

covery soon calmed to a ripple when scientists found they could return to a symmetrical subnuclear world by considering parity and charge together instead of separately.

This was called the CP rule and it held until 1964, when doubt was cast on the CPT theory by experiments at Princeton. Scientists there discovered that the neutrally charged K-2 meson sometimes decays, in what they term a forbidden manner, into a positively and a negatively charged pi meson. This mode of decay, which was found twice in every 1,000 events is called forbidden because it should not have occurred at all—it violates the CP rule.

Since CP and T are interdependent, violation of one could not have occurred unless the other had also been violated. It is an effort to confirm this hypothesis that is the focus of the current experiments.

SST Flies to Hill

Four months after the winners were picked in the expensive, hard-fought supersonic transport contest, President Johnson finally moved on April 29 to award the prizes: contracts to build two prototype aircraft that will ultimately cost at least \$1.2 billion. Two days later the official documents were signed by the Federal Aviation Agency, and Congress began to consider whether or not to appropriate \$198 million as the Government's share in the next phase of development.

If the President spent his four months as well as some observers think he did, Congress's decision is almost a foregone conclusion. Though the SST program is a controversial one, its promise of improving the U.S. balance of payments by some \$15 billion, combined with substantial lightening of the Government's cost burden in the program since the contractors were chosen last December, give the SST an excellent chance of flying through Congress at supersonic speed.

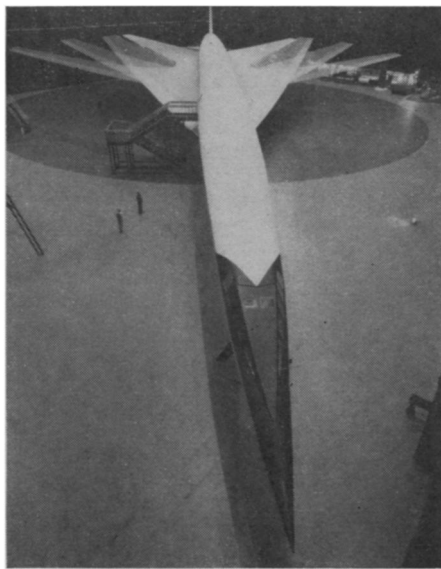
One gain made by the President in the pre-announcement negotiations was that if costs rise above present estimates, the Government, which presently foots 90 percent of the bill, leaving the rest to the manufacturers, will cut its share back to 75 percent. In addition, both prime manufacturers—Boeing for the airframe and General Electric for the engines—have agreed to forego the 10 percent management fees they had originally asked until the Government's investment is entirely repaid.

The SST still faces a major problem, however, in its own sonic boom. Redesign of leading wing and tail edges along with other modifications has slightly reduced the strength of the

boom, but even Transportation Secretary Alan Boyd admits that if the sonic boom proves to be an insurmountable problem, the SST will have to be confined to flights over uninhabited areas.

Even if it is limited to over-water flights, the SST could pay for itself. The Government's break-even point is 300 aircraft, which conveniently matches Boyd's estimate of the plane's minimum likely sales in the event that it is used only for transoceanic runs.

The first prototype flights of the SST are expected to be made during 1970, with commercial service beginning four years later. The aircraft has been designed to carry from 300 to 350 passengers at 1,800 miles per hour. Boeing was selected over Lockheed (SN: 1/14) largely because of its greater commercial jet experience and because its variable-sweep wing design offered




Boeing

SST—The prototypes are coming!

slower takeoffs and landings and less noise around airports than Lockheed's "double delta" system.

The U.S. SST's chief rival will be the European Concorde, which, because it will be made of aluminum instead of titanium, will be limited to about 1,400 mph. In addition, the Concorde will be a much smaller aircraft, carrying only 141 passengers, fewer than some U.S. Boeing 707 and Douglas DC-8 jetliners. The Concorde has a commercial advantage, however, in that it is expected to be on the market as much as three years before the U.S. version. The Russian Tu-144 is little or no commercial threat in the U.S., since airlines here could not under present restrictions buy one even if they wanted to (SN: 3/18), but it could make a dent in the foreign market, which so far accounts for 58 out of 113 planes ordered. Boeing has predicted a market for as many as 1,200 U.S. SSTs.

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