

Gemini—Steps to the Moon

Title 113

I arrived again on 16 March 1965 at Cape Canaveral, the *Field of Reeds*, to witness and report two major American space flights, *Ranger 9* and *Gemini 3*.

Gemini 3 was the first American two-men spacecraft to test long duration in space for man and to prove the possibility of docking one spacecraft with another object, possibly a spacecraft, in orbit around Earth and later around the Moon. Both these tasks were essential for the subsequent *Apollo* program.

I left again on 28 March and during those exciting 12 days had 16 articles published in the *Daily Telegraph*, including a three-column feature article and a two-column front-page article. It had been hard, but most enjoyable work, involving taking minute-by-minute notes of the progress of *Gemini 3*. I considered myself not only lucky, but also honoured and privileged to take an active, a communicating, part in these impressive and thrilling events, all crowned by success.

From a technological and organisational point of view *Gemini* was a logical sequel to *Mercury*, as two astronauts were essential to carry out the multitude of tasks that were demanded from the crew. In their spacesuits, they sat side by side below their large hatches of entry and exit, and as an advance on *Mercury*, they had individual ejector seats, which fortunately however never had to be used.

Gemini was launched into orbit by a modified Air Force *Titan II* rocket, which was propelled by two self-igniting nitrogen liquids, hydrazine hydrate as fuel and nitrogen tetroxide as oxidiser. The great advantage of these propellants, compared to the combination of liquid hydrogen and liquid oxygen, lox, is the fact that the two nitrogen compounds are stable at ambient temperature, and in case of long delays at launch, they need not be constantly topped up, as cryogenic liquids require. For *Apollo*, however, lox and liquid hydrogen had to be used again. As chemistry is my academic discipline, the rocket propellants were of greatest interest to me, but too scientific to report about them in a daily newspaper.

Nine further *Gemini* spacecraft, 4-12, followed from June 1965 to November 1966 and were all highly successful. The first American space-walk, called in NASA-ese 'Extra Vehicular Activity', EVA, was done by White in *Gemini 4* and later by others as a standard operation. Long duration flights, 206 orbits in 330 hours, rendezvous and docking manoeuvres, followed after in short intervals and laid the solid foundation for the *Apollo* flights which followed in due course. I did not write about these *Gemini* flights from Cape Canaveral, they were already considered as a routine by the Foreign Editor of the *Daily Telegraph*.