

Radar GS No. 9 Mk1 - some memories of the development and deployment.

This is one of the radars which were usually known as 'Robert' for reasons I will explain. The story of 'Robert' has largely been forgotten. I will try to remedy this.

'Robert' was a land-based 'Mapping Radar' which generated a radar map of a target area of ground, displayed on a cathode-ray-tube. It was the land-based equivalent of marine radars, already well-established as aids to marine navigation.



Decca Radar's highly successful 'X Band' Type 159 marine radar had been introduced in 1949 and their Type 12 followed. In 1953 their ASMI (Airfield Surface Movement Indicating) radar was installed at London Airport. It was superficially similar to the Type 12 but by using 'Q Band' (8mm), a shorter transmitted pulse, and a higher antenna rotation rate (70 rpm.), the 'mapping' of the surface of the airfield, and the recognition of aircraft and vehicles was very much enhanced.

At about the same time the Radar Research and Development Establishment (RRDE) at Malvern were developing ideas for Battlefield Surveillance. E.C. (Clive) Slow was in charge of the area responsible for radar for the Field Army, and Ken Slater (who rose rapidly, eventually to become Director of ASWE) was a key member of the team. Their concerns not only included Battlefield Surveillance but also Mortar Location and they realised that high speed sector-scanning would help in both applications. The 'Foster' Scanner was used in the X-Band Green Archer and Cymbeline Mortar-Locators.

In about 1955 RRDE placed a contract with Decca for an experimental high-speed sector-scanning radar operating in Q-Band. The antenna was the key element. Decca designed a new scanning-antenna. A microwave lens fabricated from metal tubes was illuminated by a horn via a rapidly rocking reflector. This experimental project was led by Robin Howell.

A second contract was placed with Decca in about 1959 for a prototype radar and six production models for the Army. But both Slater and Howell were out of the picture then, or soon after. Ken Slater had become leader of the Blue Yeoman (Type 85) Project - and rapidly rose to Director level. Robin Howell had left Decca and soon became Professor at Brunel University.

H.W. (Jock) Cross took over from Slater; I took over from Howell. The Army itself was represented by Lt. Col. F.A.N. (Nigel) Hitch, justifiably known as Technical Hitch! Nigel Hitch was much involved with the development of the 'Silent Generator', used by both Robert and Green Archer.

Decca had its own internal code-names for projects, and the project for the prototype radar was 'Robert'. Somehow that stuck, and the official 'Rainbow Code' name was forgotten. (I can only remember that it was 'Green something').

The radars were installed in FV610 Saracen Command Post vehicles. The novel component in the radar was the high-speed scanning antenna. The other ruggedised radar units were installed within the vehicle. Because of the very short timescale for the project the transmitter, receiver and display were all 'old technology', based on thermionic valves. This was at the time when semiconductor

devices were rapidly taking over, and valves were being abandoned. Hence Robert was technically obsolete by the time it was put into service.

After trials on Salisbury Plain, the radars joined 21 Locating Regiment, Royal Artillery at Fallingbostal, north of Hanover. I went there several times in 1962/3.

I believe that Robert worked as designed. It did not employ Doppler techniques, instead relying on human visual perception to spot and then accurately locate vehicle targets at quite long range. However their life with BAOR was short. They had to be located on hilltops commanding a long view and so they were very conspicuous and very vulnerable. The ZB298 pulse-doppler radars arrived from about 1965. These did not have the same capabilities as Robert, but they were small, compact short-range units, capable of infantry use. And another option for longer range battlefield imagery with obvious advantages was the airborne standoff radar using sideways look methods. The CASTOR (Corps Airborne Stand-off Radar) project started at about this time.

Three Robert radars were redeployed to Gibraltar for land and sea border-watching. They were probably retired before 1970, regarded as too heavy and clumsy in a new age for electronics.



Decca further exploited the high speed scanning technology. Their 1955 Surface Movement Indicating Radar at Heathrow was replaced by a high-speed 360-degree scanning version in 1967. That remained there until 1989.

There is still Surface Movement Radar at Heathrow and most other major civil airports. The Heathrow system is a 'Scanter', provided by the Danish/Multinational Company Terma. It is solid state, and modern signal-processing and data-processing techniques enhance the performance.

DAVID CAWSEY