THE T. & R. BULLETIN

OFFICIAL ORGAN OF THE INCORPORATED

RADIO SOCIETY OF GREAT BRITAIN

Vol. 13. No. 2

CONTENTS

ANOTHER MILESTONE

AT eleven o'clock on Wednesday, August 25, the Radio Manufacturers' Association Exhibition will open at Olympia and at that hour the new edition of *A Guide to Amateur Radio* will make its bow to the public.

To the lay reader who has no knowledge of editorial work the appearance for the fifth year in succession of this handbook can mean little, but to the Council and those who have been associated with its production, the sale of the first copy will write " Finis " to the first part of their task. The second task, and by comparison, the more difficult, because 15,000 people are concerned, will be to see that the publication of this handbook causes no financial loss to the Society. Previous editions have sold well ; the new edition, larger, more comprehensive and better illustrated, should sell even more rapidly, but the public are fickle and a drag may occur. We charge our members to give this huge undertaking their personal and collective support. That we are offering value for money none can deny, but we want to do more ; each copy must be placed into the hands of a person genuinely interested in amateur radio. Membership in our Society will follow as a logical sequence if real interest is aroused.

The success of this edition in so far as the material side of its publication is concerned can be attributed almost entirely to a small group of prominent members who, for the past nine months have been engaged in its preparation. Through the medium of this editorial grateful thanks are recorded to all who have assisted the writer in placing before the public this latest contribution to amateur radio.

The support given by the Radio Trade, not only to the *Guide* but also to this journal, is a further contributory reason for the growth of both publications. At this time of the year when many of our members have the opportunity, at Olympia, of meeting the radio trade, we ask all able to do so to convey personal thanks to those who are helping to popularise our movement.

* * *

On the eve of our Twelfth Convention we bid welcome to all who are arranging to take part in the interesting programme which has been prepared. Convention is the one occasion in the year when members from all parts of the country can meet, in person, those who have in the past been but call signs. May this Convention bring us all into closer contact with one another.

J. C.

The 1937 Olympia Transmitter

By G. McL. Wilford (G2WD)

PART II.—A HIGH POWER DUAL CHANNEL POWER AMPLIFIER UNIT.

General Description.

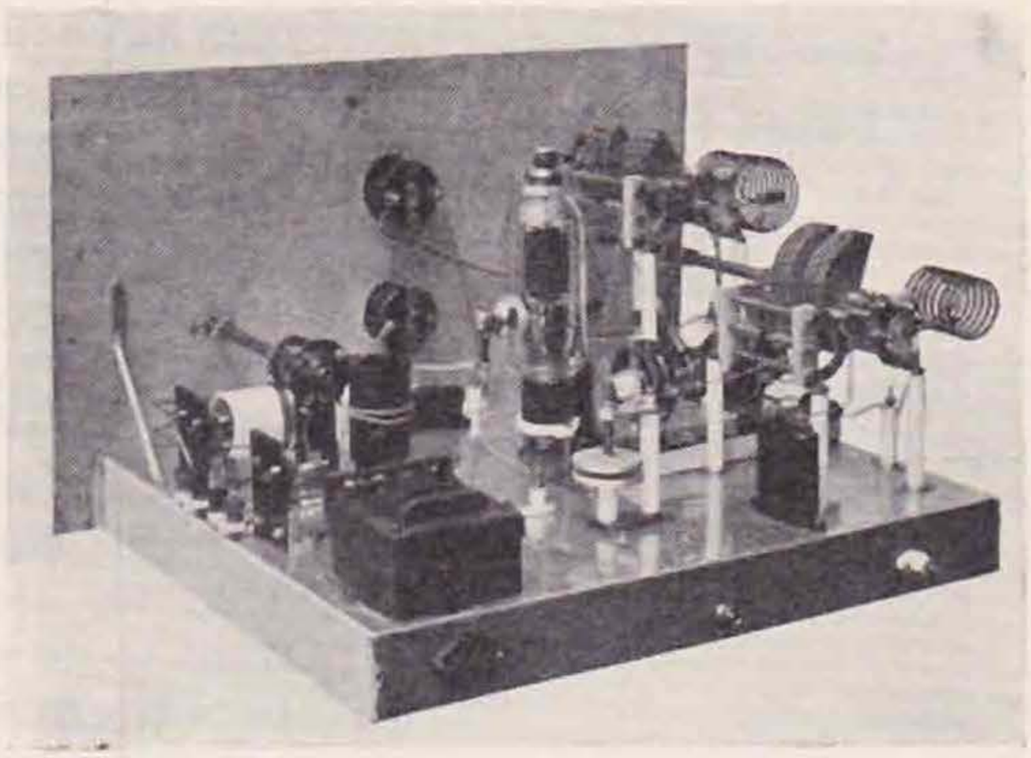
THIS article deals with a Dual Channel Power Amplifier unit for use in conjunction with the Dual Channel Exciter described in our last issue. As in the previous unit there are two separate channels, one for 14 Mc. and the other for 28 Mc., but any other two adjacent bands may be set up to match those used in the exciter. There is, however, a slight difference in the P.A. unit in that there is only one valve and the two channels are so arranged that either can be switched in for the band being used.

A similar type of construction is used inasmuch as the grid tanks have no tuning knobs, for having once been tuned they are left severely alone. The plate circuits are made variable so that they can be matched to the aerial tuning system. Each plate tank has its own link coil which is connected to a DPDT knife switch mounted on top of the rack. From thence the feeders go to the aerial tuning gear located near the window.

The unit is designed for use with either an *Amperex* HF 100 or a *Taylor* T55, and, as will be seen in the photo, a separate filament transformer is mounted through the chassis. The secondary is wound 5, 3.75, 0, 3.75, 5, giving 10 or 7½ volts C.T. for the HF100 or T55, whichever is used. All components except the filament by-pass condensers are mounted above the chassis, which is of wood covered with a sheet of No. 26 s.w.g. aluminium, the construction being similar to that of the exciter.

Circuit Arrangements.

The circuit is standard and balanced by the use of split-stator *Cyldon* condensers in the plate tanks. The neutralising condenser is a *National* NC800 (*Q.C.C.*) mounted just behind the valve. It will be noted from the photo that only one wire comes from the Ceramic valve socket (*Raymart*), this being the grid lead for the T55. The HF100 has its grid connection on the side, whilst both the HF100 and T55 have the plate connections on the top of the bulb. Valve connections are made of screening braid sweated and bolted with 6BA nuts to a 3/16-in. copper strip clip. This method is absolutely necessary as the heat generated with these valves at 150 to 200 watts input is likely to melt soft solder.



Rear view of Dual Channel P.A. showing lay-out of components.

Front View of Dual Channel Power Amplifier Unit. Meters: Top (Plate), Bottom (Grid). Controls: Top left (14 Mc. Tank), Bottom left (28 Mc. Tank). Switch below meters controls HT to plate circuit of PA valve. Left-hand pointer controls rotary switch in grid circuit; switch below controls the bias to CO.

Construction.

Referring to the photo, it will be seen that the two grid tank coils are mounted behind the filament transformer, one using a *National* XR13 Ceramic coil former, horizontally placed (14 Mc.), and the other an *Eddystone* DL9 Coil former in a ceramic socket (28 Mc.). Both coils are tuned by an *Eddystone* air dielectric trimmer condenser No. 978 mounted on a small *Tufnol* bracket. The one used for 14 Mc. cannot be seen, as it is fitted inside the XR13 coil form, but the 28 Mc. condenser is visible behind the coil form.

Between the two coils is a *Bulgin* S117 Rotary Switch for selecting the grid coil required. Also mounted on the panel is a *Bulgin* S81 SPDT switch for grid bias supply.

From the rotary switch a flex lead is taken to a small stand-off insulator and to the bottom plate of the neutralising condenser. To the right of the valve are the two split stator *Cyldon* condensers, the one nearest the panel being for the 14 Mc. tank. These are mounted on special *Eddystone* Steatite pillars, but can just as well be mounted on wooden blocks high enough to allow the 28 Mc. extension tuning rod to go *under* the 14 Mc. condenser.

Between the two condensers are mounted two ganged *Ohmite* band switches. These are used

because they are designed to carry high R.F. currents. The switches are operated from a knob on the right-hand side looking at the back of the unit. Each plate coil (which is centre tapped) has its own R.F. choke connected to one side of a *Bulgin* S81 SPDT switch mounted on the panel. From thence a connection is taken to the 0/250 milliammeter through the chassis *via* a small stand-off insulator underneath to a similar stand-off which shows at the right-hand edge of the chassis. Each split-stator condenser has its own by-pass condenser, these together with the grid and filament by-pass condensers terminate at a common earth terminal at the centre of the chassis on the rear edge.

The 230-volt a.c. leads and the grid bias supply are brought in through a chassis mounting valve holder, as in the exciter unit.

The schematic diagram (Fig. 1) shows the circuit to be straightforward, the only complications being the various switches for changing from one band to the other.

As a point of interest once everything has been lined up, it takes less than 20 seconds to change both exciter and P.A. unit from one band to the other.

Neutralisation.

It may perhaps be argued that the neutralisation on one band will not hold good for the other, but as a matter of fact the 14 Mc. channel was tested first, and when the 28 Mc. side was finished it was found that neutralisation was also perfect for this band. This may have been luck, but as all leads are as nearly as possible the same length there is no reason why similar " luck " may not be experienced by others.

The two plates are approximately $\frac{1}{8}$ in. apart in the set pictured. A point to be remembered, however, is that with a split-stator plate tank, neutralisation is more likely to be correct for both bands, than when single section condensers are used. The author strongly recommends this type of construction in any plate tank for a P.A. unit, for although the condensers are more expensive, a balanced circuit is better in every way and particularly so when it comes to the problem of aerial coupling. The *Radio Amateur's Handbook* stresses this point most strongly in the chapter on " Antennæ."

Any triode such as the 210 or 801 can be used in this unit with a proportionately lower output, but it will be necessary in such cases to employ a neutralising condenser with a maximum capacity of about 25 to 35 μμF in place of the NC800.

Operation.

The problem of tuning the P.A. unit is the same for whichever band is being used, so for our example the 28 Mc. band will be discussed. The exciter unit having been lined up and the link connected to the small Steatite terminal block (two of these show between the two grid tanks), the filament of the P.A. valve is lighted. The exciter being alive, the grid bias supply is switched on so that the output valve can be keyed. The SPDT switch is then put to its correct position, the rotary selector switch set to its appropriate stud, and the grid condenser tuned (with an insulated tool as specified for the exciter) until maximum grid current shows in the grid meter. In the unit described this was between 27 and 32 mA with 240 volts negative bias on the P.A. valve. This value is obtained on either 14 or 28 Mc. If no grid current is indicated, try reversing one leg of the link which is *not* a twisted pair. (The 28 Mc. link did not like being twisted so an open link spaced about 1 in. was substituted.) The plate circuit of the exciter output valve may require a slight adjustment to keep the plate current to 70 mA, further, the position of the link coils will also have to be determined to get the correct loading, but here we would refer the reader to the Transmitter Design articles for the methods to be adopted. When maximum grid current is obtained the valve is then neutralised in the conventional manner, using the grid meter as an indicator, until it remains quite steady as the plate circuit is tuned through its resonant point. Now switch on the HT. (the band switch and SPDT HT supply switch having been put in their correct positions), and tune to minimum dip, which in the author's case is 10 mA on 14 Mc. and 15 mA on 28 Mc. After the 28 Mc. channel has been tuned the 14 Mc. side can be treated in exactly the same way. Finally, do not rush the tuning up process; work slowly and methodically stage by stage. Remember, however, that 28 Mc. is more tricky than 14 Mc., and take time over initial tuning. The drive

(*Continued on page* 116.)

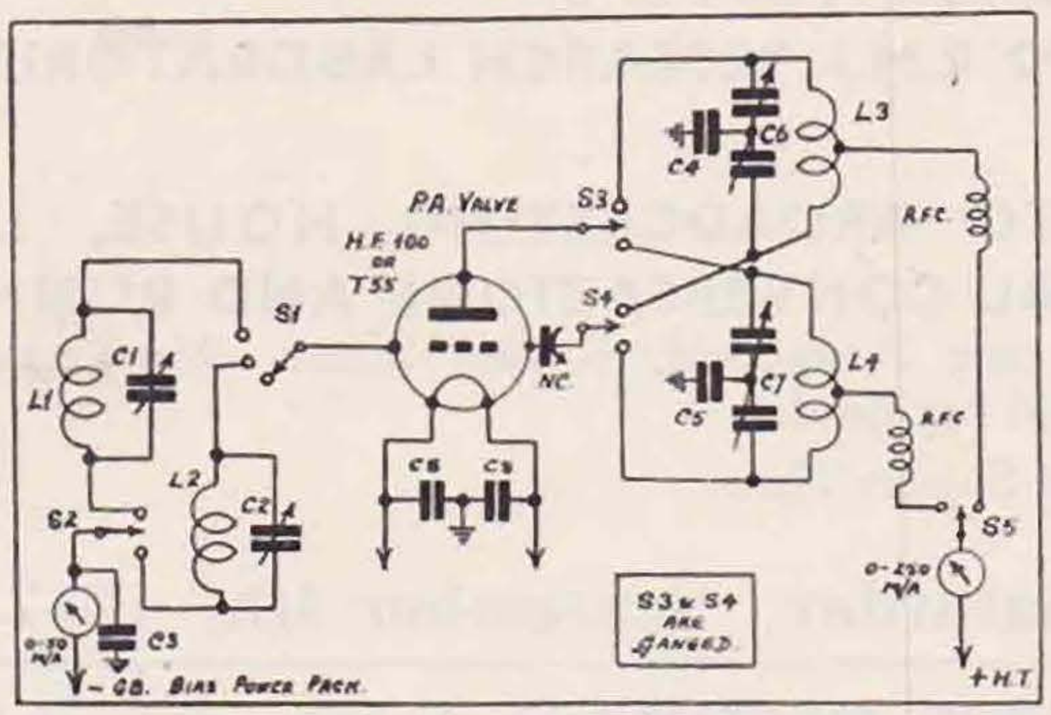


Fig. 1.
Circuit Diagram of Band Switching Power Amplifier unit for Dual Channel Exciter.

C1, 2. *65 μμF, type 978, Eddystone.*
C3. *.002 mica, type 620, Dubilier.*
C4. *.002 mica, 5,000-v. test, type B770, Dubilier.*
C5. *.002 mica, 3,000-v. test, type B770, Dubilier.*
C6. *100-100 split stator, 1,500-v. working, Cyldon.*
C7. *50-50 split stator, 1,500-v. working, Cyldon.*
C8. *.002 mica, type 200, T.C.C.*
N.C. *NC800 (Q.C.C.).*
RFC. *Type 1022, Eddystone.*
S1. *3-way rotary, type S117, Bulgin.*
S2, 5. *SPDT, type S81, Bulgin.*
S3, 4. *Two Ohmite band switches, Eves Radio.*
Meters. *Howard Butler.*
Valve. *HF100 or T55.*
Valveholder. *4-pin ceramic, Raymart.*
Plate coils. *Stirling.*

COIL TABLE.

L1. *14 Mc. on XR13 coil former*
6 turns 18 s.w.g. Enamel 1¾ ins. diam.
Winding length, 1¼ ins.
Link 2 turns.

L2. *28 Mc.*
3 turns 16 s.w.g. Enamel 1¼ ins.diam.
Winding length 1¼ ins.
Link 2 turns.

L3. *14 Mc.*
10 turns 14 s.w.g. Enamel 2¼ ins. diam.
3-in. long C.T.

L4. *28 Mc.*
8 turns 12 s.w.g. Enamel; 1¾ ins. diam.
3-in. long C.T.

Convention Programme

Thursday, September 2nd, 1937

*2.30 p.m. **VISIT TO THE MULLARD RADIO VALVE WORKS, MITCHAM.**

6.0 p.m. **VISIT TO THE SCIENCE MUSEUM, SOUTH KENSINGTON** (Television Exhibition). **No Prior Notice Required.**

7.0 p.m. Gathering of members on R.S.G.B. Stand at Olympia.

Friday, September 3rd, 1937

PARTY No. 1

*10.0 a.m. **VISIT TO THE GRAMOPHONE COMPANY, HAYES, MIDDLESEX.** Followed by

*2.45 p.m. **VISIT TO E.M.I. RESEARCH LABORATORIES, HAYES.**

PARTY No. 2

*1.30 p.m. **VISIT TO BROADCASTING HOUSE, LONDON.**

6.0 p.m. **ANNUAL CONVERSAZIONE AND RUNNING BUFFET** at The Florence Restaurant, Rupert Street, W.1 (near Piccadilly Circus). Charge, 1/6 per head.

8.0 p.m. Display of Society films.

Saturday, September 4th, 1937

10.0 a.m. **DELEGATES MEETING** at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2.

10.0 a.m. Technical Discussion Groups, at the I.E.E., London.

11.30 a.m. **BUSINESS MEETING** at the I.E.E., London.

1.0 p.m. Informal Luncheon at Slater's Restaurant, Strand.

1.50 p.m. **CONVENTION PHOTOGRAPH** outside I.E.E.

2.0 p.m. **PRESIDENTIAL GREETINGS** and presentation of Society Trophies.

2.15 p.m. **LECTURE** and **DEMONSTRATION** by Mr. Maurice Child, F.R.S.A. Subject : "Direction Finding."

4.30 p.m. Tea.

6.15 p.m. **ANNUAL CONVENTION DINNER** at The Florence Restaurant, Rupert Street, W.1.

Tickets 5/- per head if paid for before August 31st, 6/- per head *after that date.*

EARLY RESERVATIONS FOR ALL FUNCTIONS REQUESTED.

* *Successful applicants for these visits have been notified from Headquarters.*

National Field Day, 1937

DISTRICT 16 WIN THE SHIELD

NO British Isles amateur radio event arouses more interest collectively than National Field Day. Months beforehand, D.R.'s and those who have offered to run stations begin their preparations for the great day, and, judging by results, the preparatory work this year was considerably greater than ever before.

