

From Nicholas Hilliard

Notes on the events during the development of the Central Computing System for TSR.2 and its Test Equipment; together with the way it dominated our lives for several years.

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My first employer in the electronics industry was Murphy Radio and I worked in the Radar Laboratory. Apparently, early Murphy television sets were tested for reliability, by packing them up in a cardboard crate and sending them by lorry from Welwyn Garden City to the Murphy plant in North Wales and back. They were then re-tested and if no problems had occurred, they went into production. I shall refer to this later.

I joined Elliott Automation in Borehamwood, Hertfordshire, and was employed in the Weapons Division. On completion of my first task, testing the guidance system for a missile, I was asked to do some tests on a sub-assembly of a piece of equipment that was unknown to me. I later discovered that the Airborne Computing Division had sub-contracted the design and testing of a power supply to Weapons Division. Hence, I became a member of the team working on the design and development of the Central Computing System for TSR.2. An entry, via the back door, to a project that would take over my life over for a few years.

Domestically, life was very full. I had bought a house that needed a considerable amount of work done to it and my first son was born. The growing responsibility had an effect on me and when Elliotts asked me to move to Frimley in Surrey, my house was in no state to sell because I was re-wiring it and had to have a new plumbing installed. I had to refuse to move and asked for a transfer to Airborne Computing Division.

Environmental tests had to be conducted on the prototype power unit and I was involved with these tests, checking the power outputs and the reference voltages. The unit was operated in a stratosphere chamber, in cruel conditions,

designed to simulate anything that might occur inside the aircraft on a mission.

I had to take the unit for tests on a large centrifuge of another company and it so happened that a snowstorm had made some of the roads in Hertfordshire almost impassable. With chains to the vehicle's back wheels, we arrived at the test facility having been well and truly shaken, just like a Murphy prototype television.

I am glad to say that the unit worked perfectly through all the tests and we returned to Elliotts without the need for chains since the road had been cleared.

I became Project Leader of the team designing the rig for testing the central computing system during the flight trials phase of prototype aircraft. Overall, I think it could be said that I was 'burning the candle at both ends at once'.

I found it difficult to sleep at night, and after several such nights, I decided to get up, dress, and go for a drive at 2.00am, exploring parts of North London, before returning to my bed. On seeing my doctor, he prescribed lots of red meat and red wine, which my dutiful wife then lovingly served much more frequently. You don't get prescriptions like that on the NHS these days!

The American representative (H.M.), from the firm that supplied the two computers we used for tests, was a superb engineer and a marvellous person to work with. Very logical, patient, thorough, and with a great expertise in many things.

I had been asked to some 'trouble-shooting' for a short while, and happened to make a remark about a possible problem when H.M. was trying to solve an existing one. He turned to me and said: 'We don't need someone to tell us about any possible problems, we need answers to the present ones we are supposed to be solving'.

He had a 'disability' in that he had lost part of his left arm which ended about halfway between elbow and wrist. He used a standard saloon car that had a steering column gear change and one day, as he drove several of us to a meeting, we came to a T-junction and had to wait for the light to change before turning right. H.M. noticed that the car on our nearside also signalled to turn right and he got away so quickly through the gearbox, as soon as the light changed, that this other car was not able to force us out of our lane but had to fall in behind.

I visited Vickers Armstrong's works at Weybridge in Surrey and was taken to see the first aircraft mock-up to give me some idea as to the space for the electronic units. Whereas I was familiar with the World War II Lancaster generation, and the V-bomber generation from my National Service, I was very surprised to see TSR.2 in the flesh. WWII planes were large, with a large crew and with a small bomb bay, but TSR.2 by comparison, had a huge bay and a very small crew. The power of jet engines made this possible and I moved away with a sense of awe.

I was then taken along a corridor and above a door I noticed a name: 'The Yeah-but Room'. On asking for a reason I was invited inside to see the array of complex drawings showing all the interconnections for the entire aircraft. Apparently at various times, engineers would use the room for joint discussions on problems and when a possible solution was suggested, the effects of the proposed change could be traced through the system, until someone said: 'Yeah but...' and then another alternative solution had to be sought.

My lasting memories all come back to the complexity of the project and of the lives that so many of the staff had to lead. Many of the engineers had to move house, their children had to change schools and make new friends. Some engineers had great difficulty in spending any time with their families because of their dedication to the project. Their lives were dominated by it. Husbands worked long hours and gave themselves to the aircraft. As a result, some lost their marriages and many lives were damaged each time. In my

experience, many on the team gave their all; they loved the work and made a very great sacrifice, only to be sacrificed themselves with the cancellation.

Now, well turned 70, I can look back with pride. To have been a very small cog in a great machine, creating such a wonderful piece of aviation history was a privilege. I hope everyone else who worked on TSR.2 also has a feeling of pride in what they achieved.

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