

is about three-hundredths second; the quasar's 30 million seconds. The pulsar's mass is less than that of the sun; the quasar's a few billion times the sun. The pulsar's spin should last about 3,000 years; the quasar's 30 million.

Dr. Morrison suggests that there may exist a whole series of objects with this kind of central, condensed, spinning magnetic mass, that differ in size and scale. The sequence could include active galactic nuclei, the nuclei of Seyfert galaxies, compact and N-type galaxies, and the radio-silent quasistellar objects (SN: 5/9/66, p. 245), in addition to quasars and pulsars.

## SUPERSONIC TRANSPORT

### Moving at last

Like a hesitant bather, the Nixon Administration has finally decided to get into the water. Overriding chilling objections of pressing social needs and sonic boom, President Nixon this week gave the go-ahead for construction of two prototypes of the \$4.5 billion supersonic transport. Able to hold 300 passengers and fly at 1,800 miles an hour, the SST is to be built by the Boeing Co.

After battling around a number of plans for financing the plane (SN: 5/17, p. 473), the Administration finally settled on the old expedient of simply asking Congress for the money—about \$662 million (plus a \$99 million carryover) for the next five years. The President wants \$96 million for this fiscal year and about \$600 million to complete two prototypes by 1972. More than \$500 million in Federal funds have already been spent on the project, and the total Government contribution is expected to hit \$1.3 billion.

The SST is not expected to be in full operation until 1978, several years behind the British, French and Russians, who are already testing their SST's.

The Nixon decision was, in part, prompted by their lead. "I want the United States to lead the world in air transport," the President has declared.

Aside from the objection that the money would be better spent on social problems, sonic boom is the most-hurled argument against the SST. Until it is overcome, declared Secretary of Transportation John A. Volpe, the SST will be prohibited from making overland flights.

It is conceivable that the SST could be prohibited from making any flights, should Congress not approve the money. Sen. Henry M. Jackson (D-Wash.), in whose state the plane will be built, expects a fight over the funds similar to the recent battle over the Sentinel ABM system (SN: 8/16, p. 127).

## NORTHWEST PASSAGE

### Oil, ice and ecology

The Northwest Passage was first crossed 116 years ago by Robert McClure, who had to leave his ship trapped in the ice and cross 200 miles by sled to meet a rescue party coming from the other direction. Roald Amundsen made the first passage entirely by ship, but it also took three seasons, beginning in 1903. Not until 1954 was the first single-season transit accomplished, by the Canadian ship *Labrador*.

Now a commercial vessel, the specially modified Humble Oil Co. icebreaker-tanker *Manhattan*, has cracked her way westward across the Arctic to the northern coast of Alaska. The state, for better or for worse, is clearly on the verge of a new era: an age of resource exploitation.

The death knell for a quieter, simpler Alaska was sounded in early 1968 when Atlantic Richfield, in partnership with Humble, announced the biggest oil strike in North American history. Conservative estimates of the bounty beneath Prudhoe Bay on Alaska's North Slope range between 5 billion to 10 billion barrels of oil. Others go much higher.

It was to test the possibility of ship transport for the oil that the S.S. *Manhattan*, already the largest ship in the U.S. commercial fleet, was quickly converted into an icebreaker and directed westward into the passage north of Canada's Baffin Island (SN: 8/23, p. 153).

She emerged in triumph from the mouth of Prince of Wales Strait last week, and by week's end was the guest of honor at a round of ceremonies at Prudhoe Bay and at Point Barrow, 150 miles to the northwest. The *Manhattan* headed back through the strait this week and will spend the next 30 days running tests in Melville Sound in the middle of

the Northwest Passage before continuing home to Philadelphia.

The ship has shown that a commercial vessel could make her way through the passage, but it is too early to claim that transit through the route by giant tankers has been proved an economic feasibility.

"They spent so much time learning to navigate the ship and getting out of the difficulties they got into a few times that they really were able to run very few tests of any length," says a Humble spokesman.

The scientists on board were disappointed, says Walter I. Wittman, an Arctic ice forecaster for the U.S. Naval Oceanographic Office. But he says they understood that the goal of the westward half of the voyage was primarily to get through the passage, not to conduct studies.

The 30-day period in Melville Sound is to be the real data-gathering stage of the mission. Scientists interested in such things as sea-ice physics will have more time for their investigations. And the engineers and technicians on board will be able to evaluate the ship's performance.

Basically the tests will consist of running the ship through uniform ice thicknesses at various speeds, while gathering data on variables such as the pressures exerted on the ship. The goal here will be to measure the ship's operating efficiency, to determine the most economical speeds for breaking through particular thicknesses of ice. This kind of information is needed to evaluate the long-term outlook for the tanker traffic across the Canadian Arctic to Alaska.

One thing already shown by the voyage is that "the *Manhattan* is the best icebreaker that has ever been built,"



Photos: Humble Oil Co.

*Triumphant Manhattan: Now for 30 days of performance tests and ice studies.*