

D-2

CELESTIAL TRAINER



THE D-2 CELESTIAL NAVIGATION TRAINER: In the foreground a spiral staircase leads up to the platform, on which are mounted six periscopic sextants. In the gigantic half-spherical dome above the platform are mounted small lights reflecting from parabolic mirrors which simulate the relative positions of the celestial bodies when the dome is darkened. The dome, as it moves up and down, simulates latitudes as well as the changing positions of the earth relative to the declination of the sun. This dome, suspended on two axes above the student platform, is a starstudded, 22-ton half-globe of tubular steel that is 43 feet high and measures 24.2 feet in diameter.



IN A TRAINER BOOTH: With the Air Almanac, HO 249 tables, and E-10 computer, a student evolves the trainer's position in one of the 30 fully-instrumented student booths. During the mission, he will shoot from the celestial platform, then return to the booth to plot his fix, accomplish his log work, and precomp for the next shooting period.

Capt. John C. ALLISON
3535 Navigator Training Group
Mather AFB, California

In the early 1950s it became apparent that classroom ground missions in celestial navigation were not preparing the student for actual flight conditions where he would be required to shoot both the stars and the sun with his sextant.

The Air Force recognized the need for a trainer that would simulate the movement of the aircraft and of the celestial bodies while enabling the student to practice the same procedures and use the same instruments and equipment that he must use in flight. Link Aviation, Inc. was com-

missioned to build such a trainer, and in January 1955 the D-2 Celestial Navigation Trainer was delivered to Mather.

The only one of its kind in the world, the D-2 Trainer has the capabilities of three-star, grid, pressure pattern, and sunline forms of navigation. A training "flight" can be made along a star route from the tip of Baja California, over the North Pole to Bengal, India—a distance of 8,000 miles.

To date the D-2 has been operated more than 9,000 hours with very few maintenance problems. Owing to its magnificent balance, it is incredibly powered by a 1/50th horsepower

motor, enabling it to operate for only 97 cents an hour.

This gigantic piece of equipment is an electronic marvel which fills the Air Force need of realistic flight-simulating conditions for the navigation student. Not only can it simulate the direction, altitude, and speed of all present-day operational aircraft, but it can create the effect of moving stars and sun. Here the student can realistically perform navigational duties closely paralleling those encountered in an aircraft. Naturally, the D-2 cannot actually replace flying training. However, it does provide an excellent bridge between the classroom and the aircraft.