The decision to allow each District to operate four stations appears to have been appreciated by the majority of members, but in one or two cases we are fully aware that hardships occurred. In a country such as England with its industrial centres and large agricultural areas, fairly clearly defined, it is well nigh impossible to devise a scheme which will work entirely satisfactory for all, but even in Districts where difficulties were encountered, we have every reason to believe that a thoroughly enjoyable and instructive time was spent by everyone.

Present plans are to continue the four stations per District idea, but we are hoping that the delegates present at Convention will give us their views on this important matter.

The revised method of scoring seems to have been accepted without demur, probably because everyone who has had contest experience appreciates that changes are not made just for the fun of it!

We in the south enjoyed perfect weather throughout the week-end, with temperatures well in the eighties. Little did we think, whilst toiling in our shirt sleeves, that our colleagues in Scotland and Ireland were working in so'westers and gum boots! Weather excepted, the Scottish and Irish stations reported a good time.

One difficulty arose before the event, which calls for some comment. Due, presumably, to the fact that the G.P.O. had been lenient in the past, several District Representatives submitted the names of certain members as official station operators without mentioning that the persons concerned had no permit to operate their *fixed* station on the frequency band to be used during N.F.D. This caused a good deal of unnecessary work, both at Headquarters and at the G.P.O. In future all D.R.'s will be required to ascertain beforehand whether an official operator has a home station permit to operate on the band he wishes to use during N.F.D. The difficulties this year arose over 1.7 and 3.5 Mc. permits.

The Leaders.

Congratulations to District 16 (Southern England) on their first N.F.D. success. Excellent team work, coupled with good fortune at their 14 Mc. station, took them into a commanding position with a score of 517 points.

In view of the general complaint that 14 Mc. conditions were poor (and we agree they were), it says something for the efficiency and location of G5JZP, which was operated under Mr. Sands' call sign on Brightling Needle, high ground in Sussex near the English Channel. This station scored 196 points, 36 more than any other 14 Mc. station. A glance at their log shows that they worked all continents in the first 4½ hours on the Saturday and during the week-end they had contacts with VS1, VE1, 3, VK, LU, PY, W1, 2, SU, ST, U9, ZB.

At the other three stations scores were only average as will be seen from the table, therefore, the district success was mainly due to the fine work at G5JZP. Well done South of England.

The runners-up were District 8, who, although only operating one station on 1.7 and 3.5 Mc., put up the excellent score of 492 points. The District's success is attributed to their extremely efficient A station, which scored 86 points on 1.7 and 150 on 3.5 Mc., thus qualifying for replicas.

Their 7 Mc. score was slightly below average, but with 143 points from 14 Mc., their combined score gives them a comfortable lead over District 13.

South London owe their high placing to a fine 7 Mc. score of 158 points, which was 8 points higher than that reached by District 10 (South Wales and Monmouth). Their 14 Mc. station also did very good work totalling 160 points, the second highest B2 station score in the event.

Fourth place was taken by West London and Middlesex with a score of 469 points. All four stations scored consistently, as will be seen from the table.

District 7 with 150 points from their 7 Mc. station ran into 5th place.

The surprise of the year was the poor show put up by the trophy holders—North London. During the week-end their B2 station scored only 59 points, but these points curiously enough were gathered from such elusive DX stations as VS1AI, VK4EL, U9MI and VU2BA. By the irony of fate they missed the 1.7 Mc. replica by only 4 points.

District 1 scored 147 points on 3.5 Mc., whilst District 2 were only 3 points behind.

For some strange reason none of the leading stations gave more than the vaguest details of the gear used, therefore we are unable to include this information in the report. We wish, however, to thank those D.R.'s who rendered a full account of their district's activity.

WINNERS

District 16

RUNNERS UP

District 8

REPLICA WINNERS

1.7 Mc, District 8

3.5 Mc, District 8

7 Mc, District 13

14 Mc, District 16

Check Logs.

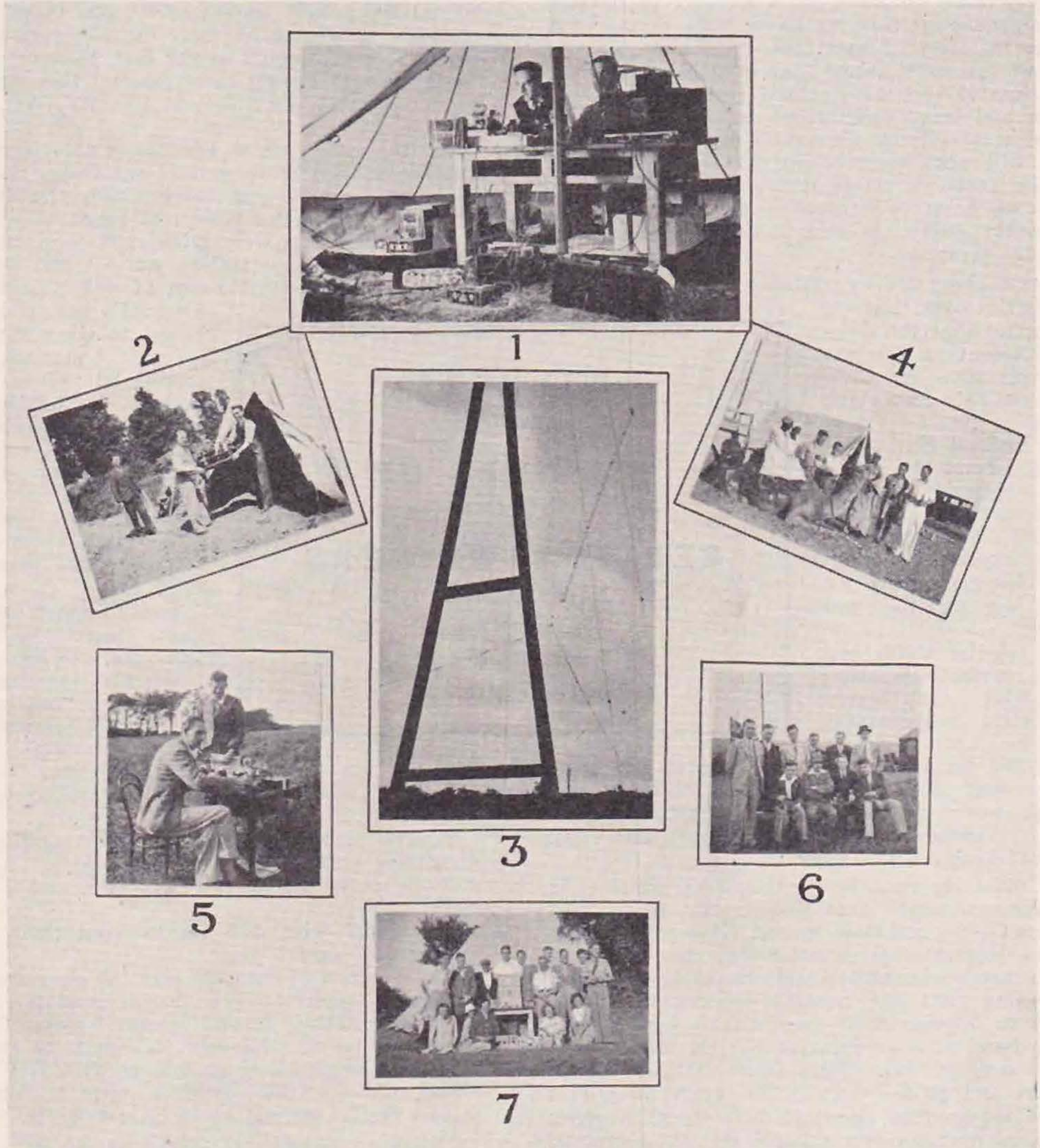
The Committee desire to tender their grateful thanks to all who sent in check logs. They also thank the British Isles stations who " stayed home " and gave points to the portable stations. We are assured by the operators of 1.7 and 3.5 Mc. stations in particular that their gesture was warmly appreciated.

Overseas Co-operation.

The kindly co-operation of the Swiss National organisation must be mentioned. No less than 14 Swiss portables were fielded, and as reported in our last issue, the British portables giving the Swiss portables the most points are to receive special awards.

The Egyptian Group operated a station near Cairo and nearly 30 British portables were worked on either 7 or 14 Mc. Mr. Wimbush (SU2TW) was the prime mover behind this station.

Empire portables were fielded by Mr. W. E. Dunn (ST2LR) and by Mr. R. Galea (ZB1E). Both of these stations were in great demand and both gave hard-earned points to Home stations.



N.F.D. Impressions.

(1). GI5MZ and GI6XS at the Northern Ireland 14 Mc. station. (2). G2IT, 5AO and 6XT at District 7 14 Mc. station. (3). Quarter wave matching line at GI6XSP. (4). At SU1C Cairo. (5). G6CPP with G5MV at the key, Olivers Mount, Scarborough. (6). District 2 Leeds station. (7). G5UKP District 14.

Conclusions.

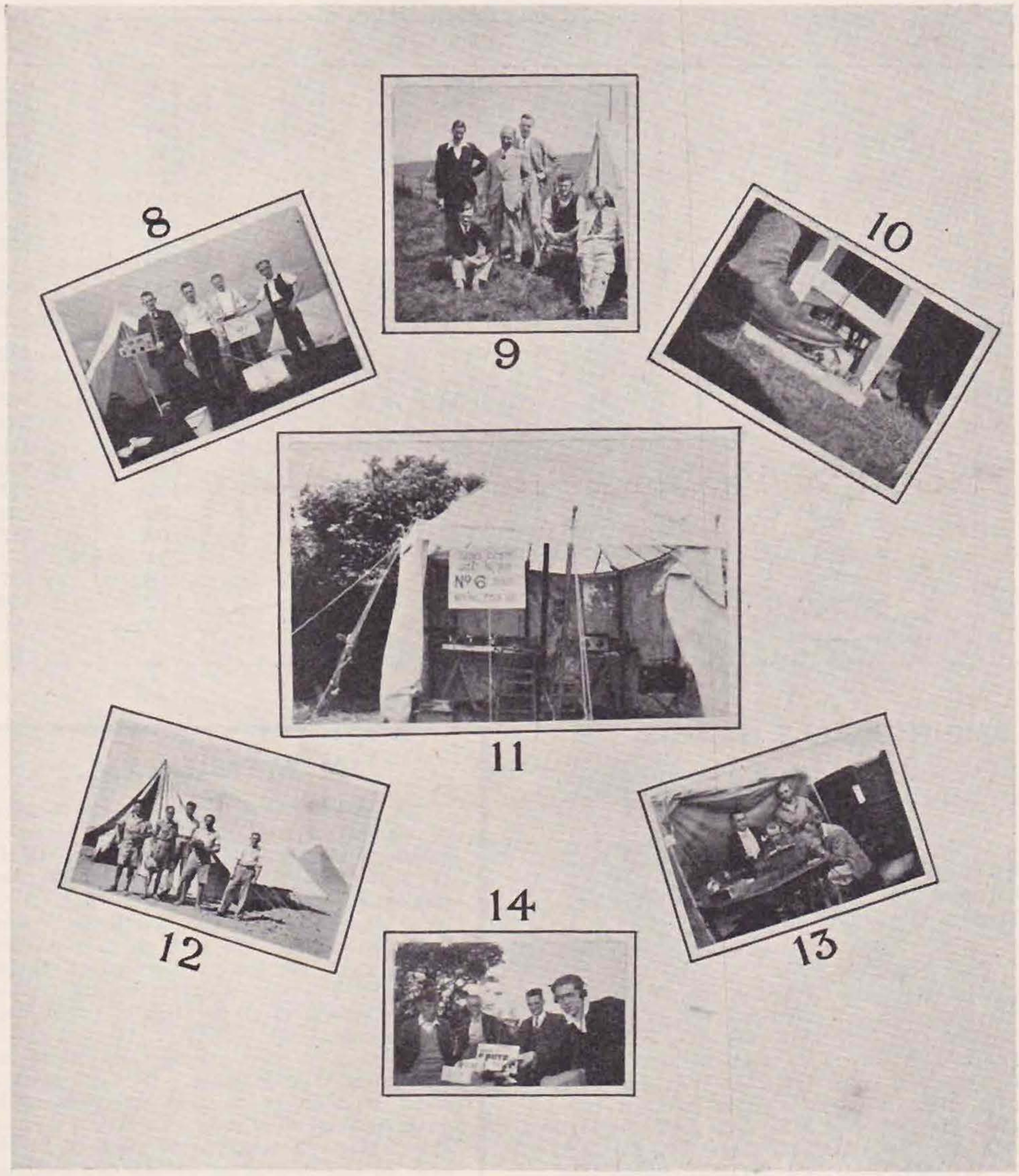
The event has again demonstrated that useful work can be carried out with portable apparatus, but we should like to know that every town group in the British Isles has available, for immediate use, a compact self-contained portable station, including receiver and aerial fitments.

So many of our N.F.D. stations appear to be fixed stations moved into a field, and of a type that can in no sense be regarded as portable.

We wonder how many British amateurs could, an hour after the receipt of a telegram from Headquarters, have a portable station operating 10 miles from their home address and in open country.

We are seriously considering devising a plan which would prove whether we are unduly pessimistic in this respect. We should, therefore, like to hear from any licensed amateur possessing a portable permit who would be willing to co-operate, for besides proving of value to the Society, it would also enable us to keep on hand a list of members available in case of emergency.

We regret that this report is not as comprehensive as those which have previously appeared, but



N.F.D. Impressions.

(8). G5HKP District 2. (9). G2WSP District 4. (10). District 14, QLF at G5UKP. (11). District 6, 14 Mc. station. (12). Cairo group at SU1C. (13). G5ZTP District 1. (14). G6UTP District 14.

pressure of work at Headquarters alone is responsible.

The log sheets are available to members, whilst the official film will, we anticipate, more than compensate for the shortcomings of this account of a memorable week-end.

To all who contributed towards its success we offer our thanks.

NATIONAL FIELD DAY, 1937

ORDER OF MERIT

Position	District	Band in Mc.				Total
		1.7	3.5	7	14	
1	16	60	127	134	196	517
2	8	86	150	113	143	492
3	13	52	108	158	160	478
4	15	69	142	127	131	469
5	7	79	119	145	115	458
6	5	74	130	139	96	439
7	10	62	85	150	121	418
8	18	64	113	97	138	412
9	3	59	96	133	123	411
10	1	56	147	103	100	406
11	12	82	126	123	59	390
12	4	69	135	86	84	374
13	Scotland, B	19	109	123	121	372
14	N. Ireland	46	85	130	100	361
15	14	55	86	150	57	348
16	9	25	110	112	90	337
17	17	60	133	—	126	319
18	Scotland, A & E	—	118	112	86	316
19	6	18	122	73	102	315
20	Scotland, C	21	82	104	89	296
21	2	—	144	72	62	278
22	Scotland, G	—	113	82	71	276
23	19	67	85	77	8	237
24	Scotland, D	—	—	114	72	186
25	,, H	—	—	88	2	90

EMPIRE CALLS HEARD.

Eric W. Trebilcock (*BERS*195), *Telegraph Station, Darwin, North Australia, from May* 25 *to June* 6, 1937.

7 Mc. C.W.: g2hxp (56), 2izp (55), 2oip (55), 2ngp (56), 2ujp (55), 5bjp (55), 5pup (55), 5pyp (55), 5ukp (54), 6mnp (55), 6uap (55), 6zop (55), ve5il (55), zs4a (54), 6am (55), zu6ad (34).

14 Mc. C.W.: ei8b (56), g2fz (55), 2hf (54), 2it (56), 2nn (55), 2pu (55), 2zq (54), 5an (55), 5bj (54), 5ha (44), 5hb (44), 5jx (55), 5jzp (56), 5km (45), 5kj (55), 5ri (53), 5uj (44), 5xg (55), 5yu (55), 6ag (55), 6dl (55), 6dt (55), 6hb (55), 6ku (55), 6lc (54), 6qx (54), 6wb (44), 6wy (33), 8az (54), 8gb (44), 8hn (55), 8il (56), 8iw (55), gi5qx (44), 6tk (54), gm6xi (55), su1wm (55), ve3du (44), 3ig (55), 3qh (56), 3vk (56), 5bi (57,) vq8ab (57), 8as (54), vs1ad (56), 1an (54), 2ae (55), 6ah (57), 7gj (56), 7mb (35), 7rf (57), vu2au (55), 2dr (57), 2lj (45), xz2jb (55) ze1js (56), 1jy (55), zl1dm (56), 1gi (56), ijy (55), 2fa (75), 2ds (55), 2mr (57), 2mu (56), zs1al (57), 5ab (56), 6ad (55), zt2v (55), 5p (55), 6au (55),

IN MEMORIAM.

We deeply regret to record the passing of our distinguished Honorary Member, Senatore Marconi, G.C.V.O., D.Sc., LL.D.

Throughout his brilliant career Marconi retained a close interest in the work being done by those who, like himself, were radio amateurs. We owe to him an immeasurable debt for having created, in the words of Douglas Walters, writing in the *Daily Herald*, after his death, "the spark that changed the world."

No man in our age can do more for Humanity than Marconi; by his perseverance, tenacity of purpose and vision, he gave to Mankind the key to World Friendship. May we continue to emulate to the best of our individual ability the example set by him—the greatest radio amateur of all time.

J. C.

Sensitivity Measurements on 56 Mc. Receivers.

By D. N. Corfield (G5CD).*

THE measurements described below were made in order to ascertain whether the apparently bad "signal to noise" ratio observed by most workers on the 56 Mc. band is due to receiver design or to the very low received field strength in general obtainable. The writer was assisted in these measurements by G5RD and G6GR, and four representative receivers of amateur construction were measured for sensitivity. In the course of these measurements several facts emerged that may be of interest to other working on the ultra-high frequencies. It is for this reason that the results are presented in these notes.

