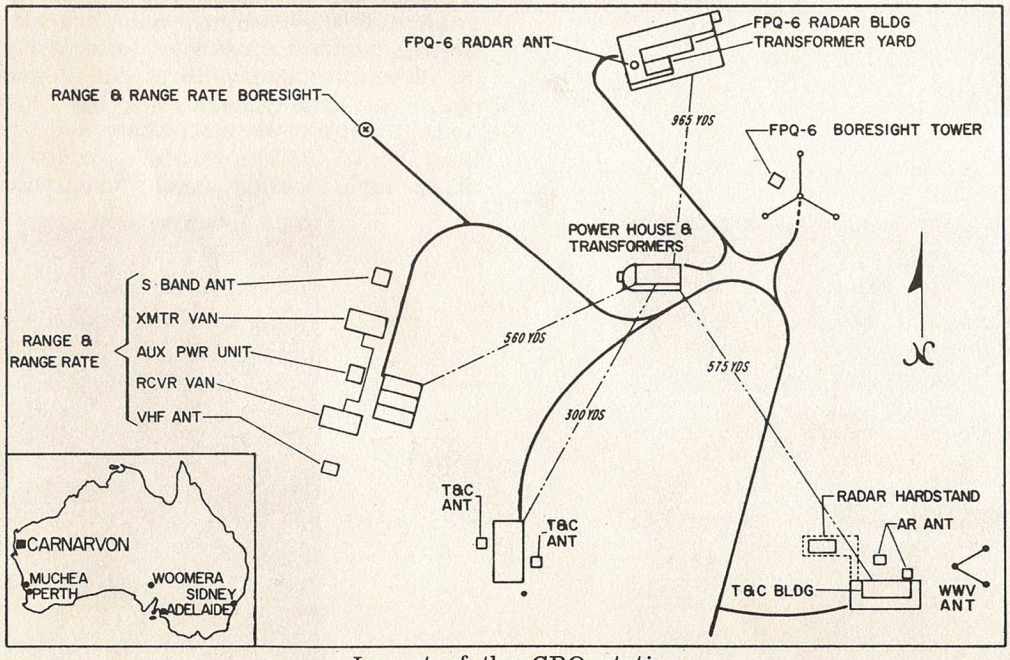
Carnarvon Tracking Station Dedicated

On June 25, 1964, the Carnarvon tracking station (CRO) was dedicated and officially welcomed into the Manned Space Flight Network. The new station—a joint effort of the United States National Aeronautics and Space Administration and the Australian Department of Supply—is the first tracking facility to be built especially for Project Gemini.

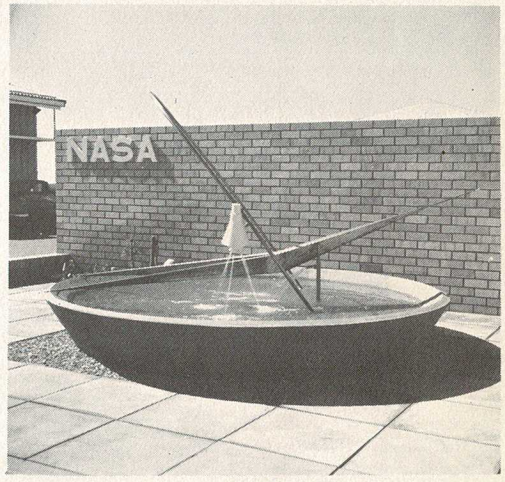
The Honorable Allen Fairhall (top left), Minister for Supply of the Commonwealth of Australia, officially opens the station by unveiling a plaque recording Australian-American cooperation in the establishment and operation of the station.

Representing NASA Headquarters is Mr. Edmund C. Buckley (center left), Director of Tracking and Data Acquisition. Other guests at the dedication included Western Australia's Premier David Brand and the Australian Minister for Defense, Senator Shane Paltridge.

