

20th November
1940. (Contd)

of buried pipes, etc. near the surface. Attention was therefore directed to the development of coils which could be lowered down 4" diameter bore holes. A range of about 2' to 3' was obtained easily in the laboratory but with difficulty in the field owing to the masking effects of eddy currents in the earth. Extreme mechanical stability of the coil system is necessary.

23rd November
1940

Army Carrier Telephone System

The two types of quad cable intended for use with the Army (1 + 4) carrier system are undergoing a field trial at Salisbury. About 20 miles of rubber cored cable made by the B.I. Co. and about 8 miles of a later type of Polythene cored cable made by the T.C.M. Co. have been laid between common points. Both cables have proved satisfactory apart from certain constructional details and an order is being placed for several 100 miles of the Polythene cable. It is smaller and mechanically stronger than the rubber cored cable and the attenuation is 0.8 db per mile at 16 kc/s as against 1 db per mile for the rubber cable.

23rd November
1940

Work of P.O. and Army Signals Co-ordination Committee

Good progress has been made with the trials of repeaters and single channel carrier equipment on the special field quad cable run between Tatmore Place, Albury and Hertford. The first model of the carrier system (S.O.C.2) designed by the S.T. & C. has also been supplied and is under test. A suitable type of repeater usable as 2-wire or 4-wire has been specified and schemes worked out for the application of repeaters and carrier equipment to field quad and other types of Army lines under various conditions.

23rd November
1940

Stabilized Repeaters for Army Telephone Lines

Some of these repeaters are being given field trials in actual service at 2nd and 4th Corps headquarters. The repeater at 4th Corps headquarters is working satisfactorily on P.O. lines and two repeaters are also working on 30 miles of D.8 cable specially laid between Newmarket and Brandon.

27th November
1940

Design of Simple Telegraph Printer

The simple telegraph printer referred to in the diary entry of 21st September, 1940 has been demonstrated to Major G.T. Evans

(Ministry/

27th November (Ministry of Supply) and considerable satisfaction was expressed. He is
1940 (Contd) arranging for representatives of other Service Departments to receive a demonstration.

The main features are :

- (1) Light weight, about 12 lbs. for the complete instrument.
- (2) Sensitivity. Line current $\frac{1}{2}$ 5 mA is ample and 2 mA quite good.
- (3) Low power consumption, total about 9 watts.
- (4) Start-stop operation.

28th November Assistance to the M.I. Branch of the War Office

1940

On two occasions a temporary installation of a concealed microphone has been made in a West End hotel. In each case the installation was made, used and recovered during the course of one day. The standard apparatus is easily transportable in suitcases and includes amplifiers and duplicate recorders. In these two cases the actual recording of the interviews was carried out by members of the Research Branch.

Enquiries have been made by MI Branches concerning the possible construction of a completely self contained and portable unit comprising hidden microphone and recording equipment. There seems to be a real need for such a unit, which could be carried about by an agent but it would have to be small enough to go within a despatch case or gas mask container etc. Despite recent developments in technique this is still impossible but the assistance of W Potanow has been sought in connection with the alternative development of a microphone ~~which is associated~~ associated with a miniature short range radio transmitter. The latter would work to a receiving set and recording equipment located not more than 200/300 yards away, for instance in a parked motor car.

28th November Signalling Research for the Air Ministry

1940

Continuing the story given in previous diary entries (23rd July and 18th October) the equipment constructed in the laboratory at Dollis Hill for meeting the Air Ministry requirements, known as Problem 1, was taken to the Telecommunications Research Establishment at Worth Matravers (lately known as A.M.R.E.) and successfully demonstrated there to Air Ministry officials. It will be recollected that this equipment is wired to the calculator at the R.D.F. station and by relay operation of a teleprinter sends out to line the information [raid position, number of aircraft, height, etc.] given locally on a display panel associated with the calculator, in the form of teleprinter signals.

The Air Ministry scientific staff have not yet decided between various possible methods of presenting the received information at Fighter Command