The measurements were taken using a "Ferris microvolter" standard signal generator, which is an all-mains operated instrument using an Acorn triode oscillator, an optional 400 cycle 30 per cent. modulation, another Acorn triode used as a valve voltmeter reading the input to an R.F. attenuator, which gives any output between 0.5 microvolts and 0.1 volts at frequencies between 17.5 Mc. and 150 Mc.

The output of this generator was applied to the aerial circuit of the receiver and the output of the receiver was observed aurally or measured on a rectifier type output meter.

The receivers comprised three types: A super-regenerative, a T.R.F., and two superheterodynes, one with and one without R.F. stage. Their essentials were as follows:—

(*a*) A three-valve battery type super-regenerative using a detector, separate quench valve working at 100 kc., and an output pentode, the circuit as described in Chapter 8 of the 1936 Guide.

(*b*) A three-valve T.R.F. receiver, using an Acorn pentode R.F. stage, a pentode detector and an A.F. amplifier stage.

(*c*) A superheterodyne using a triode hexode frequency changer, two I.F. stages, I.F. approximately 4 Mc., a double diode triode, and an A.F. stage.

(*d*) A superheterodyne using an Acorn R.F. pentode, R.F. stage, a triode hexode frequency changer, two I.F. stages at 4 Mc., a pentode anode bend detector, and an A.F. stage.

Measurements were made in three ways: (1) An unmodulated carrier corresponding to C.W., adjusted to give the weakest easily readable signal about QSA 3-4; (2) a modulated signal adjusted to be also about QSA 3-4; (3) a modulated signal to give standard R.M.A. output of 50 milliwatts, corresponding to about R8 in headphones (Table "A").

Receiver A.—The super-regenerative was more sensitive than was expected; for C.W. the smallest carrier to give a perceptable hole in the mush was about 10 microvolts, and to remove all the mush between 100 and 200 microvolts were required. As most workers on this band have found, it is rare with this type of receiver to find stations that remove all the mush, and in consequence the indications are that signals on 56 Mc. rarely exceed 100 microvolts.

Receiver B.—The T.R.F. is a very good example of the type, and indicates that for C.W. there is little to choose between it and the superhets, but for I.C.W. or phone it is inferior, due to the loss in gain when the reaction is backed off. It was noticeable that for C.W. the "signal to noise" ratio was distinctly better than in the case of receivers "C" and "D," but not appreciably so for I.C.W.

Receivers C and D.—Were more or less equally sensitive to weak signals, but the "signal to noise" ratio on "C" was rather worse than "D," due to the fact that there appeared to be more I.F. gain giving more oscillator hiss, and, of course, there was no R.F. gain.

Receiver D.—Was investigated more thoroughly, due to more time being available for the purpose. The gain of the R.F. stage was measured at 57.5 Mc. and found to be nine times, but at lower frequencies the gain was considerably more. The R.F. stage in this receiver used regeneration, i.e., the cathode was tapped half a turn up the grid coil, the gain control being a variable screen potentiometer. The tuning range covered was 27-60 Mc., and the variation in sensitivity over this range for 50 milliwatts output was as follows:—

Frequency Mc.	57.5	60	55	50	40	30	28
Input Microvolts	7	5	5	3	1.5	.8	.8

As on this receiver the oscillator condenser was not ganged to the two-gang condenser used for tuning the R.F. stage, the sensitivity was measured using the oscillator harmonic (i.e., oscillator on 28 Mc., R.F. to 57.5 Mc.), and this was found to be 1,400 microvolts. The oscillator

*R.E.S. Valve Section Manager.

Receiver.	Frequency. Mc.	Weakest C.W.	Weakest I.C.W. 30% Mod.	50 milliwatts output.
A ...	57.5	—	5 microvolts	Not obtainable due to A.V.C. action.
B ...	,,	1 microvolt	5 ,,	Not obtainable.
C ...	,,	2 microvolts	4 ,,	30 microvolts.
D ...	,,	1 microvolt	2 ,,	5 ,,

Table "A"

circuit being a " Hartley," the output is obviously very harmonic free. This effect is referred to again later.

The quoted figures show that in general the receivers used for 56 Mc. are at least as sensitive, if not more so, than those used on other bands, and the " signal to noise " ratio is, generally speaking, no worse, and when one allows for the fact that tuned efficient aerials are used, it is evident that the field strength of ground wave signals on this band is appallingly low compared with other bands. For example, the input equivalent to the signal from the Alexandra Palace required for " Black level " on a television receiver was checked at the writer's station and found to be 4,000 microvolts, whereas the 25-watt transmitter used by G5CD on 3.5 Mc. at a distance of a few miles produces an input of about 20,000 microvolts.

The question of using oscillator harmonics seemed important, so investigation was made on another superhet covering the other amateur bands. This superhet used an electron coupled oscillator driving the hexode section of a triode hexode, and it was already known by previous measurement that on 7 and 3.5 Mc. the sensitivity was the same whether the fundamental or the harmonic of the oscillator was used. Tests were made at 17.5 Mc., being the lowest frequency obtainable from the signal generator, and the sensitivity was measured for a current of 100 microamps. in the diode second detector corresponding to 25 volts D.C. This method was used only in order to line up with earlier measurements on the same receiver.

	Fundamental.	2nd harmonic.	3rd harmonic.
Input microvolts	90	4,100	1,400

These figures show that at high frequencies it is undesirable to use the oscillator on harmonics, presumably due to the circuit capacities by-passing the harmonics. If for reasons of stability it is necessary to use the oscillator on a harmonic at these frequencies it is essential to tune the output to harmonic frequency, otherwise the sensitivity will be very low. It is strange, nevertheless, that the 3rd harmonic gives better sensitivity than the 2nd, although the output of the 3rd is sometimes higher than 2nd in the case of frequency multiplying circuits.

The measured gain of the R.F. stage in this receiver, using a type 9D2 R.F. pentode similar to an American 78 or 6D6 at 17.5 Mc. was four times, whilst its gain at 14 Mc. was eight times. These figures, compared with earlier figures for the Acorn, show the latter's obvious advantage over a normal type valve.

It is hoped that the above notes will shed some light on the difficulties experienced by workers on this band, and also give others an insight into the quantitive data of short-wave receivers.

N.F.D. in Malta

The ZB1 Group will remember this year's N.F.D. as a day truly and well enjoyed. Undaunted by the fact that the majority of the members were unable to take part owing to the call of duty, the rest, a lucky four, managed to keep the station on the air for the whole of the allotted period.

Station ZB1EP, a portable in the strictest sense, was erected on a rocky hill overlooking the blue sea at an altitude of 400 feet, commanding a beautiful panorama. This " QRA " was lent by ZB1H, on whom the onus of transport also fell.

The receiver (by 1J), using 2-volt valves in a 1-V-1 circuit, had a separately boxed HF unit. The transmitter (by 1E) consisted of one 6L6 working as CO and FD and one 46 as PA supplying an end-fed 66-ft. antenna terminated on a 12-ft. pole. The input, from a battery-driven M-G, varied from 12 watts to 7 watts as the battery became discharged. The power supply problem was effectively solved by accumulators.

The weather was sunny and warm, with a wind which threatened to blow down the aerial pole. Conditions rendered the use of no other band but the 14 Mc. practicable, on which 19 British portables were worked. It may be of interest to record that no G stations were heard during the period 01.30 to 07.00 G.M.T., although Ws were heard working them.

We hope that N.F.D. competitors appreciated our effort to help them in their score, and we add that the ZB1 Group are already looking forward for the next N.F.D.

ZB1E.

The personnel at ZB1EP.

VU2BA

Members who have worked this station and have failed to receive his QSL are asked to write again immediately, as the operator will shortly be leaving for England.

An Appreciation

R. F. Galea, ZB1E, wishes to record his appreciation of the kindness and cordial reception accorded him by F8LA, F8OB and F8DS, the President, Treasurer and Secretary, respectively, of the R.E.F., when he paid them a visit at Headquarters in Paris in June ; also to " Clarry " and to " Ham " Whyte, when he visited them at R.S.G.B. Headquarters, London. Many thanks, OM's.

Some Useful Measuring Gear

By G. J. Shorten (G2SQ), A.M.I.R.E.

IT is thought that a short description of various measuring instruments and indicating devices of a non-laboratory standard of construction would be useful to a number of readers whether they be newcomers or old hands.

It is not intended that this should constitute a comprehensive article on the subject of "Meters and Measuring Instruments," but rather that it should consist of a number of paragraphs describing in sufficient detail a range of measuring instruments which the average experimenter can quite easily and economically construct.

The descriptions to follow cover several types of instruments suitable for both HF/LF and AC/DC measurements.

Under the headings of HF we can include such instruments as a Field-strength meter, a Bolometer Bridge and a Valve voltmeter.

The Field-strength Meter.

This can find many applications in aerial experiments, such as determining the relative improvement of one system against another, giving thereby a result of greater accuracy than the method of comparing "R" strengths. A simple Field-strength meter is illustrated in Fig. 1.

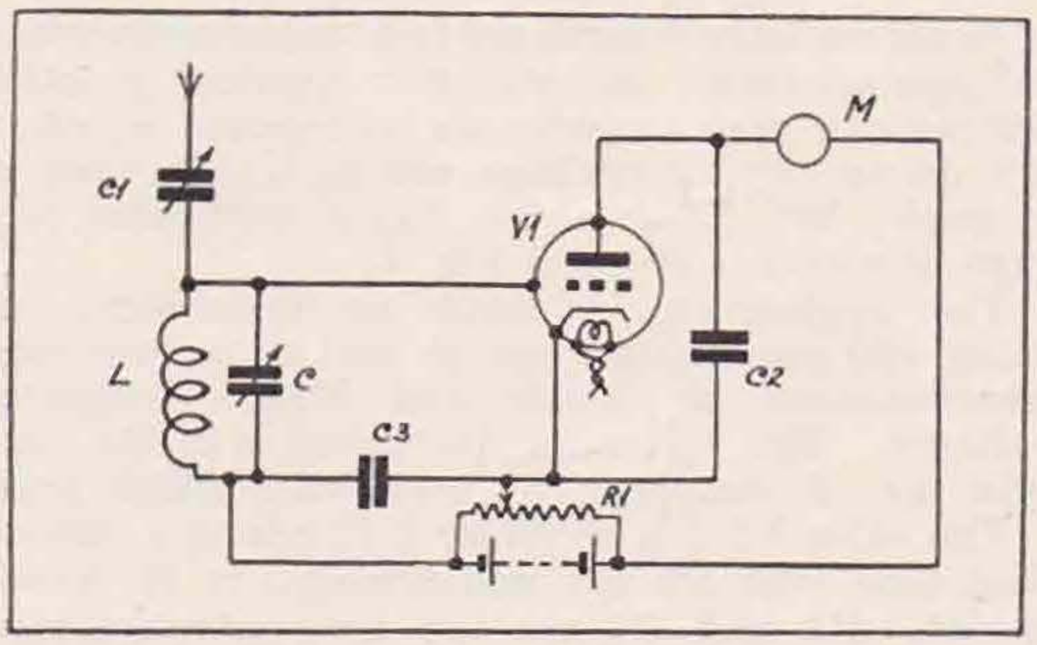


Fig. 1.
Circuit of Field Strength Meter.
LC Tuned circuit.
C1 .00004 μF.
C2, 3 .0002 μF.
R1 1,000 ohms.
M 0-1 milliammeter.

The instrument consists essentially of an ordinary Triode V1 utilised as a Linear rectifier, a tuned circuit and a sensitive indicating device M, such as an 0-1 mA. meter.

The pick-up, which is shown as connected *via* the Condenser C1 to the tuned circuit, can consist of a short length of copper tubing or very stiff copper wire. The component values are shown in Fig. 1. The battery, which can be 9 volts, is used both for G.B. and a low-voltage Plate supply, and the combination of H.T. and Grid Bias should be such as to bring the valve exactly to cut-off conditions.

When a signal is tuned in, rectification takes place, and the increase in the anode current of V1 will produce a meter reading. It is not necessary that this reading should be a "real" value, because we are concerned merely with comparisons. The instrument can be used for comparative tests of either Aerial or Transmitter adjustments or for a derivation of the Field-strength patterns of Beams or Arrays used on the higher frequencies.

The Bolometer Bridge.

Next on our list comes the Bolometer Bridge, and, although the circuit may be a stranger to some readers, a study of Fig. 2 will show that the principle is that of an ordinary Wheatstone Bridge.

This device is particularly useful for the measurement of comparatively small R.F. currents in the order of milliamps.

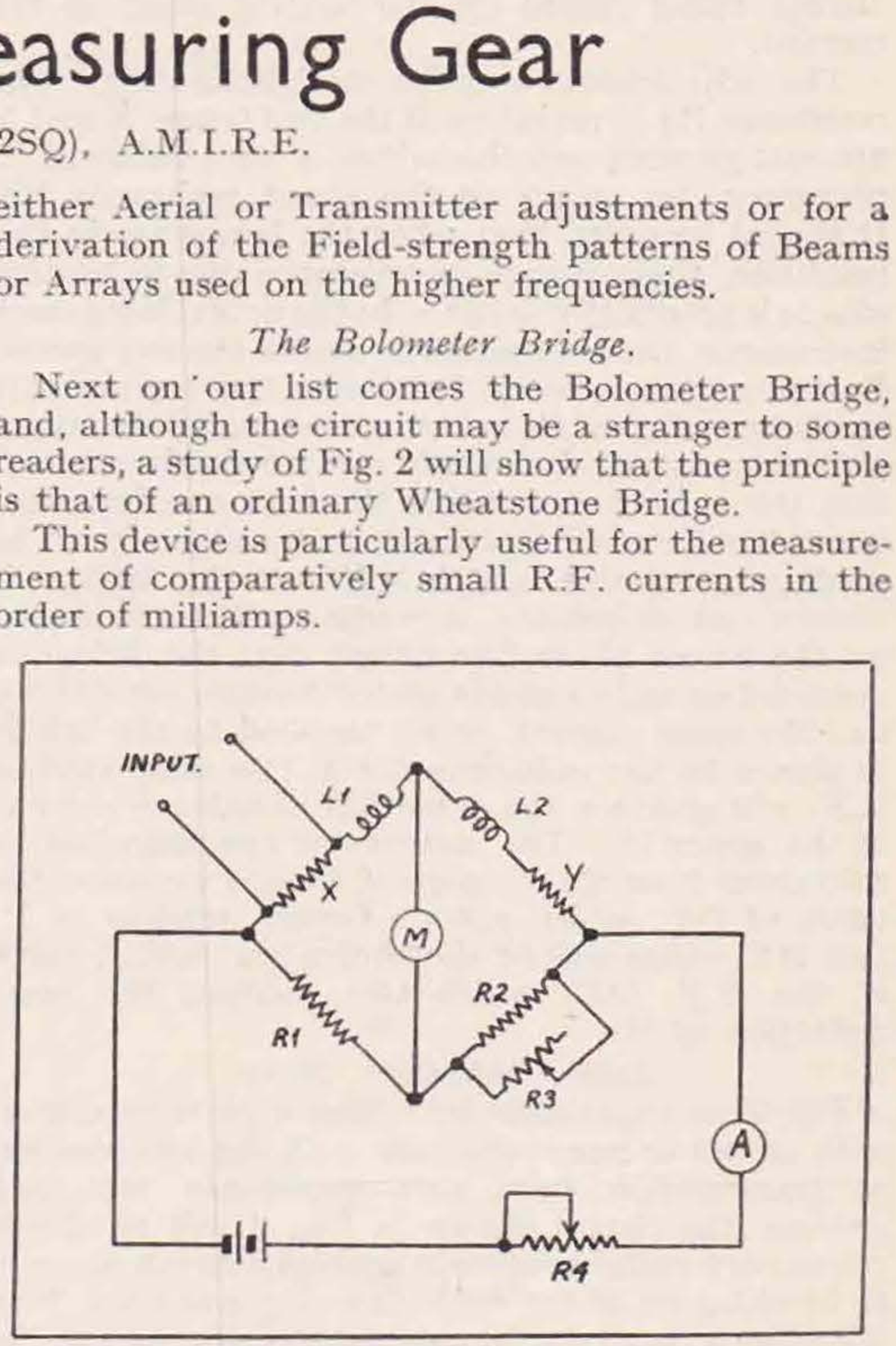


Fig. 2.
The Bolometer Bridge.
This is a reasonably sensitive R.F. current-measuring instrument which can be used for R.F. bridge measurements, the plotting of resonance curves and many other purposes where a direct measure of R.F. is required.

The principle, as previously stated, is similar to the Wheatstone Bridge, being fed by a low-voltage battery of 3 or 4 volts.

The meter can be of the 0-1 milliamp type, as are all the meters mentioned in this article; therefore, before constructing any of the apparatus described, it will be necessary to buy, borrow or otherwise obtain a meter of this type.

The two resistances X and Y are two 60 or 100 milliamp low-wattage lamps, and R1 and R2 should preferably be of the same resistance as the lamps chosen. The shunt resistance R3 is in the form of a 400-ohm Potentiometer used for balancing the bridge when no RF is flowing. The resistance R4 in series with the battery supply, which can be in the order of 30 ohms, is used as a further means of obtaining a balance. The chokes L1 and L2 should be made a few turns each in order to keep their ohmic resistance low, thereby preventing a disturbance of the balance. They are inserted merely to confine the flow of H.F. to the appropriate lamp or indicating device, and so prevent it from flowing round the remaining arms of the bridge. The action of the bridge is dependent upon the applied R.F. throwing the bridge out of balance, and this is brought about by causing it to change the resistance of one of the lamps X or Y. The value of this changed resistance is then a measure of the R.F. current flowing, the

change being caused by the heating effect of the current.

