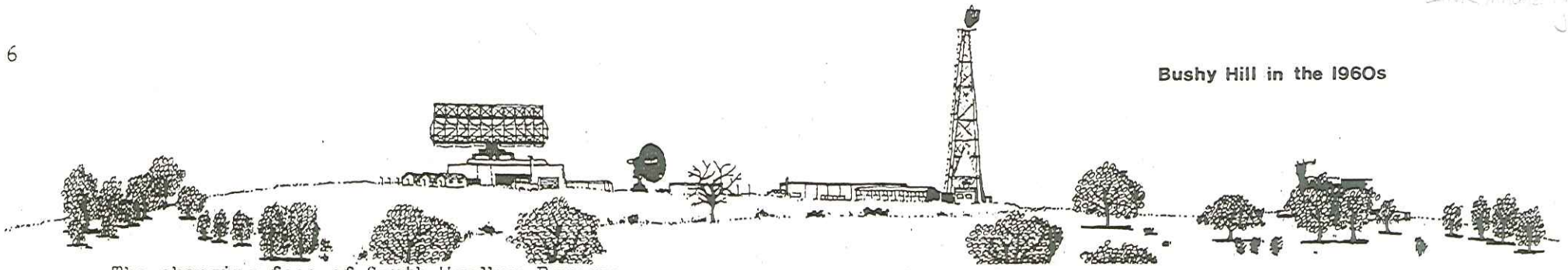

Bushy Hill in the 1960s

The changing face of South Woodham Ferrers during the first twenty-five years of the Queen's reign was neatly traced by the artist who contributed to the Jubilee number of Link. Included amongst the sketches was a skilful suggestion of Bushy Hill and the curious metal structures crowning its summit; "why are they there and what do they do?" must be the unspoken questions of many newcomers to the village. A number of recent television programmes have at last revealed some of the fascinating secrets of the "scientific war" which so largely determined the course of World War II; perhaps the most exciting of these programmes was that which told the story of the development of radar and how it helped to defeat the Germans in the Airwar.

Radar engineering is the business of the Marconi laboratory on Bushy Hill. The word Radar is an acronym derived from the phrase "radio detection and range". A radar station emits a continuous succession of pulses of radio waves which are only 10 cm. in wavelength as compared to the 330 cm. waves used by the B.B.C. for its V.H.F. radio programme. The radar waves are confined within a very narrow sector rather like the beam of light from a lighthouse and this "radiobeam" is swept through 360° by the rotation of the aerial. When the beam "illuminates" a distant aircrat a small amount of radio energy is reflected back to the aerial where it is received, amplified and displayed as a radar "ehco" upon a cathode ray rube. This tube is similar to that in a black and white T.V. set but instead of being scanned horizontally as in T.V, it is scanned radially so that the aircraft is shown in its correct plan position relative to the station and the map of the region. This form of display is called a 'p.p.i.' or a plan position indicator. During the war such a radar was used not only to detect enemy aircraft but also to measure their positions, altitudes, directions and speeds of flight so that they could be intercepted by British Fighters or engaged by A.A. guns.

Although the peace of 1945 greatly reduced the tempo of radar research the development of the "Cold War" between East and West was an unpleasant reminder to the Government and to the nation that the possibility of future wars could not be totally excluded. It was realised that the radar defences of the country against air attack would have to be up-dated in order to keep pace with the improved performance of the jet aircraft then coming into service. Equally important was the recognition that radar had an important part to play in building up the civil Air Traffic Control systems of the post war world, both at home and overseas. In other words there was valuable export business to be gained for Britian by selling radar expertise and equipment abroad.

For all these reasons radar research and development expanded greatly in the 1950's and the Marconi Company was in the fore-front of this new radio adventure. Bushy Hill was acquired in 1954 to serve as a field laboratory for studying new radar techniques and the operational uses of radar. It was ideally located for this purpose since to the east it can monitor the civil airlanes to Belgium, Holland and Scandinavia while to the south and west it covers the approaches to Heathrow, Gatwick, Southend and Stanstead. With such a facility it has been possible for the company to make substantial advances in radar technique which have made a major contribution to the efficiency and safety of the British Air Traffic Control Systems. But Bushy Hill Station has also contributed to other branches of science in a way that was not anticipated when the station was first planned.

BUSHY HILL continued

It is true that the prime purpose of a radar is to illuminate the airspace with radio waves for the purpose of detecting aircraft but other objects in the airspace such as flocks of birds, clouds, snow and rain also return feeble radar echoes to the radar antenna. Such echoes are called 'angels' and can sometimes be so strong as to interfere with the tracking of aircraft. These problems have been closely studied at Bushy so that the interference effects have now been eliminated but in the course of this work much new knowledge has been acquired of the flight-behavious of various species of birds, particularly starlings and gulls, and also of various meteorological phenomena, including radar echoes from the aurora or Northern Light and the noise signals from the sun. Bushy Hill in South Woodham Ferrers is an important place from the radar engineer's point of view no matter in what part of the world he happens to be operating.

E. EASTWOOD
(Formerly Director of Research, and now Consultant to GEC-Marconi Electronics Limited)

DIARY - continued from Page 2

AUGUST

Wed.	2nd	SW Flower Arr. Club: Working Evening - An arrangement in a Basket.
Sat.	5th	Family Social for Social Club members, 7.30 p.m. Village Hall.
Mon.	7th	Baby Clinic - Village Hall - 1.30-3.45 pm.

DONTT FORGET W.I. Coffee Mornings - Every Thursday 10.30 - 12 noon - W.I. Hall.

COPY DATES: letters, articles, etc. to Editor, diary items to Celia Tucker by :

11th July for AUGUST issue; 8th August for SEPTEMBER issue.