Capsules

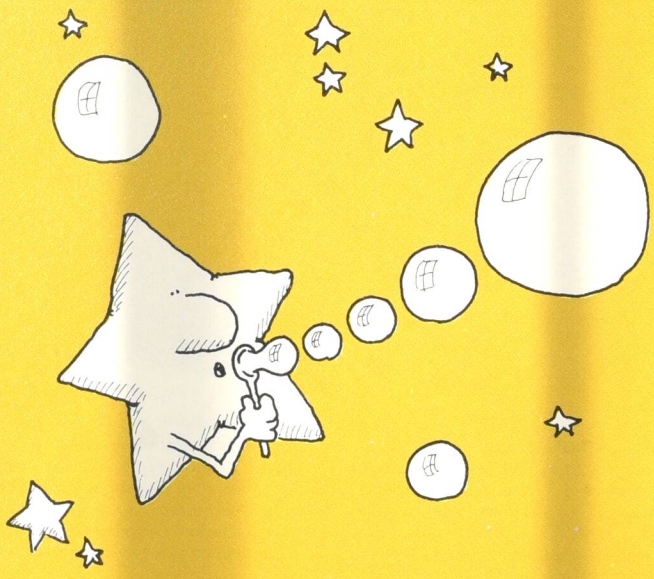
Enterprise Visits Canada

A quartette of Canadian cities watched NASA's prototype space shuttle *Enterprise* describe lazy circles this June as it returned home from the Paris air show. Mounted on top of its specially designed Boeing 747 transporter, the first reusable spacecraft overflew Quebec City, Montreal, and Toronto, spending two days at Ottawa's Uplands International Airport as part of an aerial goodwill tour. At the nation's capital, upwards of 300 000 people took advantage of the once-in-a-lifetime opportunity to view the unlikely combination of aircraft and spacecraft before it returned once more to the United States.

The space shuttle *Enterprise* lays claim to being one of the world's great drones, having been many years in concept and construction, but never having achieved powered flight. Landing a returning space craft "deadstick" — without power — was a bold innovation when first proposed early in the 1950's. Although the engineers and aerodynamicists wore out their sliderules proving the concept's feasibility, the real proof rested with a test flight. *Enterprise's* role was the proof of their idea.

Space shuttles, verging on the size and weight of a medium commercial jetliner, do not encourage hang glider flying methods. Yet in effect, that is just what the *Enterprise* accomplished in 1977, when it detached from the 747 transporter and returned safely to the sands of Edwards Air Force Base in Southern California. In the course of the test series, the 37-m, 68 000-kg vehicle made five successful powerless flights to pave the way for her orbiting sisters. Since the glide flights, the shuttles *Columbia* and *Challenger* have both achieved orbit and returned successfully. On four of these flights, the NRC-SPAR Aerospace CANADARM has been carried into space to flex its muscles.

The flight last June 1983, was the first time that CANADARM placed an object in space and subsequently retrieved it.



The Bubble Test

Astronomers at NRC are investigating an unusual phenomenon in the Milky Way — magnetic "bubbles." Since the 1950's, when scientists deduced the presence of a magnetic field in our Galaxy, many attemps have been made to portray its structure. An early model postulated that the field lines follow the spiral arms of stars that make up the Milky Way. More recently, another model proposed that the Galactic field is an expanded version of the sun's magnetic sheath — a sphere distorted by rotation. Jacques Vallée, of the Herzberg Institute of Astrophysics, warns against premature