The adjustment s quite straightforward. The resistance R4 is varied until the two lamps X and Y are just glowing and the bridge is then balanced, if necessary, by means of the shunt resistance R3. It should be noted that when the lamps are in this condition, their change of resistance due to heating effects is practically linear. In the actual laboratory instrument, the resistances X and Y are two special Bolometer wires, very fine wires the temperature coefficient of which is known ; the altered resistance is then measured accurately and from this information the current generating the heat can be calculated, but for our purposes the measurement can be made much more simple. When the bridge is thrown out of balance, a reading will be indicated on the meter M, and provided that the bridge is operated on each occasion under the same conditions, *i.e.*, the same current being supplied to the bridge as shown by the milliammeter A, this same applied R.F. will produce the same out-of-balance current in the meter M. The instrument can therefore be calibrated from a D.C. supply, then if we know the value of D.C. which gives a certain reading of M, this D.C. value will be the equivalent R.M.S. value of the R.F. (AC) which will produce the same deflection of M.

Surge Impedance Meter.

For those experimenters whose work is concerned with aerials or more especially with the construction of transmission lines and impedance matching devices, the circuit shown in Fig. 3 will no doubt prove very useful because it enables a direct measure to be obtained of the surge impedance of lines, thus affording a check on the calculated value, and at the same time greatly facilitating the obtaining of the correct impedance match between the aerial and lines.

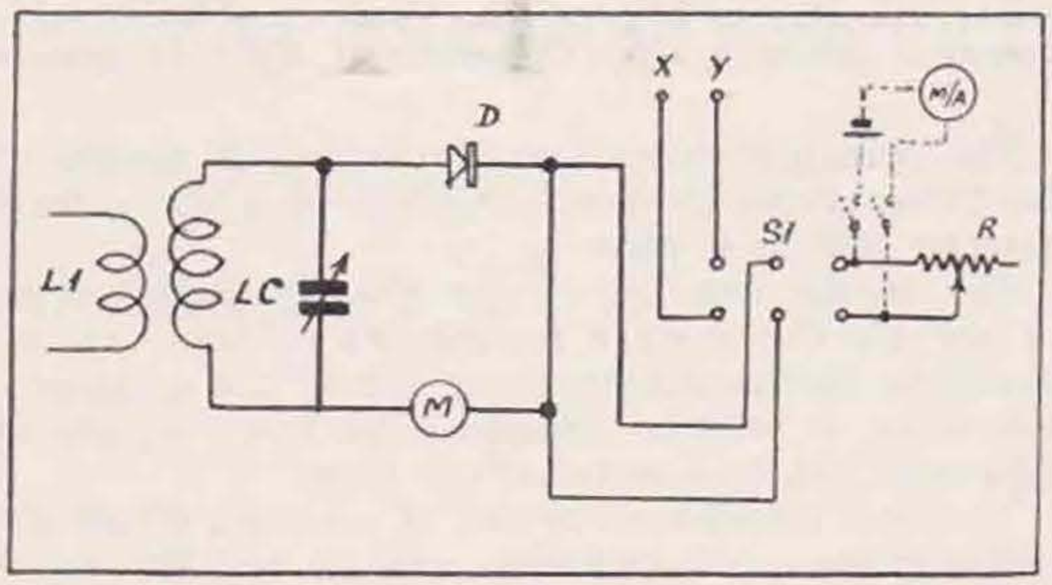


Fig. 3.
A Surge Impedance Meter.

Once again, M is our old friend the 0-1 milliammeter, and if you have not already obtained one, the writer suggests that you turn over the page and read another article !

LC comprises the normal tuned circuit, whilst L1 provides a means of coupling to the supply source of a frequency at which the impedance is required to work. The source in this case can be the transmitter, and link coupling to one of the stages will suffice.

D is the rectifier—valve or crystal—and S1 a double-pole change-over switch.

The resistance, R, is variable and its maximum value can be, say, 800 ohms, this providing sufficient margin to cover any normal line impedance.

A word about R. As this is the part of the circuit which gives a direct reading of the load across X.Y., it is necessary that this be calibrated, preferably in such a manner that its resistance can be read from an attached pointer. If this has not already been done, an uncalibrated resistance can be used, and the part of the circuit shown dotted can be added, thus giving the value of R from an application of Ohm's Law.

This part of the circuit can either be permanently connected or used for calibrating the resistance and then removed from circuit. This resistance will give a result sufficiently accurate for ordinary needs, as an error of a few ohms will not have any disastrous effects as regards line matching.

The *modus operandi* is as follows :—

A signal is tuned in on LC. The impedance to be measured is connected to X.Y. and the switch S1 placed in the left-hand position, thus placing the impedance across the tuned circuit. This will damp the circuit and cause a decreased reading to be shown on the meter M. This reading should be noted and the switch moved to the right-hand position. R is then adjusted until the reading of the meter is precisely the same as with the switch in the previous position. A reading of R will then give the impedance of the load across X.Y. as it must be remembered that the impedance of a line or aerial connection can be assumed to be a pure resistance if the matching is correctly carried out.

The Valve Voltmeter.

So far we have considered two instruments which perhaps are rather uncommon in Amateur practice, but we can next consider an instrument which, if not uncommon, is perhaps not so widely used as it might be. This is the Valve voltmeter, one type of which is given in Fig. 4.

The applications of such an instrument are many and varied, and can be said to include such measurements as Audio and Radio frequency voltages. The voltmeter illustrated is of the peak type, *i.e.*, it measures the peak volts which exist.

The valve V1 can be either a Triode or a Screen-Grid type with the 0-1 milliammeter in its Anode circuit. R1 and R2 are the two potentiometers necessary for adjustment purposes, R1 has a value of 2,000 ohms, whilst R2 is 1,000 ohms. Both should be of the wire-wound variety.

The plate supply can conveniently be taken from two 9-volt grid bias batteries, whilst the grid bias

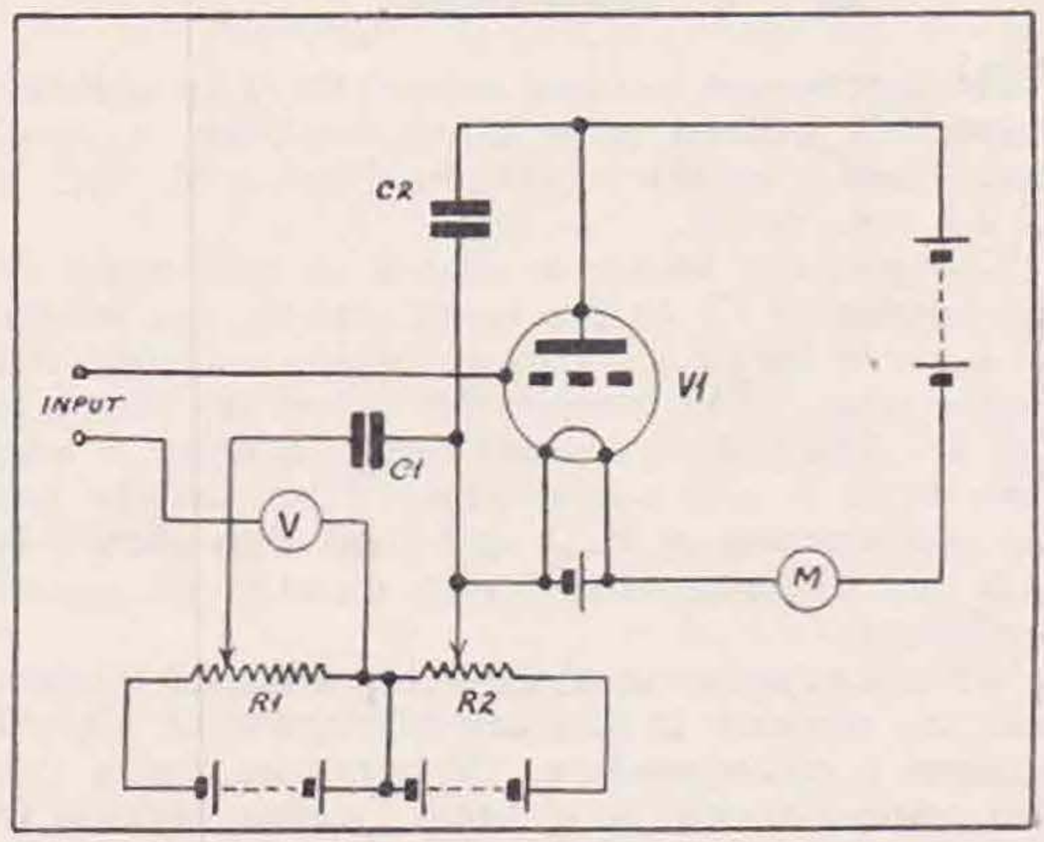


Fig. 4.
A Peak Valve Voltmeter.

supply itself is taken from another battery of 9 volts. The voltmeter shown is 0-10 volts and should be of the high-grade type of 500 or more ohms per volt. This is necessary in view of the fact that it is this metre which gives a direct measure of the applied peak volts by what is known as the " Slide-back " method. C1 and C2 are by-pass condensers of .0005 and .01 μF. respectively.

The operation of the meter is as follows :—

R1 should first of all be adjusted until zero reading is indicated on the voltmeter, *i.e.*, it should be turned right back. R2 is then adjusted to obtain what is known as a " false-zero," as indicated in the milliammeter. To do this the valve is biased right back by means of the resistance R2 until zero, or very nearly zero, anode current is indicated in M. The voltage to be measured is then applied to the two terminals marked input. The peak volts so applied will of course cause an increase in the anode current of the valve.

The resistance R1 should then be adjusted until the reading of M is returned again to the original or " false zero " position. The volts then shown on the voltmeter will be the value of the *applied peak volts*.

The use of the valve type voltmeter is, of course, absolutely necessary where it is required that the meter used shall consume no power. This condition is fulfilled in this particular instrument owing to the high impedance which it offers to the load circuit.

Multi-Range Valve Voltmeter.

Another type of valve voltmeter is shown in Fig. 5 : this is of the multi-range type and can be used either for D.C. or A.C. of any frequency.

It will be seen that this particular voltmeter consists of a rectifier valve V1 and a D.C. amplifier V2. These can be as shown, a Diode and an ordinary Triode.

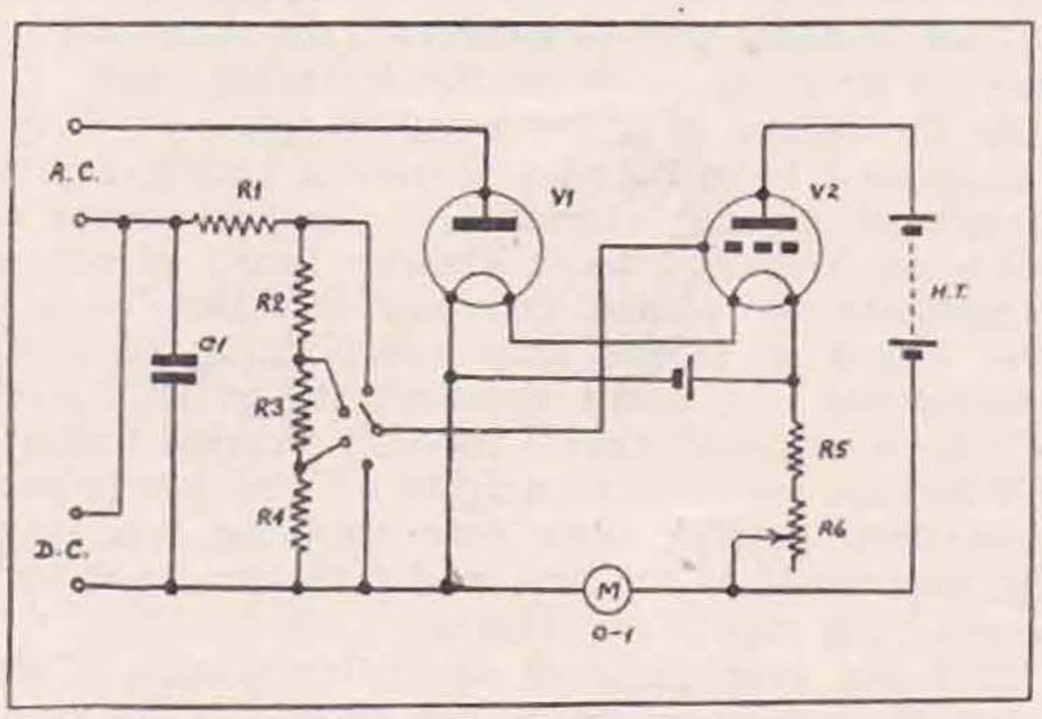


Fig. 5.
A multi-range valve voltmeter which can be used for D.C. or A.C. of any frequency.
R1, 3 100,000 ohms.
R2 1 megohm.
R4 11,000 ohms.
R5 1,000 ,,
R6 10,000 ,, variable.

Due to the fact that the rectifier is of the Linear and not the Square Law type, the meter scale gives a direct reading of the applied volts and is also suitable for any frequency of A.C., its maximum error not being in excess of 6 per cent.

The values of the components used are given below the circuit and the adjustment of the instrument is the same as previously explained for the Peak Valve Voltmeter, Fig. 4.

The range of the measured D.C. voltage can be varied by means of the tapped resistances R2, R3 and R4. With the particular values shown, the D.C. voltage range is from a fraction of a volt to just over 100 volts. Any other values of these resistances can be chosen to give any desired range.

It is interesting to note that for measuring D.C. less than 0.1 mA. is taken by the meter for voltages up to 100 volts and, due to this fact, it makes the meter very suitable for the measurement of A.V.C. voltages on a receiver. For the peak value of A.C. it will be necessary to multiply the indicated reading by 1,414. In use, it is important to see that there is a direct D.C. path through the circuit under test. The H.T. battery shown in the diagram should be between 50 and 60 volts, and the only adjustment different from those previously stated for Fig. 4 is that with no applied voltage the resistance R6 should be adjusted to bring the valve V2 to cut-off conditions.

A chart must be prepared with applied voltage plotted against the reading of the anode circuit meter M. The 50-cycle mains frequency will be quite suitable as a means of calibrating the A.C. side of the meter.

Capacity Bridge.

Lastly, a description of a capacity bridge would not, perhaps, be out of place.

A very simple but efficient capacity bridge is illustrated in Fig. 6.

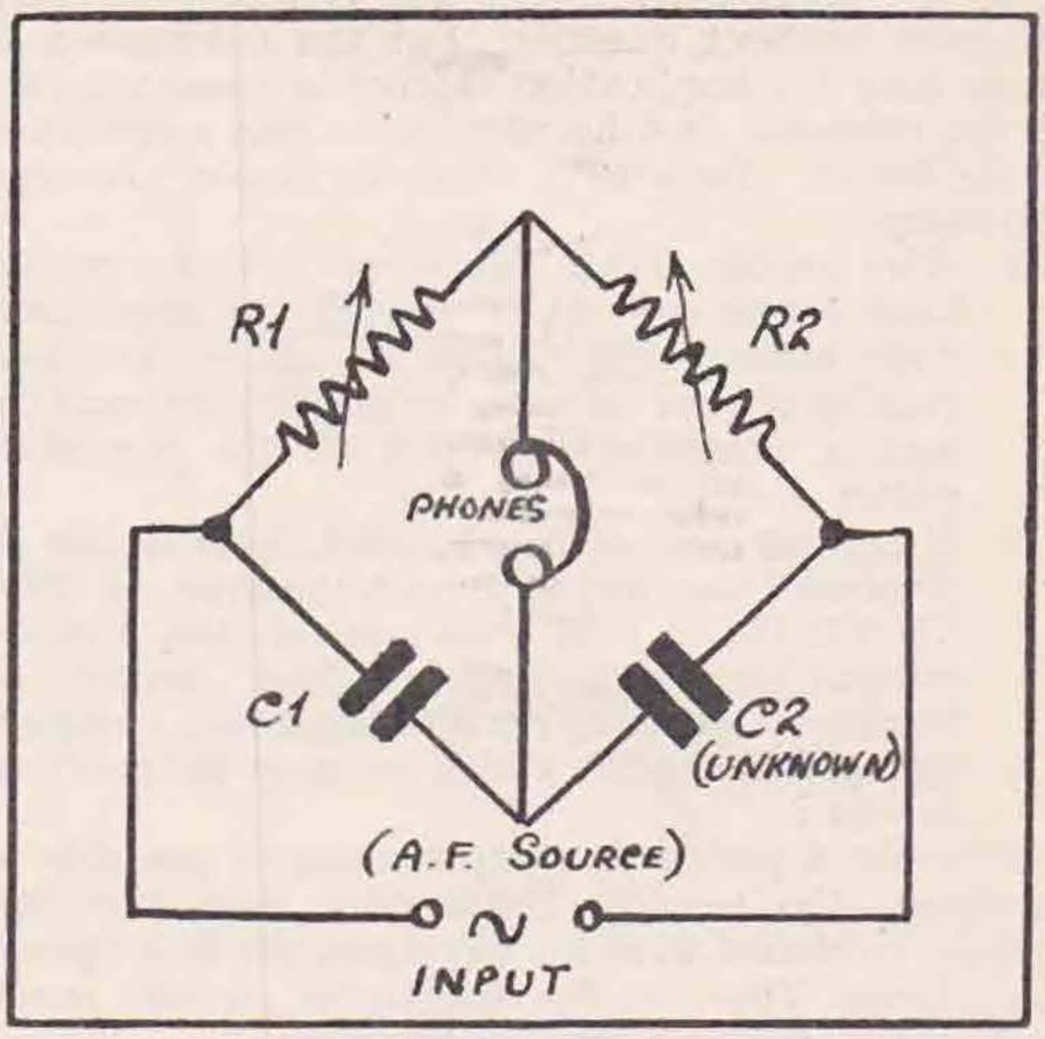


Fig. 6.
Circuit of a Capacity Bridge.

The principle of operation is that of the Wheatstone Bridge, as previously mentioned for the Bolometer Bridge.