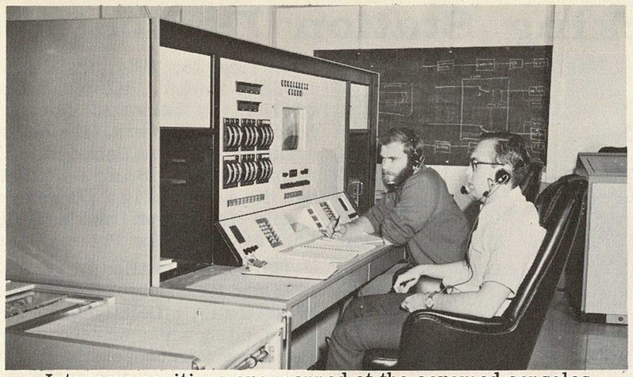
This sign stands at the entrance to the CRO station.



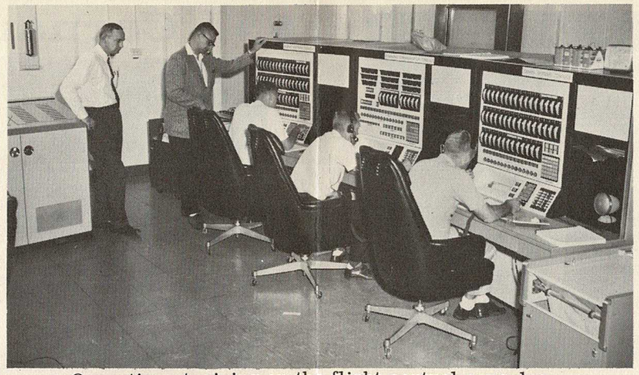
Layout of the CRO station.



In commemoration of CRO's dedication, the maintenance and operation contractor, Amalgamated Wireless of Australia, Ltd., erected a fountain south of the main entrance to the telemetry and command building. The fountain was designed by Monty Sala, a digital command system engineer at the station.

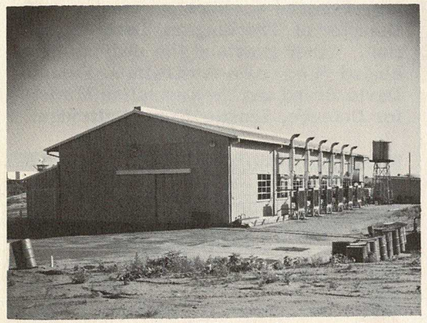


Intercom positions are manned at the aeromed consoles during drills.

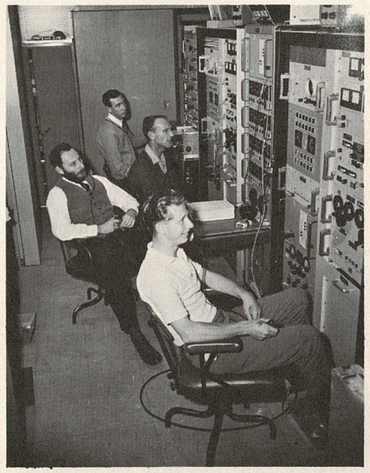


Operations training on the flight control consoles.

