During the second orbit NASA gave the go-ahead for the first exercise—a transposition and docking of the command module with the lunar module, the latter still attached to the S-1VB stage. The spacecraft (the combined command and service modules) pulled away from the S-1VB/LM, rotated through 180° so as to face the latter, and Schweickart—at 1902GMT—began to manoeuvre towards the latter at a speed of about 1 ft/sec. Soon the first CM/LM docking had been achieved—"We are hard docked," announced Scott calmly. At 2018GMT the LM was separated from the S-1VB, and the latter was commanded to fire its motor to place it in orbit around the Sun, and out of the way of the Apollo flight-path. Another minor snag at this time was reported by McDivitt as a high oxygen flow, and he asked Houston to check a leak in the LM. He was reassured that there was no cause for worry. At 2157GMT the SPS engine was fired for 5sec over Hawaii to place the Apollo spacecraft (consisting now of LM/CM/SM) in a new 130X 151-mile orbit, and at the same time to check the effect of the vibration and acceleration on the LM. At 2331GMT Apollo 9 was cleared for another day in orbit and at 0200GMT on March 4 the astronauts prepared for their flrst rest cycle.
Tuesday, March 4, was given over to tests of the LM and CM, and the astronauts were awakened at 1035GMT during their 12th orbit. The main exercises were to be burns of the SPS engine to test the systems and linking structure under more severe conditions than would be experienced during the lunar flight. The first burn was made at 1402GMT and during it the controllable nozzle was exercised through its range of travel to test the dynamics of the spacecraft and to simulate emer-gency conditions for the assessment of guidance system performance.

The first 24hr of the flight had, on the whole, been free from serious faults. "There is nothing wrong with the space-craft," pronounced Eugene Kranz, Apollo flight director.
Reveille from Houston on Apollo's third day, March 5, sounded at 1035GMT, ending a 9£hr rest period. The three astronauts donned their spacesuits for the day's tests of the LM. Following the removal of the docking probe and the two pressure hatches, Schweickart (the lunar module pilot) crawled through the 32in connecting tunnel from the CM into the LM to switch on power and communications and prepare for the tests. Before the transfer Schweickart, whose first space flight this was, reported to Houston that he was "not feeling up to par" and that he was suffering from nausea, and had experi-enced sickness and vomiting. This cleared up sufficiently for

42 0 FtKHT International, 13 March 1969

him to climb through to the LM, but he was later assailed by another attack.
With transmissions now from both LM and CM, new call signs were adopted: Spider was applied to the LM for obvious reasons, while the CM wai. code-named Gumdrop, after its similarity to the confection of that name.
McDivitt, spacecraft commander, joined Schweickart an hour later in the LM, leaving Scott as command module pilot to run Gumdrop. The landing legs of the LM descent stage were unfolded into their landing attitude, McDivitt reporting that he could see the operation through one of the two windows. The first telecast from inside Gumdrop was made at 1429GMT, using the new 81b hand-held TV camera developed for use on the Moon, but the quality of this (and particularly the voice transmission) was unfortunately rather less than that which one has come to expect from these Apollo flights. During the telecast Schweickart was seen to be wearing the large white back-pack life-support unit which he was to use on the next day's spacewalk, and identical to those scheduled for the Moon landing.
Some time had been lost earlier that day arid to recover this a series of communication checks were cancelled. By 1600GMT the flight was back on schedule.
At 1742GMT McDivitt fired the 10,0001b thrust engine of the LM descent stage—the first time that this had been done in space. This was to be the major test of the descent engine the longest burn planned until the actual lunar landing. Much to everyone's satisfaction, the near-6min burn went flawlessly. The run increased Apollo 9's orbit to 130x300 miles, and the engine was throttled during the test.
As the motor operated McDivitt reported that it "Sure left some pieces back there . . . some of the foil [part of the LM passive thermal-control coating] is coming off"—an observation which naturally stimulated interest at Houston. But apparently all was well and the test continued. The two astronauts remained in the LM for nearly 9hr, returning to the CM at 1935GMT.

Schweickart's sickness (he is said to be subject to motion sickness) had given some cause for alarm regarding his intended EVA (extra-vehicular activity, or spacewalk) on the following day, but his insistence that he was now restored to normal persuaded Houston to continue with the scheduled programme. There was no indication of the cause of the nausea, which was apparently not connected with his nasal congestion before the flight. He was the only astronaut of the three to take an anti-sickness pill prior to the flight. It is probable that his upset had much in common with those experienced by previous American and Russian astronauts, and that it may have been caused by disorientation, and possibly overwork prior to the flight. NASA is going to have

Apollo 9 lifts away from Cape Kennedy on March 3 to the accompani-
rhent of crossed fingers on what was to be the most advanced manned
flight to date. The most crucial test, that of a simulated lunar ren-
dezvous manoeuvre, was successfully completed five days later