R1 and R2 are two variable resistances of 5,000 ohms each and, as in the case of the impedance measuring device, it is necessary that these be of the calibrated variety so that their resistance can be read from a scale.

The usual bridge-indicating device takes the form of a pair of headphones, whilst the terminals marked input are connected to a source of audio frequency oscillation, an ordinary buzzer circuit being quite suitable for the purpose.

(*Continued on page* 116.)

Soliloquies from the Shack

By Uncle Tom.

(Someone once made the profound observation that you couldn't have a dogfight without two dogs. We are lucky this month—there seem to be three, including our own poodle.)

" Dogs delight to bark and bite,
And little birds to sing,
. . . . . .
. . . . . ."

BY way of accepting the expressed invitation of your contributor, the self-styled " horn-rimmed poodle " Uncle Tom, to take another " squirt " (vile term) at him in the matter of his latest effusion on 56 Mc. " wobbulators," your indulgence is again sought.

The eye of your contributor is perceived as having the furtive look of a man who suspects the presence of a noose round his neck. The conclusion that he hopes for the best, yet at any moment fears the worst, is irresistible. His undignified attempt to evade the real issue by quoting only such excerpts as might profit his own ends leads to the supposition that he now sees " the writing on the wall."

However, the statement that the " terms " crystal control and the " magic formula DX " were not specifically mentioned is wholeheartedly accepted without question, but the submission is made that the implication thereof is unmistakable. If the inference is otherwise, then two appendices to the list of " Things We Want To Know " become necessary :—

1. Why babble about high power (sic) for purely local contacts ? It is grieving to learn that your contributor should so abuse the hospitality of your columns by publicly advocating such a pernicious addition to the prevalent welter of QRM.
2. If crystal control be excluded, how is one to reconcile the apparent alternatives of MO-FD-FD-PA or long-lines control (the minima compatible with any marked degree of frequency stability) with the small, compact and portable gear which he now purports to favour ?

Possibly a personal interpretation of portable is involved—the worthy Highlander does not feel unduly burdened with his bagpipes, yet it is opined that Uncle Tom, in his itineraries, would much prefer the solace of his mouth-organ.

In exchange for his solutions to these grave problems (accompanied by 50 coupons cut from the QSLs of stations heard on his straight receiver) the undersigned will cheerfully donate one efficient super-regenerator (carriage paid home) from which he will derive untold pleasure and satisfaction in " deciphering " these " trans-golf-links " QSOs.

Whilst disclaiming any wish to further belabour the subject, it is difficult to conclude without pointing a lone finger at the moving story on page 32 of July Bulletin—and then four more at Uncle.

Although it is felt that your non-aquatic contributor has stepped into eight feet of water, he may still be assured of the unwavering friendship and entire lack of malice in the words of his two naughty nephews,

" Wibble and Wobble."

Sorry, my nephews and nieces, if this page is being turned into a correspondence column for the settlement of private grievances ; but those dear spirits " Wibble and Wobble " have so wormed themselves into my affections that I am thinking of turning " Soliloquies " permanently over to them. I am sure they would make a fine job of it.

I am pleased to have let them have the last say in this 56 Mc. business, because (*a*) they persist in misunderstanding my feelings in the matter or (*b*) I expressed myself so badly before that I am very much to blame myself. But we'll leave it at that. I still feel as I did, but I find myself almost agreeing with them—except that I disapprove strongly of wibbles and wobbles in general.

So now we all know that (*a*) the big ones are larger than the small ones and (*b*) the higher the fewer. Anyway, they both bounce.

(Incidentally, your non-aquatic contributor has just returned from stepping, jumping and diving into eight feet of water, and feels none the worse for it—in fact, considerably better. Has this any connection with the writing on the wall ?)

At this season of Conventions and good-will, I simply find it impossible to be malicious—even in print. Everything is definitely unky-dooley, perhaps because I make it a rule of life never to do any radio work during August. Perhaps the spitch-merchants and the wibble-wobblers are still there in full force, but they trouble me not. All the same, immediately after Convention I am due for my annual spell of super-activity, and then I propose to go to work on the following lines.

In the course of a few hundred QSOs on C.W., I suppose I have heard well over a hundred complaints of 'phone interference. In the course of QSOs on 'phone, I have likewise heard plenty of complaints of 'phone interference. But have I ever heard a 'phone man complaining of C.W. interference ? I don't recollect it—or if I have he's been so dumb that I haven't worried unduly.

What are the C.W. men up to ? The 'phone men have been getting their own way for too long. Up, exponents of the key, and give 'em what for ! Assert your rights as citizens !

If I am ever jammed again by 'phone, I am going to remove parts of my filter, bit by bit—not so much, you understand, that my note could be described as heavily modulated, but so that it is distinctly *coloured*. No more pure lily-white notes for me—the present variety is a brilliant canary yellow, but, of course, T9.

Look out, you 'phone-birds. You have been warned. The Yellow Squad will be on your tails after Convention.

Stray

Messrs. Stratton & Co., Ltd., of Birmingham, inform us that their experimental call sign G6SL has been illegally used by a station working on 7 Mc. Transmissions from G6SL are confined to the 56 Mc. band.

Remote Control by Radio

J. E. Bryden (2BOL). *

THE apparatus about to be described was built to demonstrate a practical system of switching four separate circuits by radio, using only one frequency for transmission. This apparatus is in two sections, the control end or transmitter, and the remote controlled end or receiver. Both units are entirely self-contained and derive their power from the mains.

From the photograph it will be seen that in conjunction with the transmitter there is a panel with five buttons and five corresponding signal lamps (Fig. 1). The five buttons represent "off" and "on" for the four separate circuits at the remote end. There could, if necessary, be five circuits controlled, but there would be no "all off" position. When one of the buttons is pressed the transmitter sends out a signal, the receiver which is some distance away is operated by this signal and selects the circuit represented by the button at the operator's end.

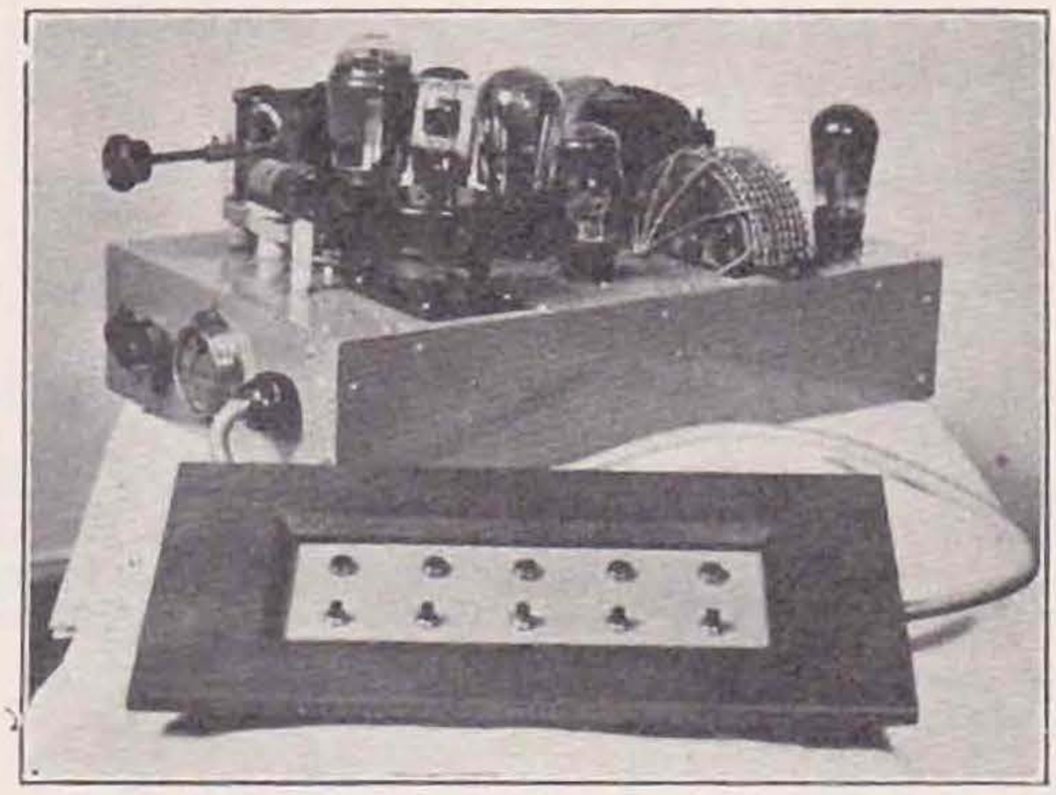


Fig. 1.
View of transmitter and control panel.

The Selector Switch.

It will be observed that a telephone selector switch is used in both units. As most amateurs have handled this type of switch only a brief description is necessary. The switch is arranged to rotate eight sets of wipers (double ended) over eight arcs each having 25 contacts. After a pulse of current is applied to the drive magnet the eight selector arms or wipers are moved by a ratchet and pawl device to the next set of contacts—that is, 25 current pulses are required before the opposite end of the wipers arrive at the same position. Note, 50 pulses are required for one complete revolution.

By arranging mechanically operated interrupter contacts so that the drive magnet supply is automatically interrupted when the pawl springs are loaded, the armature and pawl will quickly return to normal, moving the wipers to the next set of contacts. The interrupter contacts now close again, giving the drive magnet another pulse, and the circuit is once more interrupted and the arms move to the next position. As long as the supply continues, the wipers will rotate round the contact bank. By arranging the wipers to control the supply circuit to the drive magnet via the arc contacts the wipers can be arranged to stop at any pre-determined position. On referring to Fig. 2 it will be seen how the switch buttons are used in order to sweep the selector wipers to various definite positions according to the button pressed. The mechanism stops at the blank contact of the arc selected by the button.

The Transmitter.

The transmitter, which operates on low power, consists of a *Hivac* AC/Y as tetrode crystal oscillator working on 7 Mc., but the circuit could, of course, be designed to operate on other bands. The grid leak is 40,000 ohms, and a 30,000-ohm resistance is used to drop the high-tension voltage to the second grid, thus preventing a tendency for the electrodes to heat. All the 0.1 μF. condensers illustrated in the diagram are non-inductive.

The crystal oscillator is plate modulated by a *Cossor* 41MP. The modulation choke is of small inductance (about 10 Henrys), as approximately 1,000 c.p.s. is the only low frequency required. The same high-tension voltage is applied to both oscillator and modulator, as less than 40 per cent. modulation is sufficient for successful operation of the receiver unit. The low-frequency oscillator, which is transformer coupled to the modulator, is adjusted to about 1,000 c.p.s., and the required output is obtained by altering the two variable resistances. The 25,000-ohm variable resistance in the cathode circuit mainly controls the pitch of the note. 1 : 3½ is the ratio of each transformer.

Arc 7 of the selector switch controls the H.T. positive lead of the low-frequency oscillator. Arc 8 controls the cathode circuit of the crystal oscillator.

Reference to Fig. 3 shows the switching done by the selector switch through one cycle of action. Starting with the eight wipers, which always move together, on their respective "home" positions on contact 1 in each arc—the carrier is off and the first signal lamp on panel is showing. When button

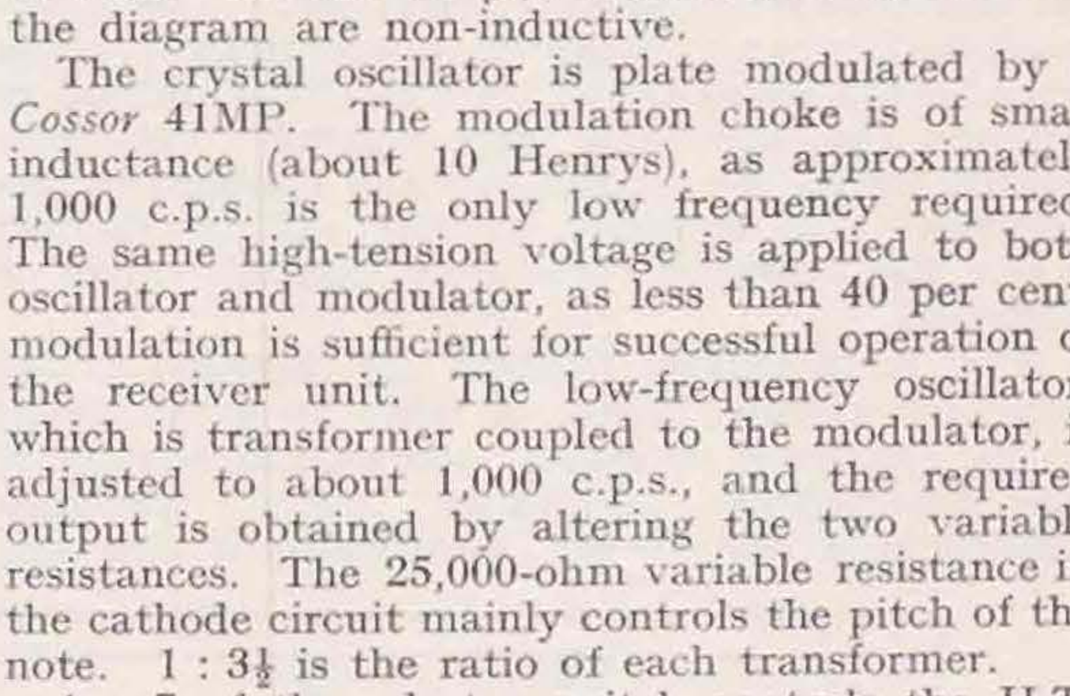


Fig. 5.
View of receiver showing operating relays.

* 24, City Way, Rochester.

2 is pressed the wipers are moved over five sets of contacts, stopping at the sixth from the beginning. As the wiper assembly passes over these contacts, first, the carrier is switched on via arc 8 contact 3, then the L.F. oscillator comes on and off via arc 7, still leaving the carrier on ; the wipers then come to rest, switching the second signal lamp on. When button 3 is pressed another 1,000 c.p.s. note modulates the carrier and signal lamp 3 is switched on. If button 2 is now pressed again, the wipers pass positions 4, 5 and 1, modulating the carrier with four distinct 1,000 c.p.s. pulses and momentarily extinguishing the carrier as they pass position 1, finally stopping at 2 and switching the signal light on.

The circuit is arranged so that it is impossible for the arms to stop in an intermediate position ; this is accomplished by commoning spare contacts of arc 6 to the drive magnet circuit. This is a precautionary measure only, and is not necessary to the correct operation of the circuit itself.

The Receiver.

The receiver, Fig. 4, is a super-het of normal design as far as the second detector. It consists of a *Mullard*, TH4, triode-hexode frequency changer, separate controls for the first detector and oscillator tuning. This stage is followed by a *Mullard* VP4 as an intermediate frequency amplifier. The intermediate frequency is 465 kc. approximately. The variable-mu characteristic of the VP4 is utilised to provide the adjustable gain control. This gain control varies the modulation and carrier voltages together ; the necessity of this will be realised when the action of the relay control valves is described.

Two main reasons decided the adoption of the super-het circuit ; firstly, a fairly large RF input to the rectifier is necessary ; secondly, a detector of the *Westinghouse* "Westector" variety was considered to be best for use in apparatus of this type as the rectifier has to work at a potential of about 100 volts below that of the chassis and filament windings.

The 465 kc. IF signal from the VP4 is rectified by a WX6, through a suitable load resistance and filter circuit (R12, C10, R13, C12). The D.C. output is fed to the first PX4, and the audio output through C14 to a *Hivac* AC/HL. The first PX4 is biased to cut-off by adjusting potentiometer R15 which is across the bias supply, the bias being filtered and decoupled by R11, C11, R14, C13. The D.C. output from the WX6, when a carrier is received, is arranged in opposition to the negative bias, increasing the anode current of the PX4, operating Relay 1, which opens selector switch interrupter circuit. When this interrupter circuit is closed the wipers are automatically brought to a position 1 (Fig. 4). This is accomplished by arc 2 of the selector in the receiver. Referring to Fig. 3, the carrier is switched off once in every cycle. This arrangement is used for synchronising the transmitter control panel with the receiver selector circuits.

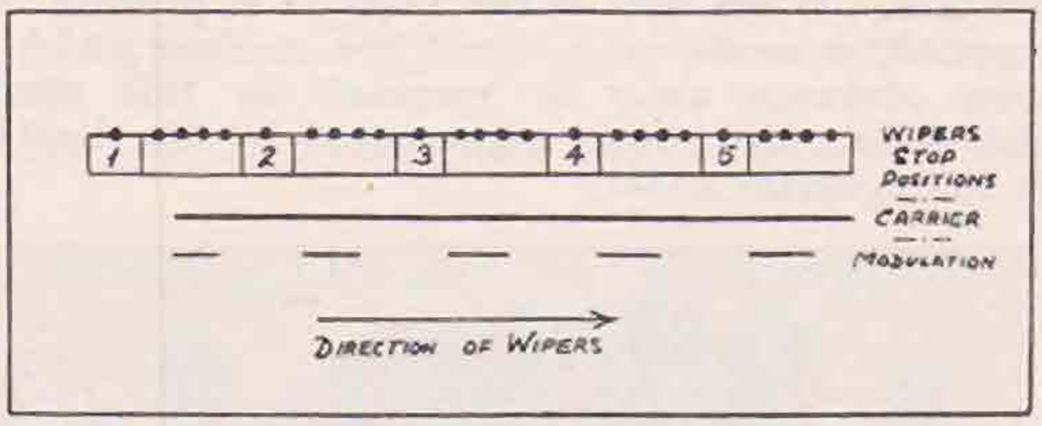


Fig. 3.
Characteristic of the transmission through one cycle of operation. The numbers represent "home" positions according to the button pressed.