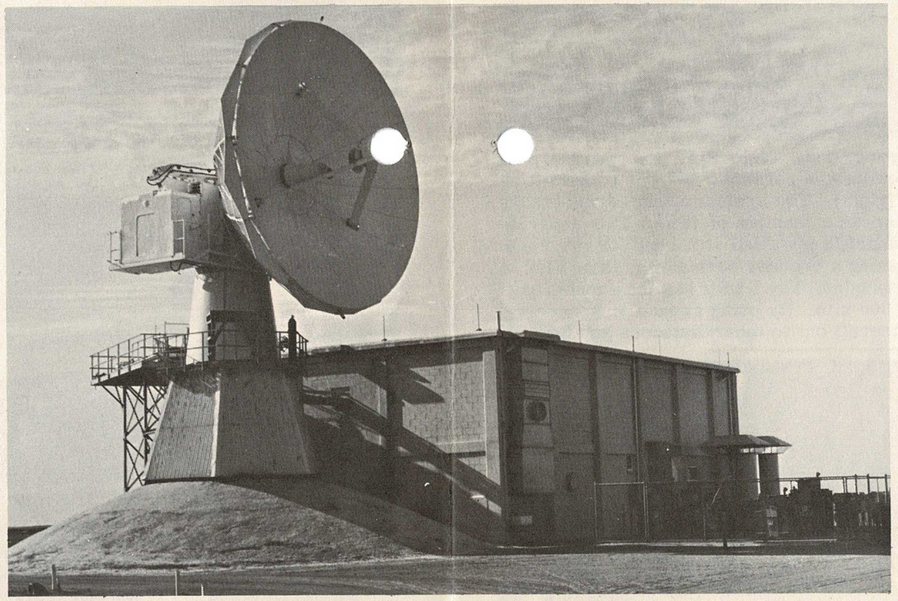
Operations training on the maintenance and operation supervisor's console.



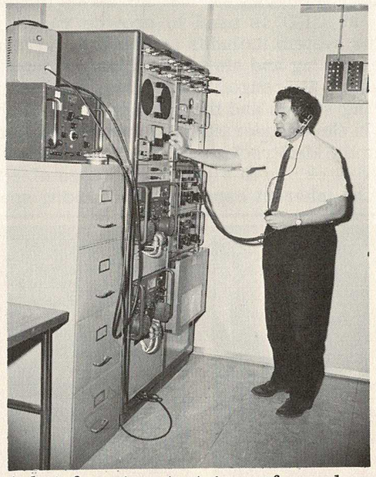
The power building houses the station's six 60-cycle diesel generators plus the necessary switchgear and regulating equipment.



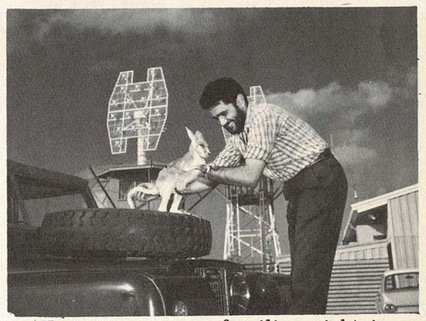
Acquisition aid team on-station.



The CRO facilities are built around the FPQ-6 radar. The FPQ-6 is a precision tracking C-band radar system consisting of a tracking antenna, transmitter, receiver, display console, and data corrector. It has 3 megawatts of RF power, an unambiguous range readout of 32,000 n.m., and a tracking angle precision of 0.05 degree. The antenna, a 29-foot parabolic reflector using a Cassegrainian monopulse feed system, has a gain of 51 db and a beamwidth of 0.4 degree. The azimuth-elevation-type antenna mount is positioned by a hydraulic servodrive system controlled by the receiver output signal, or manually by the equipment operator. The display console contains a joystick-type manual control and multiple-trace A-scope and C-scope displays. The range-data output is in digital form, and the angular-data output is in both analog and digital form.

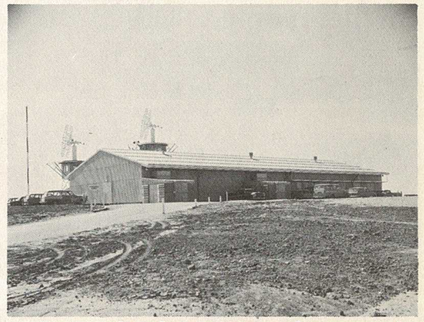


A brief system test is performed on the air-to-ground communication equipment.

