an air frame which has been plastic coated to reduce skin heating and erosion.

The air traveler in these aircraft must be willing to subject himself to impressive G-forces upon take-off if he wishes to whistle from the Pacific to the Atlantic in less than 120 minutes.

Science News Letter, June 14, 1958

PUBLIC HEALTH

Infants Should Have Polio Shots Early

► TINY BABIES should have their first Salk vaccine shot at the same time they receive their anti-whooping cough shot, the medical director of the National Foundation for Infantile Paralysis said.

Recent studies have shown that polio vaccine can safely be given simultaneously with other vaccines for infants. The combination offers safe, effective immunity, Dr. Thomas M. Rivers reports in the *National Foundation News* (May).

"Doctors usually start two- and three-month-old babies on DPT, a triple vaccine against diphtheria, pertussis (whooping cough) and tetanus," he said, "because whooping cough can kill the very young."

Smallpox vaccination is often delayed to save the baby discomfort. Since the Salk

vaccine is a mild injection with no ill effects, there is no reason to delay polio protection, he said.

Paralytic polio in the very young, while unusual, is extremely tragic. A severe attack may cripple an infant for life. Dr. Rivers cited the case of an unvaccinated 18-week-old baby boy in Houston, Texas, who was stricken with polio last February and is now in an iron lung.

Dr. Rivers based his recommendation on two independent studies by National Foundation grantees. Safe, effective vaccination of two-month-old infants with Salk vaccine in one arm and DPT in the other arm was reported by Dr. Gordon C. Brown, professor of epidemiology at the University of Michigan.

Scientists at the Vanderbilt Well Baby Clinic in Nashville, Tenn., have also studied the effects of double vaccination.

The immunization plan advised by the American Academy of Pediatrics is as follows:

Infants of two months can be given their first DPT and Salk shots together.

During their third month, infants can be given their second DPT and Salk shots together.

At four months, the infant may receive the third DPT shot only; at six months, the smallpox vaccination. The third and last polio shot can be given when the infant is ten months old.

Science News Letter, June 14, 1958

MEDICINE

Combined Toxoid Fights Home Food Poisoning

► ALL FIVE of the known types of botulism food poisoning caused by improper canning techniques may soon be combated by one immunizing toxoid.

Botulism poisoning is caused by a poisonous substance, the toxin formed by a type of bacteria that grows in improperly processed foods. There are five distinct types of this poison.

The disease, although relatively rare today, does still occur in rural districts where home canning is done.

The disease is known to occur in persons who eat contaminated food, with death resulting in approximately 40% to 50% of the cases. In addition, the disease often strikes animals, sometimes in epidemic proportions.

To date, scientists have developed a toxoid which will fight off the poisoning and immunize animals. The next step will be a test of its immunizing power on humans, Dr. George G. Wright, Matteo A. Cardella and Mary Anne Fiock, of the U. S. Army Chemical Corps Laboratories, Fort Detrick, Frederick, Md., said.

Whether the toxoid will be successful in humans is not yet known. However, this is the first time a purified toxoid capable of simultaneously combating all five known types of botulism poisoning has been developed, the scientists reported to the Society of American Bacteriologists meeting in Chicago.

Science News Letter, June 14, 1958

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