The 1,000 c.p.s. note is amplified by the AC/HL and parallel fed into an L.F. transformer (1 : 4). Again a WX6 is used for rectification, after filtering by R22, C17, R23, C18, which provides a suitable

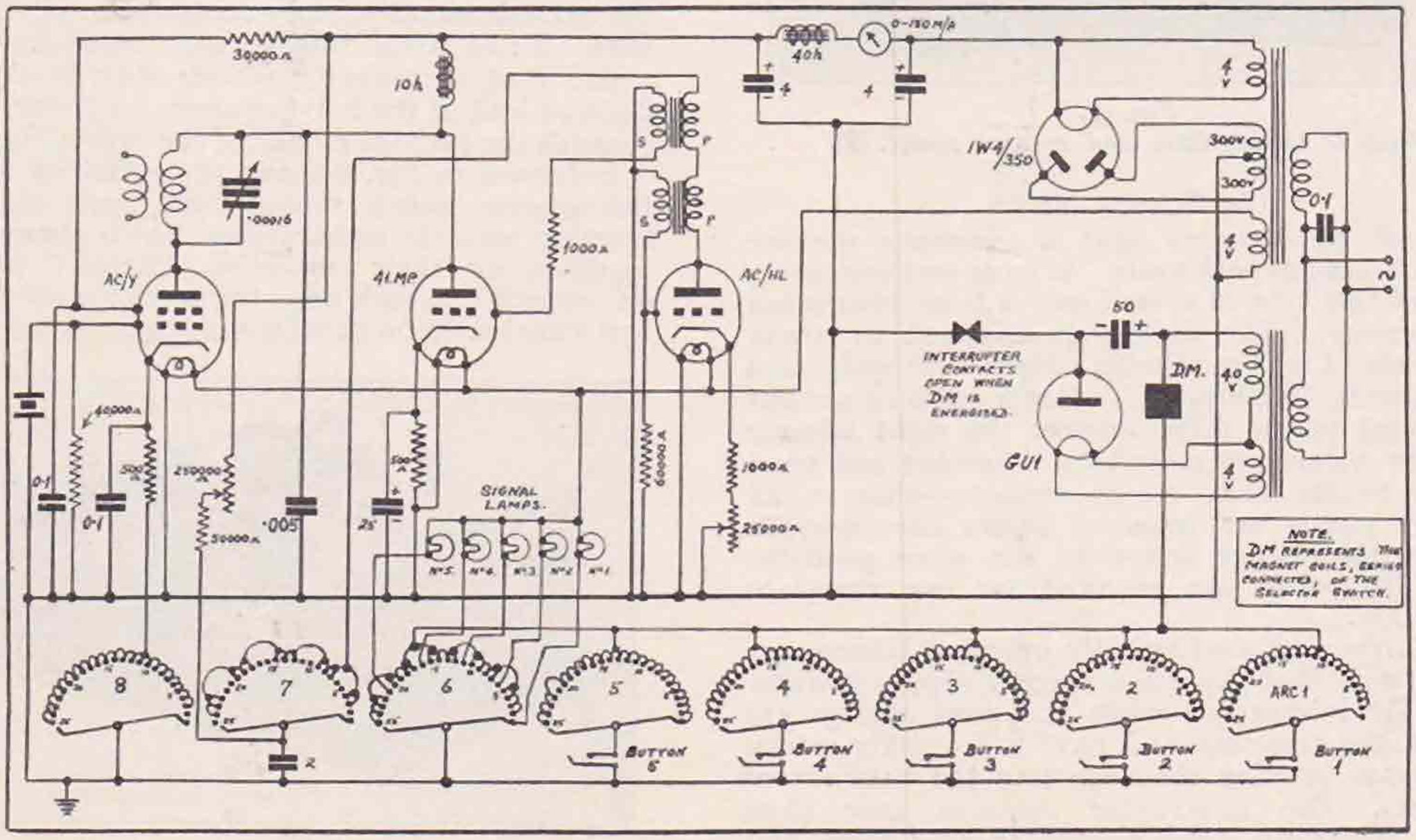


Fig. 2.
Circuit diagram of the Remote Control Transmitter.

time constant; the D.C. output increases the current of the second PX4, which closes Relay 2. Bias to this PX4 is adjusted to below cut-off value by R19, whilst decoupling is affected by R18, C19. This value of bias is not so critical as that of the Relay 1 control valve, since there is a large A.C. input to the WX6 rectifier.

The grid bias supply is obtained from a voltage doubler circuit using a *Westinghouse* HT7. The A.C. input is 135 volts, and the reservoir condensers are 2 μF. each. Adequate smoothing is provided by the decoupling mentioned in conjunction with the bias potentiometers. The metal rectifier has been found superior to a valve for this supply; also there is less risk of a sudden failure of grid bias, which would do considerable damage.

Each time Relay 2 closes and opens, the receiver selector switch arms, arcs 1 and 2, are moved to the next set of contacts. Across the contacts of Relay 2 is the delay circuit, consisting of Relay 3 (2,600 ohms), with a 20 Henrys (350 ohms) choke in series. The contacts of Relay 3 interrupt the common return lead of the controlled circuits. With Relay 2 open the current of the switch supply passes through the 75-ohm drive magnet coils, the L.F. choke and Relay 3. The current passed, although insufficient to operate the drive magnet, will close Relay 3. When Relay 2 closes it shorts the delay circuit and the drive magnet functions, Relay 3 opens. The effect of the L.F. choke is to delay the action of Relay 3 closing, as the wipers of the receiver switch are rotated by Relay 2 closing and opening. The delay is sufficient to keep the controlled circuits open until the selector is settled to the correct circuit.

The control relays are 1,300-ohm type, and operate with less than 10 mA. Relay 1 opens its contact springs on being energised, Relay 2 closes. Relay 3 is a twin winding type, each section being 1,300 ohms. For use in this circuit the distance between the armature and yoke, with relay open, is larger than usual ($\frac{3}{16}$ in.). The distance between the contact points is increased as much as possible. These alterations make the delay circuit smooth in action. This could also be accomplished with a relay having a copper "slug" on its coil or

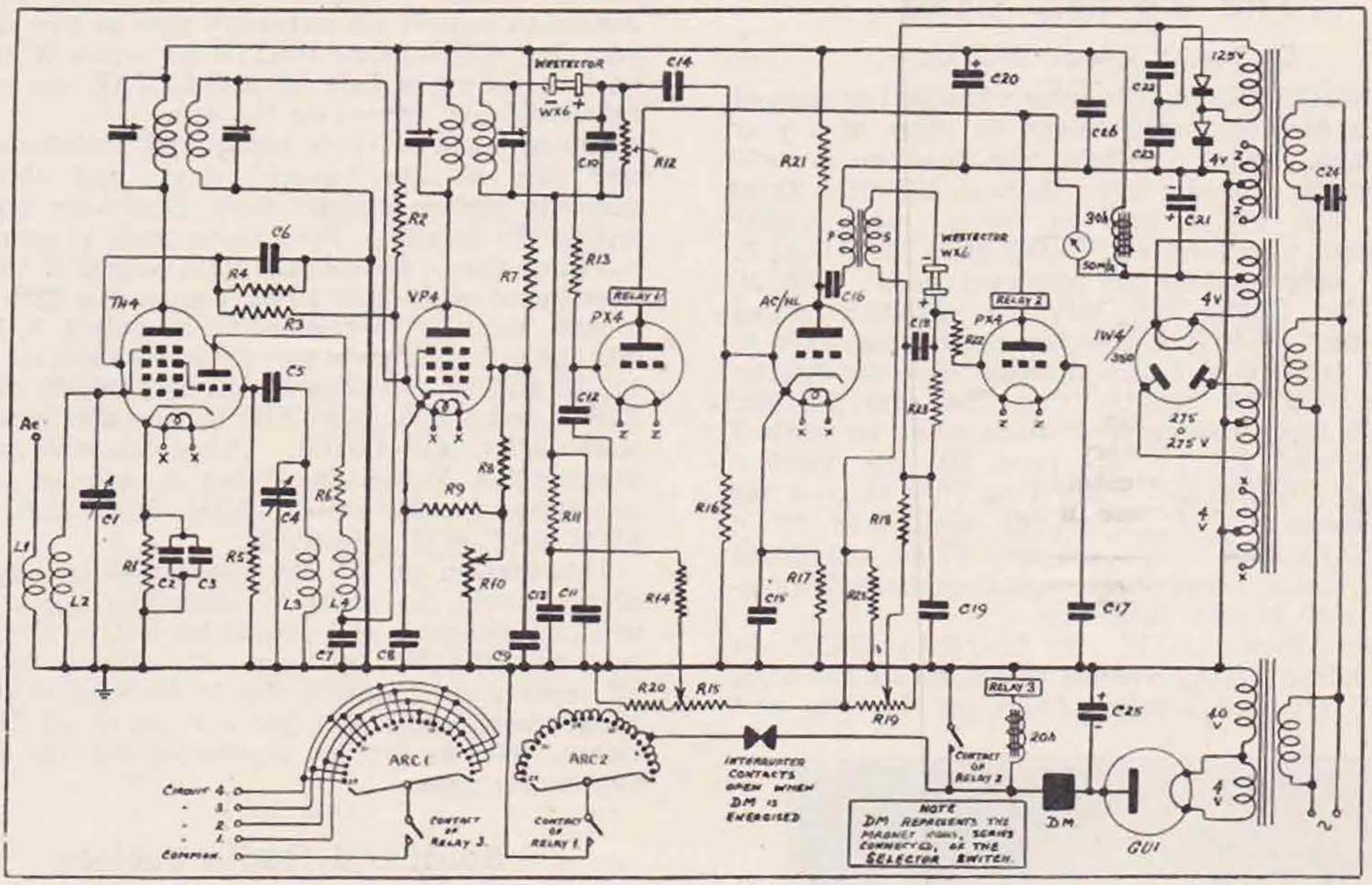


Fig. 4.
Circuit diagram of the Remotely Controlled Receiver.

L1	*6 turns of 30 D.S.C. on 1 in. diameter paxolin.*	*R10*	*10,000 ohms. variable potentiometer.*
L2	*11 ,, ,, ,,*		
L3	*10 ,, ,, ,,*	*C1, C4*	*.00004.*
L4	*6 ,, ,, ,,*	*C2*	*.2.*
R1	*250 ohms.*	*C3*	*.003.*
R2	*15,000 ,,*	*C5*	*.0001.*
R3	*10,000 ,,*	*C10*	*.0002.*
R4, R7, R25	*25,000 ,,*	*C6, C7, C8, C9, C11*	
R5, R8	*30,000 ,,*	*C16, C18, C24*	*0.1 non-inductive.*
R6	*100 ,,*	*C12*	*.001.*
R9	*300 ,,*	*C13, C19, C22, C23*	*2.0*
R11, R14, R20, R21	*50,000 ,,*	*C14*	*.01.*
R12, R23	*0.5 meg.*	*C15*	*25, 25 volts wk'g.*
R13, R16, R22	*0.25 ,,*	*C17*	*.002.*
R17	*500 ohms.*	*C20, C21*	*4, 550 volts wk'g.*
R18	*75,000 ,,*	*C26*	*.005*
R15, R19	*150,000 ,, variable potentiometer.*	*C25*	*50, 50 volts wk'g.*

Westinghouse Westectors, type WX6, and H.T. rectifier type HT7.

by a double wound relay having one coil short-circuited. Eddy currents in the copper retard the operation of the armature. As an example: When changing from circuit 1 to circuit 4, preventing momentary closing of circuits 2 and 3.

In both transmitter and receiver a *Marconi* GU1, mercury vapour rectifier, is used to supply current to the 75-ohm selector switch drive magnet, as the current is only required intermittently. The secondary windings on the mains transformer for this supply are 4 volts and 40 volts, the rectified output with no load is nearly 50 volts; this decreases to about 45 volts with intermittent load. It should be noted that a 50 μF. electrolytic condenser is required for smoothing this supply; a reservoir of lower capacity is totally unsuitable. The spark quench circuits, consisting of 1 μF. and 100 ohms resistor add to the smoothness of operation by preventing sparking at the interrupter contacts.

The apparatus is very definite in action, both units synchronise automatically; on test it has worked perfectly for very long periods completely unattended. A point of great importance is that only one channel of transmission is required, and there appears to be no reason why it should not be possible to control up to about fifteen separate circuits.

An unique possibility of the system described is that with the transmitter set at control position 1 (the carrier off) a morse key may be inserted between the earth return or chassis and the commoned contacts of arc 8. The transmitter can then be used for normal telegraphy without affecting the receiver Relay 2 and selector switch. This means that if a quick-action relay is connected across the solenoid of Relay 1 (Fig. 4), a transmitter could be keyed by this additional relay at the receiver end and operated at the control end. The selector switch could then be used to control such gear as automatic senders or tape recorders.

If any reader interested requires any further information the author will be pleased to assist.

The 28 Mc. Band

By Nelly Corry (G2YL).

CONDITIONS in July were variable but showed a decided improvement on those of a year ago, though the band was dead on a good many days. Signals came through till after 23.00 G.M.T. on July 4, and on several other nights Europeans were audible till well after 21.00 G.M.T.

The only Australian reported was VK3CP, heard by G6DH on July 18. D3DSR heard J2BF and J8CF (possibly harmonics), on July 4, around 19.00 G.M.T., an unusual time for Asiatic signals. VS1AA reports that the first 28 Mc. contacts from Malaya were made when he worked VK3CP and ZE1JU on June 20. He worked VK3BQ, VK5KO and VK5LJ on July 11, and has heard harmonics of JNJ, TDC, KAZ and PLQ. The QSO's were made between 07.40 and 08.40 G.M.T., using a four-stage crystal controlled transmitter with 100 watts input.

From Africa, ZE1JJ was heard by G2XC on July 18, and ZS6AJ worked by G6DH on the 21st. D4XJF reported hearing ZS1H on the 4th, and others active included SU1WM and FA3JY. American signals are naturally rare at this time of year, but G2XC heard HK1JB and some W 'phones on the evening of July 18, and LU7AZ was worked by G6DH and others on the 4th.

European activity is being well maintained, at any rate on the "good" days, and about 50 different stations, apart from G's, were reported during the month. They came from 14 countries, but more than a third of the total were D's. Signals were heard on at least 12 days up to the 25th of the month, but were most plentiful on July 4, 5, 18 and 20. Skip distance was exceptionally short on July 6 17, 18 and 20, enabling G6YL and G6DH to work EI8M, and G5QY and G5RI in Northumberland to work G2XC and G6DH. Other G's who are still keeping the 28 Mc. flag flying in spite of adverse conditions include G5AN, 5BM, 5CY, 5LL, 5XY, 6HM, 6NZ, 6QZ, and 6WN.

Information on 28 Mc. conditions in any part of the world, to assist in compiling these notes, will be welcomed, and should be sent to arrive not later than the 28th of the month. Please note that all reports next month should be sent to D. W. Heightman, G6DH, 59, Burrs Road, Great Clacton, Essex, who is kindly deputising for me in the September issue.

G2MI and 6HB at G2WVP

Southend Radio Society

The Society held a very successful direction-finding contest on June 27 when 23 members scoured Essex with portable receivers in an endeavour to trace a hidden transmitter operating on a wavelength of 155.8 metres. On this occasion the transmitter was well concealed and only one competitor—Mr. Maurice Tapson (G6IF)—succeeded in finding it, arriving only a few moments before the conclusion of the transmission.

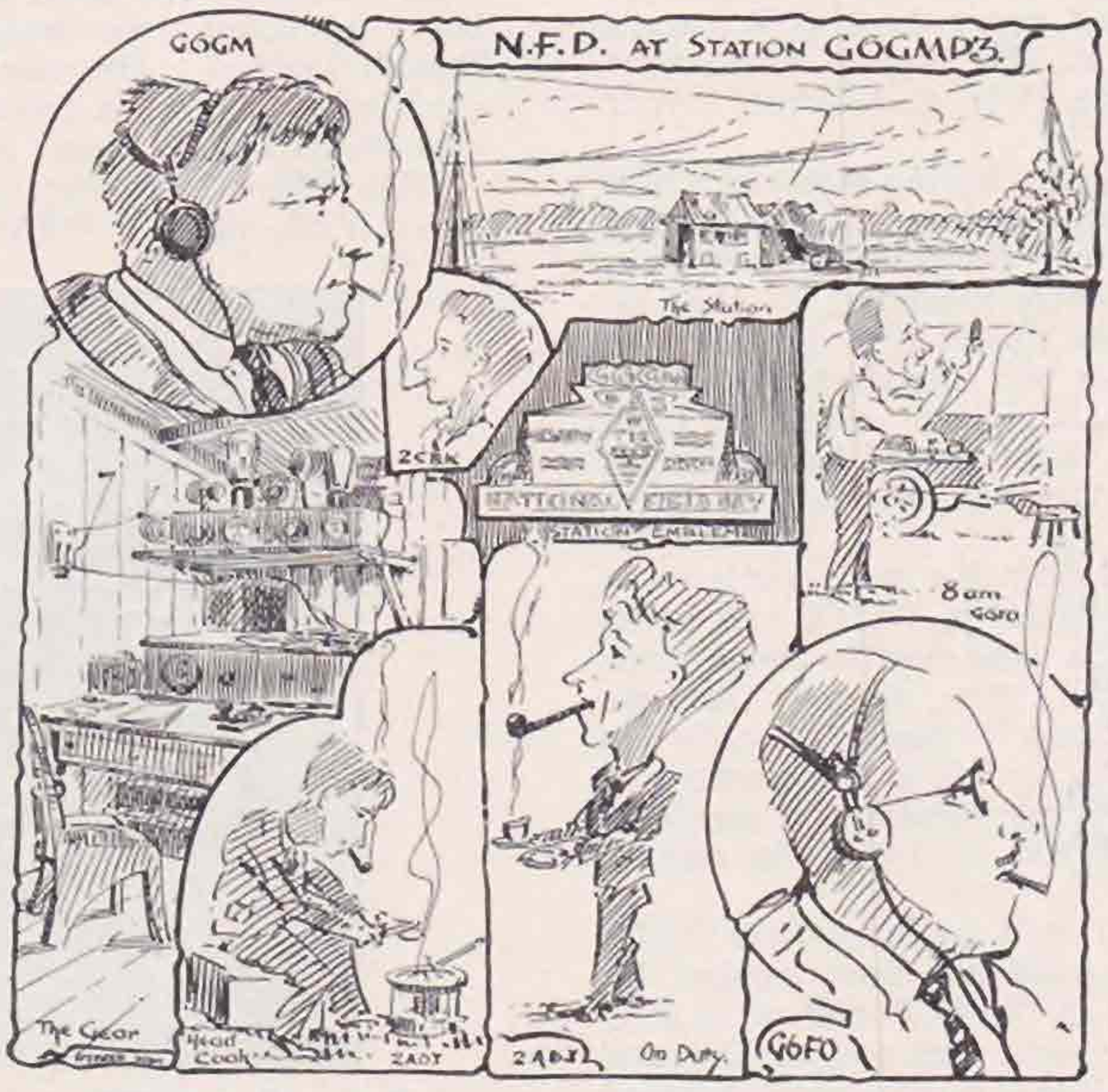
A series of similar events will be held during the summer months, and the Hon. Secretary, Mr. F. S. Adams, of 27, Eastern Avenue, Southend-on-Sea, will be pleased to hear from any members of other societies who would like to take part. Indoor meetings are also being held at intervals during the summer and the full programme of lectures will be resumed in September.