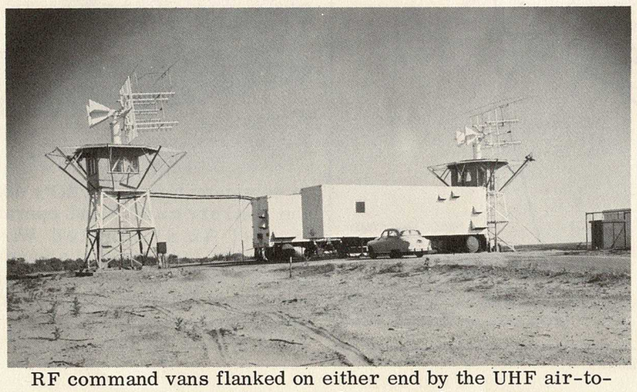


Kanagroos are a familiar sight in Australia. Shown is a CRO site member with a recently captured Joey (baby kangaroo).

A real boon to the communications field are CRO's teletype operators.

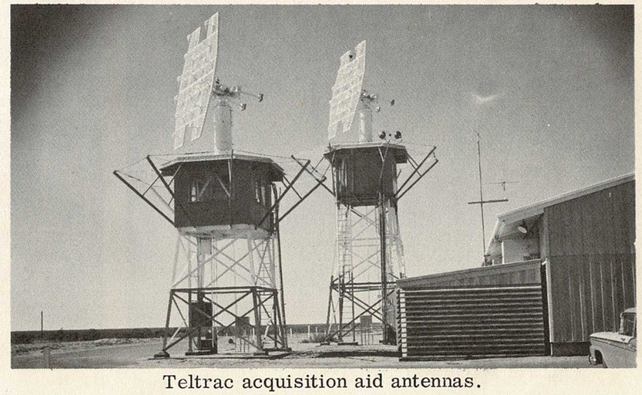


Front of telemetry and command building.

