

'APOLLO IN ASCENSION' MUST BE ON TIME

By John Brown

In 1965, I was Chief of Systems in Bill Quill's Special Projects Group, Radar Division, New Street; our principal focus at the time was compiling the Company's technical and commercial input to the Hughes International Consortium bid for the £110M Project, NADGE (NATO Air Defence Ground Environment). The Consortium had its offices in Paris (where NATO was at that time), so all of us were travelling regularly to Paris for meetings. Our Divisional Manager was Dr Tom Straker, who also had been following with interest the progress being made with communication satellites operating in synchronous orbit, pointing the way to global communications. Many readers will recall the design and development of the three SCAT (Satellite Communication Air-Transportable stations) for UK MoD, project-managed by Alec Kravis, which had to operate with random-orbit satellites, and was built around this time.

Although Dr Straker knew I was heavily involved with the NADGE bid, he tasked me to seek out any openings for the Company in this possible new market of satellite communication ground stations, having already participated in some of the military study work carried out by the Baddow Research Laboratories, EMI, and British Aircraft Corporation, which ultimately led to the UK's SKYNET, and to Marconi's provision of the central ground station at RAF Oakhanger, Hampshire.

I had visited Dick Cannon, Cable & Wireless' Deputy Engineer-in-Chief, during July to see if they were contemplating becoming Earth Station operators; however, their Board had considered that it was too early at present. A month later, on a Friday afternoon, Dr Straker received a telephone call from its Managing Director to tell him that NASA had asked them to provide an Earth Station on Ascension Island urgently, as part of the Apollo 'man on the moon' project. Bids were being invited, and the tendering time would be only three weeks. An initial meeting was held on the Saturday morning, and Dr Straker tasked me to be responsible for co-ordinating the Company's tender; the technical documentation would be available on the Monday. Having distributed this to the key engineers, I went across to Bridge Works, the Company's Printing

Plant to see Peter Bass, the Superintendent. As always, Peter was most helpful and agreed to accept the tight timescale, even though he was as busy as ever. I held the first meeting on the Tuesday; everybody was enthusiastic, and appreciated the importance of winning this prestigious contract; our principal competitor was likely to be World Satellite Terminals, a consortium set up by GEC, AEI, Plessey, and STC. The next two and a half weeks were hectic, but the material flowed in and was passed through to Peter Bass, after editing by me. The cost estimates started to come together as well, as the designers settled on their preferred plans. I delivered the twelve sets of tender documents to Mercury House before the deadline of noon on 9 September, 1965. After Cable & Wireless' scrutiny of the bids, including clarification meetings, a month later we received the momentous news that Marconi's had won the contract. At his own personal expense, Dr Straker held a 'thank you' lunch at Marconi College, and invited everyone who had contributed to the successful bid, including Peter Bass who had printed the entire document

IMPLEMENTATION

The Marconi design was for a 42ft parabolic reflector, fully steerable in both azimuth and elevation, mounted on a 15ft tripod gantry (the turntable and gantry being similar to those supplied to NATO for the Early Warning Chain). Because of the need for high reliability, the transmitters and receivers were duplicated. The shortness of the timescale and the remoteness of Ascension Island necessitated careful planning of the project between the equipment designers, the manufacturing organization, the installation planners, and Cable & Wireless Chief Architect's Department who were responsible for the buildings, antenna foundations, and main power supply. Within Marconi, a special management team was formed, under Iain Butler, with overall responsibility for the complete project. As well as the Marconi factories, English Electric Accrington made a major manufacturing contribution to the project. Some idea of the achievements in production can be gauged by the fact that the entire station was put together for the first time at Rivenhall, seven months after the start of the project. This trial-run proved invaluable since any snags could be cleared by the design engineers on the spot. Customer confidence was also established when the new station communicated through EARLY BIRD, specially released to the

Company on two occasions. HRH The Duke of Edinburgh also came to see the installation during tests.

At the end of July 1966, the installation, having completed testing satisfactorily, was dismantled, and carefully packed and crated, and transported by a chartered ship from Harwich to Georgetown, Ascension Island. In early August a team of engineers departed from England for the Island by a special charter flight to be ready to receive the equipment on its arrival. The speedy re-erection of the station was assisted by all the interconnecting cables between the antenna structure and the Operations Building being able to be dropped straight into prepared ducts, thereby eliminating the need to re-terminate cables, with all the inherent chances of faulty joints.

The station was satisfactorily commissioned and operationally demonstrated to Cable & Wireless using EARLY Bird, and handed over on 19 September, 1966, just eleven months from the commencement of the project. Thanks to the full steering capability of the antenna, the station was the first to lock-on, track, and communicate using the errant INTELSAT II Pacific satellite which had failed to achieve synchronous orbit, and was following a 12-hour elliptical orbit. Clear speech was transmitted from Ascension to Andover, Maine using the satellite. Perhaps the most significant achievement for the UK was that the Ascension Island station was the first to become operational in the Apollo network, although it was the last station to receive a contract to proceed.