Hen-Roost at Holsworthy

By One of the Cocks.

ABOUT noon on the sunny morning of Saturday, June 5, a little party of adventurers set out by car from a small North Devon town, famous in the old days for the adventurers of another kind she sent down the estuary to the sea. They flew the flag of England at the main and went to fight the Spaniard; we carried the colours N.F.D. at the prow, and were bound for G6GMP3.

The trailer bounced along behind with its precious cargo of H.T. accumulators, bacon and beer. Up and down along the hilly, winding Devon roads we made our way, arriving on site to find the advance guard had just completed extensive and unexpected preparations to receive us. The shack (lately housing hens) had been cleaned, disinfected and limewashed; a consultation via ether had previously decided that a hen-roost was not an occupied dwelling-house within the meaning of the act, so we were ready for the shack. But not for the igloo adjoining, a cunningly contrived lean-to of sticks and meadow-grass, complete with bank, which was to serve as a cook-house. Two forty-foot sticks holding up a Windom completed the scene depicted by our artist.



Leisurely we unpacked, and having had a large meal, sat down to digest it, sleep off the beer, and brood over the last Field Day. A tractor buzzed a mile or so away, and everything was just too serene and peaceful. All our gear was ready, and though it had not been put on the air, we knew it would work first time, so why should we worry. We didn't. We dozed, thinking drowsily of the other poor mutts all over the country, feverishly hunting for faults in their expensive and complicated apparatus. Somebody, we heard, *was going to use a Comet-Pro for this N.F.D.!* Well, good luck to them and their Promet-Co. . . . gosh, it was warm and sleepy in this field. Our gear was simple, but, boy, did it perk!

Time went on, as time will. Two hours to zero, and a nice cup of tea; someone suggested we might as well have a trial spin to see everything *was* all right.

The receiver was switched on, and in came the N.F.D. stations, all apparently ready for action and wishing each other good luck. Suddenly, a derisory and nerve-shattering crackle burst forth from the receiver. Was it, or was it? It was. Test meters (Oh! yes. We are well equipped in these parts) were brought out, and after about forty minutes' devoted to trouble-shooting we removed one LF stage. Well, that was O.K. The operators straightened their backs and eagerly drank one another's beer. Two more quick ones were thrust into their trembling hands by the willing helpers, and we put on the transmitter.

The T25D smiled blandly down at us, but refused either to neutralise or to produce any RF output. Caw, this was getting a bit thick. Only a few minutes now to 18.00 G.M.T. We were just a little shaken, and everything was tried at once. The results were somewhat confused because the operators persisted in making adjustments independently. But we stuck to it in silence, having exhausted our several repertoires on the receiver. The trouble was located, bright lights glowed where they were wanted, and all was well . . . just in time.

So we went on the air. Two operators (four hours on and off, more or less), with two helpers, gallantly producing huge platefuls of bacon and eggs and hefty cups of tea, at what must have been for them most inconvenient hours. This year they did not have to contend with live chops (local joke) of exploding primuses; primæ, if you like it better that way.

The QSOs clicked on, candles were lit, and we snugged down for the night. As one worked, the other rested with a pair of 'phones on and checked. The silence was broken only by the healthy slumber of the "checking" operator, the rattle of the key, and an occasional "Got him" from the operator on watch.

And so till cock-crow, when the helpers fell to their jobs again. One of them disappeared after breakfast, and when we saw him later he proudly displayed two minute trout, caught off their guard in a near-by brook. A long, sunny day, rather quiet from the point of view of QSOs, found us with a reasonably satisfactory total. Sadly we started to dismantle and pack up; the broken crockery was disposed of, the rubbish burnt, and the car loaded. The thirty hours had passed, as they always do, far too quickly, and for G6GMP3, with 2ADJ, 2CBK, G6GM and G6FO, another N.F.D. was over. We were a small show compared with most of the others, but we enjoyed ourselves and did our best, and did we have an FB time! Roll on, N.F.D. 1938, and may we be once more on the job together!

The Month on the Air— July, 1937

By H. A. M. Whyte (G6WY).

ALTHOUGH conditions for long distance work have fallen off during July, some very good DX has been heard and worked, and fortunately we are getting a gratifying number of contributors. This is the only way to get a clear picture of conditions.

The star station this month would appear to be G6KP, who worked UPOL for the first G contact. This was on June 29 at 21.19 G.M.T. Frequency about 14,400, T9. Also reported by 2ATI, of Stoke, and BRS1535, of Woking, who gives us the further information that we need not expect QSL's until March, 1938. UPOL is the Soviet Permanent Arctic Base at the North Pole, and cannot count as a new country!

I have an apology to make, having received a nice letter from G5QK, the only station to have worked Z8OI. I called Z8OI an unlicensed station in Ismailia. This is apparently incorrect, as the call was a "service call" of the R.A.F. pending an amateur club call. Power was less than 300 watts, and the station is located some distance from Ismailia, so we must be more careful in thinking a station is unlicensed before we get the full facts. Thanks, G5QK.

However, this eternal question will continue as long as ham radio. The latest is TA1CC; all cards have been returned, which were sent to the address given in last month's Bulletin, marked *inconnu*. I think it is doubtful if any of these TA calls are genuine, and suggest that Turkey is not counted as a new country until some confirmation is received. BRS1535 has heard TA2ZM on 14,000 to add to the list.

From SU2TW and SU1WM we learn that OY1B is in Jan Mayen Island, and has been worked by both. He is on the edge of the H.F. end of 14 Mc., and will only be there until the end of August, so you had better hurry if you want a new country! Jan Mayen is about 600 miles due East of Greenland. Tom Wimbush reports plenty of new SU's active, SU1GT, SU1HB, SU1GD, and SU1PX, who is a pirate; he is trying to raise XZ2DY with collaboration from G5RI, but no luck yet. Besides XZ2DY, we have XZ2EZ reported on both phone and C.W., and worked by G6RH, and XZ2JB heard by 2ATI. SU2TW wants information on XG2A heard sending traffic on 7,240 Kc. His brother, Jim Wimbush, G8DJ, has heard CE3AR, CM2FA, LU7AZ, and FP8PX on H.F. end of 14 Mc. G2ZQ and G6RH and others have worked FP8PX, whose full QRA is: Paul Detcheverry, Box 61, St. Pierre and Miquelon Islands, Newfoundland, and he is on nearly every night after 11 p.m. on about 14,440 Kc. with T4 note.

More news of FQ8AB is received from members. He has been worked by G2ZQ, G6WY, and others, and is quite genuine, QRA Gabon. Who will be the first to get "W.F.E." (Worked French Empire)?

2BYF, of Croydon, has heard ZC2NN just outside the L.F. end of 14 Mc., but wants information. He also reports UU9I on phone, saying that he was a ship off Newfoundland, and FI3C in Indo-China on about 14,200. KA1ME on phone and VS7AF are new to him. W5ENY was heard at 3 a.m. on 3.5 Mc. in July! 2BYF has been listening to VK phones discussing the new VK8 station who is working phone and signing VK8AN. BERS195 in VK8 sends in a long report. Having recently changed his QRA from Darwen to Tennant Creek, he thinks that Northern Australia is better for reception than any other district. His total of countries heard is now 140, the latest two being FN1C and VS4JS in British Borneo. He was astonished to receive a card from EA9AH in Spanish Morocco. Trebilcock also wants details about XG2A on 7 Mc.

BRS1535, of Woking, has heard his first three-letter VE5, namely VE5AAY on 14,270; he also

J. B. Kershaw, G2WV, D.R. for South London, shows The Flag at one of his N.F.D. Stations.

reports XU8XQ 14,050, VQ3FAR 14,135, VS3AE 14,340, and VU2TZ. G6WY has also heard VU2TZ working GI6TK, but cannot understand his call, as Indian stations are only licensed up to "VU2L." He is looking for GI's on 14,100. A new VQ3 will be starting up soon—he is VQ3PAG. BRS2138, of Ross-shire, sends a long list of DX heard, the best being ZS, VQ3, FB8, VS1-7, HS, and most South American countries. He reports K6NZQ operating a portable phone on 14,200, and VE5TV in Nottingham Is., N.W.T. He asks if ZC6AQ is genuine. Yes, he's OK. He was very active during last B.E.R.U. in Palestine. OQ5AA heard on phone, 14,065.

G6YR has received a card from XTF5Q, who is sailing round Iceland on manœuvres. He has worked CM2FA, 14,395, K4EJF 14,310, XE1AG 14,350, FN1C, and heard CX2BK, HK5BK 13,990, and XE1AK.

G8DA reports TI2RC putting through a strong

phone. Other phones include PK1ZZ, VE5OT, VE5JJ, and C.W., FB8AB, FB8AD, VS1AI, ST2LR, VS7MB, OA4AL 14,010, and OA4AQ, who does QSL, and another new SU—SU1RD. G5AQ best contacts for the month were XU8XQ and KA1AN.

G2NG is most annoyed as he heard a T1 note calling " test," and signing K5AA. Knowing the true K5AA, he gave this merchant a call and was answered 25 times, and then informed that his QRA was Glasgow. We understand how you feel, G2NG, it's not funny, and there are plenty of asylums waiting for his type. He has heard VP2TG in Antigua, who QSL's, he is not new, but has returned after two years' absence, and is another to report CX2BK, who is on every night. Besides CX2BK there is CX2AJ and CX1BG, for those who want Uruguay. They all work on the H.F. end of 14 Mc., and have been heard at G6WY, who does a lot of listening these days.

W8MAH told G6WY that he heard G6BY calling CQ with a T7 note outside the band, so if the real G6BY would like to get on his tail, I hope he finds the culprit. This is the sort of thing that gets our law-abiding hams a black spot abroad. W8MAH at once said it was a pirate, as he was quite sure no G would do such a thing, so you see what a reputation there is for us to maintain. But a genuine G8 was heard outside on 14,405 with a T7 note, so those who are new to 14 Mc. please do be careful how you adjust that ECO or self-excited TPTG.

BRS2763, of Snodland, Kent, is doubtful about K7TI, whom he heard on 14,300, as W7TI is licensed in Oregon, and also of FP8PX. He heard a real " snip " in K6TE in Wake Is. 14,320. G2YV says that XTF5Q has been heard on 7 Mc., which makes us think that 7Mc. is being neglected from a DX point of view. No, we know the phones don't neglect it!

Oh, dear! EP2K heard by G2SO; is he yet another? He also reports FY8C. There is also FY8B, whose first G contact was with G6WY and FY8A, whose cards have arrived at H.Q. All these three are on about 14,400.

Here is some news of 3.5 Mc. During the A.R.R.L. Contest, ZL4BR heard G6NF, G6XN, G2PL, EI8B, EI4J, and worked G6WY; let us hope this will be an incentive for some Oceanic contacts next season on this frequency. G2ZP informs us that he thinks that TA2BS is possibly genuine as he worked him on 3.5 Mc. in January, although he was not able to get his exact QRA. I think we had better wait for the first TA card to arrive!

G8MW, who has operated GCTZ and GMXF, sends in some calls which are a little out of the ordinary. T4TO (old T4TWO), a genuine ship on 1.7 Mc., G9FK on 7 Mc. He wants to know why our oldest scientific university town produces such bad phone stations—well, I won't join in the argument. Which is the oldest scientific university town anyway? He reports VU and VS1 at the unusual time of 07.30 G.M.T. on July 20, with sudden fade-out at 07.50.

One of our most active stations, G6RH, has worked XZ2EZ, VK2XU, KA1ME, VS2AK, PK1ZZ, and VP5PZ on phone, and added J8CF, FP8PX, FY8A, FQ8AB, FN1C, U6FT, U8EC to his list of countries. He also reports that ZD1C (old VPU2) in Sierra Leone, is active again on 14,100. G6RH has now made phone W.B.E. and W.A.C., and anxiously awaiting cards.

Many of us are trying to get W.A.S., but find Nevada too much of a stumbling block, so the news that W9UBB in N. Dak. is trying to get Nev. stations active on 14 Mc. to listen for G's, is interesting. He is on 14,028 and 14,380 for those who want N. Dak., so G6QX tells us, and raises an interesting point that he (G6QX) had his card addressed to FN1C returned *inconnu* by the R.E.F., and the French Government licensed FN1C, so what? Does this mean that every card returned by a society thus marked is necessarily pirate? Bob wants times in G.M.T. mentioned with frequencies sent to this column, and bemoans the " Radio " List of Countries as being incomplete. Well, maybe we shall have a *complete* one issued soon to please the most fastidious. His remarks about " Americanisms " used by British phone stations on 14 Mc. are unprintable, so we will leave you to guess.

Our regular reporter, 2ATI, has heard some choice stations. VR2UX in Fiji, MX2B, J9CA, FB8AH (a new one), PZ1PA, ZP2AC, K6DTR, K6AKP on 14 Mc., and YN3AB, PX2A, XE3AR, OA4J, and K7PQ on 7 Mc., and is one of several who remark on the extraordinary conditions that existed about the middle of the month, when W6 and W7 phones were heard at good strength in the afternoon. He and GM8HP raise the query about the mysterious SNTX and SNT1 with other numbers following " SNT." We have set Fido, the DX Hound, on to their trail, and he reports that " SNT " means " Spanish National Transmitter," and the number after being self-explanatory.

G5DR submits the QRA of VQ4CRU, whom he worked; it is Fred. Watts, Poste Restante, Nairobi. G6WY obtained that of VQ4CRI in the same way: Box 21, Nairobi. G5DR also worked FP8PX, XZ2DY, HS1BJ, VS6AH, VS1AI, and CE1AH on phone 14145.

Between 18 and 23 B.S.T., 2AYA, of Nottingham, has been using his new receiver, and besides the usual DX heard at that time, reports phone from VE4RO, CE1AO, HI7G, YI2BA, XE1AM, and on cw XZ2BH, CX2BK, CX1CB, CX1BZ, FQ8AB, XTF5Q. GM8HP worked HS1BJ with QRP both ways, which is " good going," and requests details of ZN5BX. G5MY worked SPL508 on 14 Mc. in Upper Silesia, and wonders what it all means. This is a Polish Listener Station, who has the nerve to build and operate a transmitter, and Upper Silesia is part of Poland! There used to be quite a few of them operating on 7 Mc. some years ago.

G2ZQ has added FP8PX and FQ8AB to his list of countries, which is now 137 according to the new list which we hope will be published shortly, and received S9 from W6ADP, both ways, at 18.20 G.M.T. G6WY has added FY8B and J8CF, which is now 136 according to same list, and has worked FQ8AB, HS1BJ, PK1MF, VS7MB, and K4SA on phone. He has heard OE7JH working HZ1AF, and wonders. CP2DD was heard on 14,410 and two evenings later LU2DD was heard with same note and same frequency, which again makes one wonder. CR6AC apparently genuine in Angola is an entirely new one heard on 14,370 at 22.00 G.M.T. T6. Other new stations active are YV5AN 14,120, PK1MJ 14,300, PK1RI 14,360, and TI2LU 14,420. G5HS challenges G6WY by working 34 SP's in their contest.

The 1937 VK-ZL Contest

THE support and enthusiasm with which the past VK-ZL International DX Contests have been met from amateurs throughout the world, has convinced both the Executive Committees of the Wireless Institute of Australia, and the New Zealand Association of Radio Transmitters (Inc.), that the Contest is now a looked-for event. This year the Contest is promoted by the New Zealand Association of Radio Transmitters (Inc.), with the co-operation and assistance of the Wireless Institute of Australia.

CONTEST RULES

1. The Contest Committee of the N.Z.A.R.T. (Inc.), will be the sole judges and their decision on any rules or interpretations of these rules will be binding in the event of any dispute.

2. The nature of the contest requires contacts between the world and VK-ZL.

3. There will be three sections to the contest: (*a*) Senior, (*b*) Junior, (*c*) Receiving.

4. The contest is open to all licensed transmitting and receiving stations in all parts of the world. Unlicensed, ship and expedition stations are not permitted to enter. Financial members only of the W.I.A. and the N.Z.A.R.T. (Inc.), at the time of the contest, will be eligible for awards in Australia and New Zealand.

5. The Stations competing in the Senior Section of the Contest may use up to the maximum power allowed by the national Radio Regulations. The stations competing in the Junior Section shall use up to a maximum power input to the last stage of the transmitter of 25 watts.*

6. All Amateur Frequency Bands (for which an entrant is licensed) may be used.

7. No prior entry is required, but each contestant is to submit a log at the conclusion of the contest showing date, time (GMT), band used, station worked, signal reports exchanged, and points claimed for the QSO. Signal reports must include strength, readability and tone.

