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American and European Space—Noordwijk, ESA Title 127

In the second half of 1965, American space scientists achieved two great feats which I reported from London and which were prominently displayed on the front page of the *Daily Telegraph*. In the middle of July, Mariner IV sent back from Mars the first close-up photographs of its surface over a distance of 214 million kilometers. I wrote that this was a brilliant electronic achievement for American science, as such a mission had to be automatic, once the computers on Earth and in space, had been properly programmed.

This was of special interest, as the Russian Mars satellite Zond II, had failed, launched a few days after Mariner IV. When I discussed this later with D. Schneiderman, the Project Manager of Mariner IV at his Pasadena Control Center in California, he explained to me that Russian 'electronic policy' had been to switch the spacecraft's electronic systems constantly on and off, to preserve their batteries. The American policy had been to leave them in the switched-on position, starting from launch.

The second American space 'first' in 1965 was the successful rendezvous of two manned spacecraft, Gemini VI and Gemini VII, a feat never before attempted. Such space rendezvous is an essential part of the Apollo Moon Mission and for other space activities, like the building of a space station. It involves complicated orbital changes, calculated and commanded by computers, both on Earth and in space.

With these great preliminary steps towards Apollo in mind, I had of course watched developments near home with sadness. Great Britain's attitude to space had always been minimal, if it had existed at all, and the infamous exclamation of the Astronomer Royal Wolley "All space travel is bilge" was hardly encouraging as he represented the establishment view. However, other European nations had formed a European Space Agency, ESA, a European Launcher Development Organisation, ELDO, and a European Space Technology Center, ESTEC, in Noordwijk in the Netherlands.

What I saw in Holland was first-class science and engineering but on such a limited scale, when compared with America, that my sadness was fully justified. I reported of course fairly positively about the belated British effort in building the ESRO II satellite, after I had visited the Hawker Siddley Dynamics factory at Stevenage. ESTEC had constructed small but excellent vacuum and solar-heat imitation test chambers in Noordwijk and insisted during my visit that all their efforts were devoted to scientific satellites. One essential test for satellites is to be submitted to violent vibrations during rocket launch, and such a facility was also available. I was impressed with what had been achieved with so little money and such scanty political support.

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