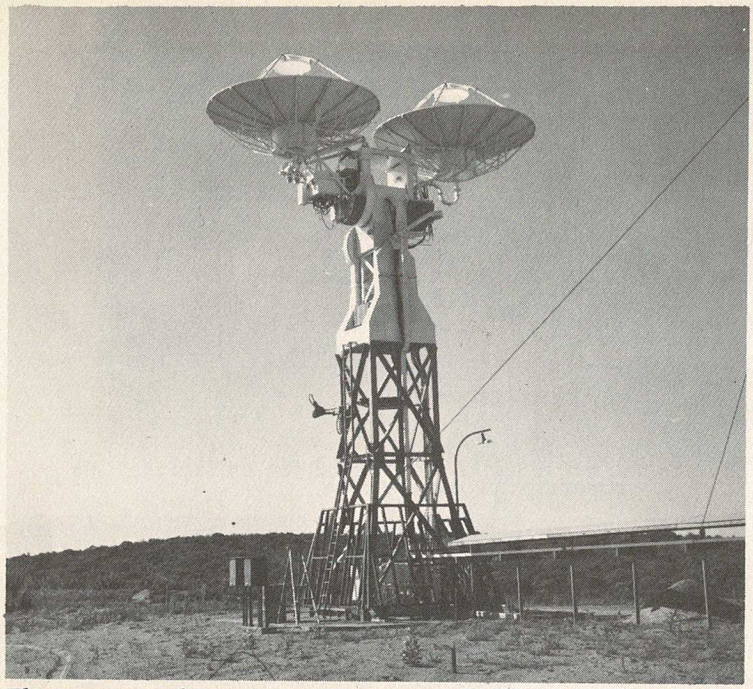


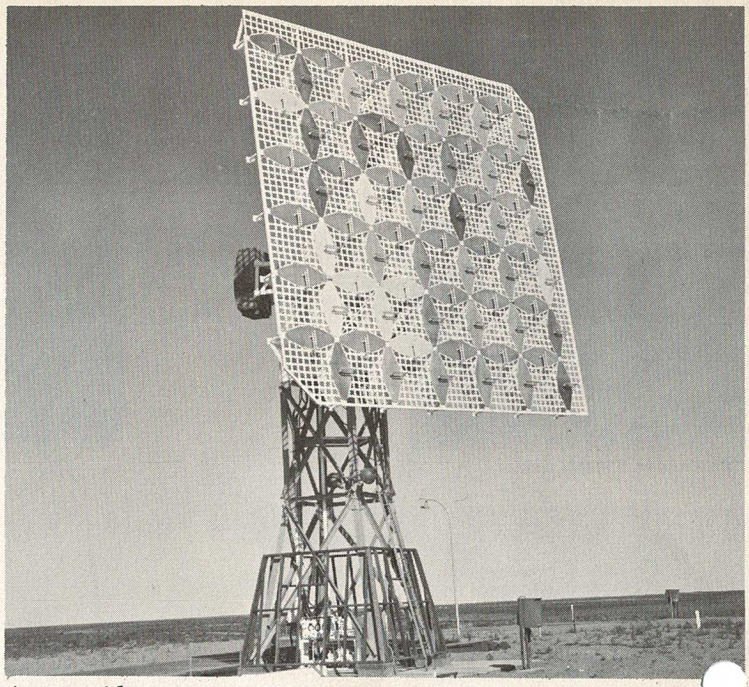
RF command vans flanked on either end by the UHF air-to-ground transmitting and command antennas.

Team drills are run on the digital command system.

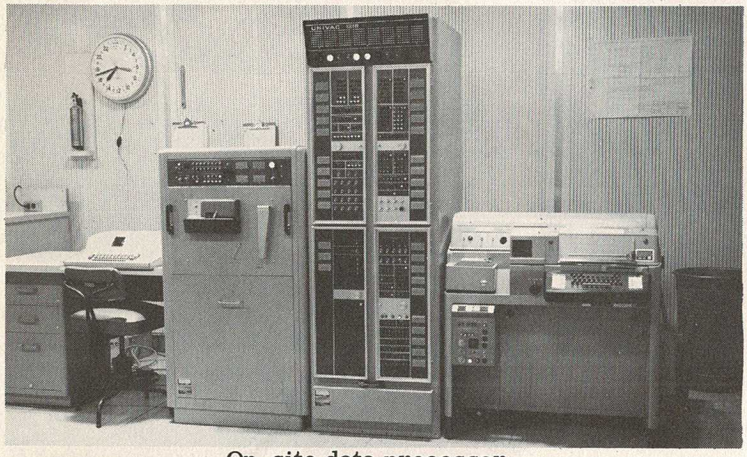


Teltrac acquisition aid antennas.

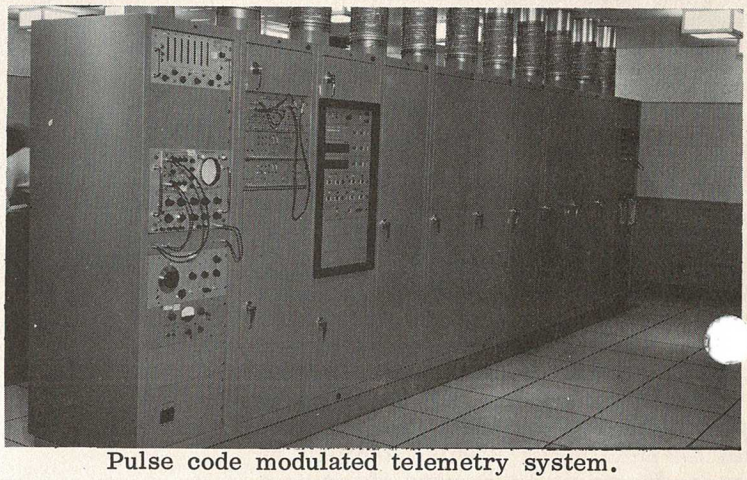




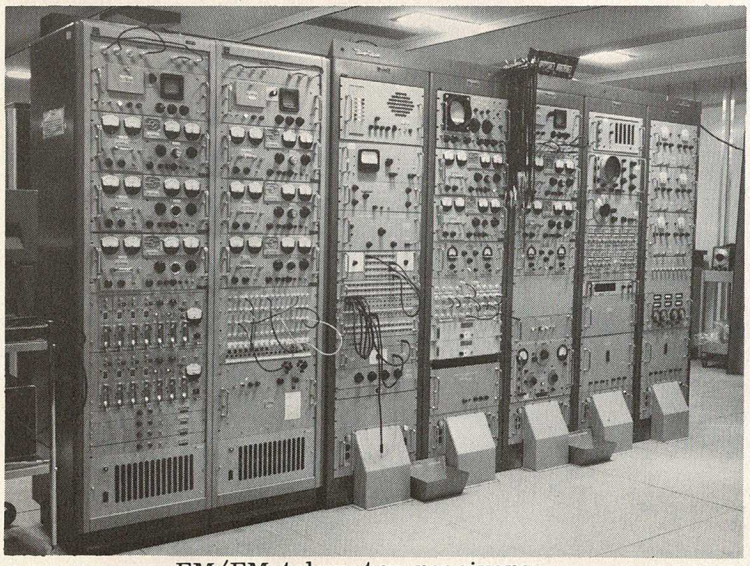
The range and range-rate system (R&RR) at CRO is used to provide range, range-rate (velocity), and angular data measurements from scientific satellites. The system includes a receiver, a transmitter, a parabolic S-band transmitting and receiving antenna (left), and a VHF transmitting and slotted receiving antenna (right). The system acquires and tracks by transponding with the spacecraft to measure its range, range-rate, and bearing as a function of time. Two separate RF channels are available between the tracking station and the spacecraft. One channel is provided at S-band for precision tracking with the R&RR S-band transponder in the spacecraft; the other channel, having a broader beamwidth, is at VHF to provide fast acquisition and tracking of either the Minitrack or VHF spacecraft transponder. The R&RR has the capability of tracking a spacecraft orbiting at very short ranges, or to a maximum range of 60,000 n.m. By using ground or spacecraft antennas having higher gain, the system has the inherent capability of tracking spacecraft out to lunar distances and beyond.



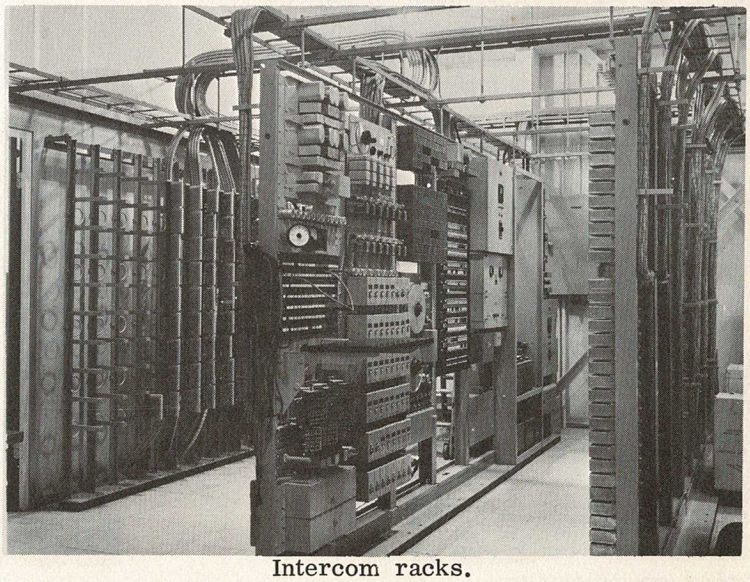
On-site data processor.



Pulse code modulated telemetry system.



FM/FM telemetry receivers.



Intercom racks.