NOTE.—No serial numbers are to be exchanged. Each log submitted is to be concluded showing the total points claimed computed as per Rule 9, together with a declaration as to the power input to the last stage of the transmitter. A Contestant may enter for both Senior and Junior Sections and will submit a separate log for each Section.

8. The Senior Section will be held from 1200 G.M.T., Saturday, October 2nd, 1937, to 1400 G.M.T., Sunday, October 3, 1937, and will be continued between the same times on the following week-end—October 9 and 10. The Junior Contest will be run from 1200 G.M.T. Saturday, October 23 to 1400 G.M.T. Sunday, October 24, and will be concluded between the same times in the following week-end October 30 and 31.

9. Scoring for all sections :—

Twelve points will be scored for the first contact with a station in a country other than VK-ZL. Eleven points for the second, ten for the third and so on until the twelfth, which will score one point.

The first twelve contacts will score 78 points, and each additional contact after the twelfth will count one point. In all cases contacts are irrespective of the band used. This will apply to all countries except England and the United States of America, in these countries twelve or more (as above) contacts will be permitted with stations having the following prefixes : G2, G5, G6, G8, Scotland and W1, 2, 3, 4, 5, 6, 7, 8, 9. The points scored by contacts in the above manner will be added together and multiplied by the number of countries worked which give the final score. Each W and G district will not constitute a separate multiplier.

10 Scoring by competitors beyong VK-ZL: Twelve points will be scored for the first contact with a VK-ZL prefix zone, 11 for the second, 10 for the third and so on to the twelfth contact, which will count one point. The first twelve contacts with a particular prefix zone will therefore score 78 points. Each additional contact after the twelfth will count one point. This will apply to each VK-ZL prefix zone worked. The points scored in the above manner will be added, and the total multiplied by the number of VK-ZL prefix zones worked, which will give the final.

The Prefix zones are VK 2, 3, 4, 5, 6, 7, 8, 9, and ZL 1, 2, 3, 4.

11. Only one contact with a specific station on each of the bands will be permitted to count during the whole of the contest except on the 28 Mc. band, where one contact each week-end will be permitted to count.

12. All overseas logs must reach Contest Committee, N.Z.A.R.T. (Inc.), Box 489, Wellington New Zealand, not later than December 31, 1937. All entries must reach the Contest Committee, N.Z.A.R.T. (Inc.), Box 489, Wellington, not later than December 1, 1937.

AWARDS.

Attractive Certificates will be awarded to the station returning the highest total in each country : to the highest scorer in each of the G and W prefix districts and Canadian districts.

RECEIVING CONTEST.

1. The general rules for the receiving contest are the same as for the transmitting contests and it is open for any short wave listener in the world.

2. Only one operator is permitted and only one receiver can be used.

3. The dates, times, scoring of points logging of stations, and bands used, for the duration of the contest are the same as for the transmitting contest.

NOTE.—Reception of 28 Mc. stations will be permitted to count for once on a week-end and not once only for the duration of the contest.

4. To score points the call sign of the station being called and the readability, strength and tone of the calling station must be entered in the log together with band, time, date. Logging of CQ or test calls will not count.

NOTE.—Overseas stations must be logged when either calling ZL or VK stations by Australian or New Zealand listeners. Overseas listening stations must log VK-ZL stations when they are calling overseas stations.

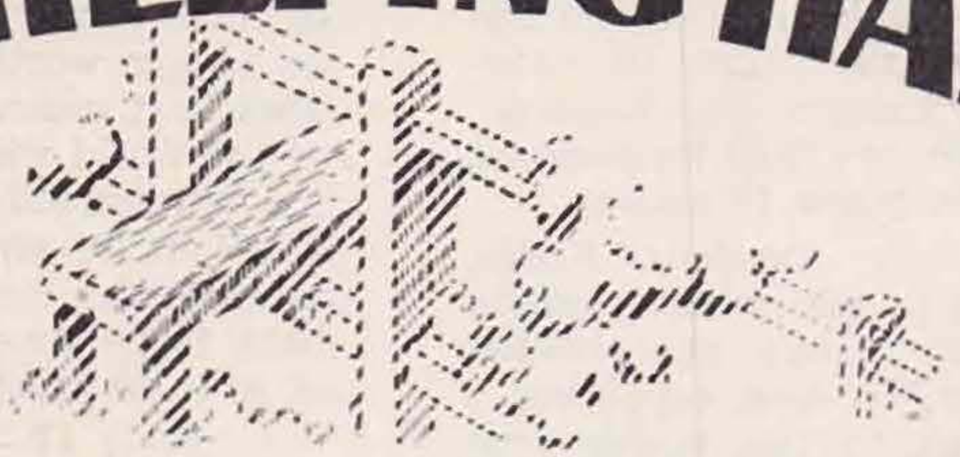
5. Australian and New Zealand stations will count their score as Rule No. 9 of transmitting contests.

6. Overseas listening stations will count their score as per Rule 10 of the transmitting contests.

7. Entries must be sent as per Rule No. 12 of the transmitting contests.

** In the case of British Isles entrants "licensed power" is the controlling factor.*

THE HELPING HAND



By Austin Forsyth (G6FO)

PART VI—EXPLANATIONS AND RECAPITULATIONS

AS it is probable that this particular issue of The Bulletin will reach the hands of many new readers, who may have either just a casual interest in experimental radio as a hobby or, as we hope, a burning desire to know more about Amateur Radio, we have decided that this month part of our allotted space be used to explain the aims and functions of this section to these new readers, at the same time summarising briefly previous articles in the series. We trust, therefore, that regular readers will not only bear with us for the sake of those who may now be joining the Society, but also that they will find a little recapitulation both helpful and stimulating.

The Section.

"The Helping Hand" has a place in The Bulletin because it aims hopefully at the ideal of giving to that proportion of our now large and ever-increasing membership who are, for want of a better expression, described as "beginners," some knowledge of the fundamental facts and requirements in connection with Amateur Radio as a hobby.

We ourselves define this hobby as "an interest in radio carried to the point where one operates one's own amateur transmitting station." There is, as may be imagined, quite a lot behind that simple statement, and it is the object of "The Helping Hand" to pass on to new readers needing such assistance all possible information to enable them to reach by the quickest and easiest path the great day when they can sit down and send out for the first time a call from their own station.

To those who are at this moment making their first acquaintance with this section, we suggest a perusal of the back numbers of The Bulletin which are listed below, since we are now about half-way through the series.

Part 1.—Starting Amateur Radio.

The Bulletin, *March*, 1937.

This opening instalment is devoted to explaining the general programme to be followed and outlining the aims, objects and ideals of Amateur Radio as a scientific hobby. While it is an absorbing pursuit which has captured the interest of people of all ages, classes and creeds the world over, and can be followed whether one is rich or poor, it should never be forgotten by the new recruits that Amateur Radio is not only founded on one of the most rapidly progressing sciences of our age, but that it is also actually responsible for a great many of the fundamental developments in that science. For Amateur Radio, on the same lines—from the point of view of experimental interest and mutual co-operation—as those on which it is carried on to-day was the hobby thirty years ago of people very similar to those who are now its devotees. The only differences are in technique and the numbers interested. Then, there were at most a few hundreds, now they are counted in tens of thousands. And this does *not* include those radio enthusiasts who are called amateurs because they build sets from blue prints; with them, we have no concern, except that a large proportion eventually turn to our brand of radio as a more exacting and therefore a more satisfying hobby.

We do not know how many "blue print amateurs" there are in the world, but we can tell you that there are upwards of 60,000 *licensed transmitting amateurs*, operating their own stations and using the ether for world communication at all hours of the day and night.

If you happen to be interested in radio there is no need for us to try and tell you what this can mean in terms of enjoyment and satisfying scientific accomplishment. If you are not interested, we cannot think of any way of creating the desire to own and operate an amateur transmitting station, with which you could project your voice and your thoughts all round the world, and it is therefore of little use your reading on!

As we have said, Amateur Radio has been one of the corner stones—we might almost have said the key-stone—in the erection of the whole edifice of modern radio science, because from the eager body of men, both young and old, who were attracted by the thrill of two-way telegraphic communication through the ether, were drawn most of the professional radio engineers of pre-War years, and their collective efforts produced many of the ideas and fundamental technique on which radio is based. The process has been continued right down to the present day, and what may be called the high-lights as they affect Amateur Radio are, briefly, as follows: The outstanding service rendered by amateurs during the Great War, the full story of which has

never been told and is now probably forgotten; the large proportion of amateurs who were responsible for organised research during the War years, when developments in all countries were rapid; the establishment of broadcasting, pioneered in this country by amateurs using telephony; the era of short-wave communication, wholly due to the discovery by amateurs alone of the utility of wavelengths below 200 metres; Empire broadcasting; and now the opening up of the very high frequencies, corresponding to wavelengths below 10 metres.

Concurrently with all this, Amateur Radio, through attracting to itself people with scientific interests and leanings—often wholly unconnected with radio—has supplied and is now supplying a large number of technicians to the professional ranks, many of whom, though holding high positions, are still proud to call themselves amateurs.

You will therefore see, new reader, that you are perhaps on the verge of joining an organisation which, though it has a magnificent record of real achievement behind it and whose members have been "in at the kill" on practically all new phases in development, is yet ready to welcome you as a potential amateur transmitter, and to give you all the help reasonably possible to become one, consistent with your support, sustained interest and acceptance of the traditions of Amateur Radio. This is not to say that this Society can get anyone a licence—rather the implication is that through personal contact with members, friendships made "over the air" and access to publications such as The Bulletin, enough information is available to enable anyone really interested to become a transmitting amateur.

Something more about the traditions mentioned above. All that we have tried to condense into the preceding paragraphs is historical fact, and from it, like every other human endeavour which has stood the test of time, has emerged a tradition; co-operation, unselfishness, helpfulness, mutual assistance, and the fact that the personal relations of amateurs are based on their common interest in Amateur Radio, and are without regard to any outside associations. These and other things go to make a hobby more enjoyable and life more worth living; Amateur Radio has them in abundance.

Nowadays we do not expect tremendous discoveries, or even any discoveries at all, from amateurs individually, for the simple reason that having done much of the pioneer work, Amateur Radio must now give way to the great commercial interests, who are better equipped and staffed—largely by "amateurs," incidentally!—to carry on specialised research and deal with all the problems of detail which are constantly encountered.

This does not mean there is nothing more we amateurs can do. Far from it. The whole science of radio is in a constant state of evolution, and there is much that can still be accomplished by collective effort. Not only that, but because we have secured official recognition, we can develop along our own lines, always based on this wonderful business of communicating with other amateurs all over the world.

This in turn involves us all in certain very serious obligations. As is always the way in this world the majority is judged by the behaviour of the few. We have gained official recognition and support—absolutely essential to our very existence as amateurs, for where should we be without licences?—because of the solid achievements of a handful of our pioneers. If the new generation of amateurs is unable or unwilling to use the ether and their privileges properly and constructively, the value of amateur work will deteriorate, and finally become no longer worthy of serious consideration. What does that mean? It means that the governments of the world will put their heads together and say: "Amateurs must go, for they are taking up valuable space in an already overcrowded ether." This is already the feeling in many quarters, and it will have to be strongly combated during the next year or so if we are to justify our existence.

Part II.—Receiving and Frequency Measuring Equipment.

The Bulletin, *April*, 1937.

This article deals with points of design and construction of a 1-V-1 straight receiver for amateur band working. Each stage has been dissected and discussed in turn, and various conclusions arrived at with regard to tuning arrangements, band-spreading, ganging, L.F. amplification, and so forth, the whole leading up to a final design which can be relied upon for performance and service. New readers may find in this article certain points which have never been fully dealt with elsewhere, and these may suggest modifications worth a trial in an existing set.

The underlying idea is to make the requirements of amateur band working clear, and the discussions are intended to cover this rather than to lay down a "cast-iron" design.

Part III.—Frequency Measuring Equipment and Monitoring.

The Bulletin, *May*, 1937.

In this third instalment of the series we have gone fully into the design, construction and calibration at home of simple types of monitor frequency meter. The absolute necessity of having some sort of calibrated oscillator covering the amateur bands is stressed, and the reasons why it is so important are explained.

As in the case of receivers, the design deals with a number of points which have hitherto been somewhat obscure to the beginner—such as the value of monitoring and the utility of a separate beat-oscillator for the receiver—while the whole process of calibration and the preparation of curves, nearly always a difficulty when attempted for the first time, is fully covered. Though the article recommends a particular circuit arrangement, the discussion is equally applicable to any type of calibrated oscillator, and if such an instrument is at present in use and has either not been calibrated or its potentialities in conjunction with the receiving side have never been realised, this article will be useful.

It should be noted that Parts II and III above make frequent reference to this Society's handbook, *A Guide to Amateur Radio* (1936 Edition). The 1937 Edition will be available when this issue of The Bulletin is on sale, and it will be found that most of these references still hold good, though page and figure numbers may be different.

Part IV.—Using the Receiving Station.

The Bulletin, *June*, 1937.

This article deals with the opportunities open to receiving members of the Society, i.e., to "British

Receiving Stations," as they are designated. It explains their place in the scheme of things, and points out some of the many useful ways in which a properly equipped receiving station can be used.

BRS members are also heir to a tradition which, though it has less antiquity than that of Amateur Radio in the transmitting sense, is yet deserving of mention and has a share in our history.

Briefly, membership of the Society was first opened to non-transmitting amateurs as such about twelve years ago, when it became evident that it would be desirable to have a section which devoted its energies to the receiving side. The idea behind this was that BRS membership, carrying with it full Society status, should be granted to those who were willing to help licensed amateurs with their experiments by means of authoritative and accurate reports. Consequently, early BRS members—many of whom are now among the most illustrious and advanced of our transmitting section—built up a worthy tradition of service and efficiency. As time went on, not only did this grade become the recognised stepping-stone to a full transmitting permit, but with the great expansion of Amateur Radio activities and the increase in the Society's general membership, the BRS section began partly to lose sight of the original idea that they should be primarily responsible for *assisting British transmitting stations.*

A number of factors combined to cause this change, the two most important being the enormous interest in QSL-card collecting as a hobby in itself, and the fact that on the most popular bands reports to British stations from listeners in this country began to lose their value.

In order to clarify the position the article we are now considering deals with this question of QSL'ing from the point of view of usefulness and maximum return, and also the manner in which BRS stations can apply QSL'ing to the making of useful reports—as opposed to those sent solely with the idea of getting cards back—and thereby continuing to do their share in furthering progress.

The question of learning Morse also has attention, as the ability to read call-signs and a few of the simpler code-groups makes co-operation much easier and Amateur Radio from the receiving angle a great deal more enjoyable and interesting.

This article should, we suggest, be well digested by every new member of the Society.

Part V.—Getting Ready for Transmission.

The Bulletin, *July*, 1937.

Under this heading, which is largely concerned with Station Lay-out, are dealt with briefly as sub-headings the disposition of the aerial and the question of power supply. These two points are, of course, wholly dependent on individual circumstances, but a few suggestions have been made which should be found helpful. The subject of Aerials will in itself be fully discussed in one or two articles to appear in the near future as part of the series, as the aerial is probably the most important and least understood single factor for success.

The question of Station Lay-out in the electrical sense is also a matter of great importance if time is to be saved and full use made of the apparatus available. Since the physical disposition of the various items will again vary widely in different cases, our remarks deal chiefly with switching and electrical inter-connection. The full wiring plan given covers the average case, and is easily altered to suit other conditions.

. . . .

The summary above brings us down to the present issue of The Bulletin, for which we have scheduled a discussion on the question of A.A. ("Artificial Aerial") licences.

As is well known, the Postmaster-General issues two grades of transmitting licence, the artificial aerial and the full radiating permit. It is nowadays exceptional for any amateur to obtain a full permit straight away, for the reason that the Post Office rightly consider that before going "on the air" the intending amateur should have had some previous experience with transmitting apparatus. As it is usually the case that applicants have had no such experience, and it is illegal to instal or operate any type of apparatus without the Post Office licence, the A.A. permit provides an easy way of gaining the necessary knowledge to apply for a full permit.

This former grade, for which no Morse test is required, enables an amateur transmitting station to be built and operated in exactly the same way as with a full permit, the only difference being that signals cannot be radiated into the ether or communication of any kind attempted. Naturally, the ability to use the apparatus for communication is the ultimate object of every transmitting amateur—with the exception of those who have bench-tests on transmitters as their sole interest—and it is sometimes said that the "artificial aerial" licence, with which radiation is expressly forbidden, has no real value.

This is, however, far from being the case, because as we have shown, it makes it possible for the intending amateur transmitter to build a station and become familiar with apparatus, procedure, technique and so forth before he actually goes on the air; further, with the ability to transmit at hand, the incentive to get down to learning Morse is much greater, and so it usually happens that an A.A. licence holder becomes a fully licensed amateur more quickly than if he had attempted to jump straight from the BRS grade to a full radiating permit.

The machinery in connection with the obtaining of licences of either grade is the same, and it is essential that the reader who is seriously interested in going on the air should understand it. Licences are not granted simply because the applicant wishes to transmit and can pay the necessary fees. From the point of view of the Post Office, all amateurs in this country who hold licences are experimenters, and their permits have been granted because they have been able to satisfy the technical people at the Post Office that some particular useful line of experimental work is to be followed. This may be almost anything which is connected with radio transmission—always provided that it is feasible and can be carried out on the frequency bands allotted for amateur work. For instance, there would be no point in saying that you wished to experiment with beam aerials on 60 metres. You could, however, suggest a useful programme of experimental work with directional systems on 14 Mc. (the 20-metre amateur band), provided a fairly large garden is available for the erection of the necessary aerials. aerials. Again, a request for a licence to carry out modulation tests with different systems is quite in order, but remember that this can be just as well

done with an artificial aerial, and a full permit would not be needed for experimental work of this kind.

Probably the most fruitful and interesting field for transmission experiments is in connection with radiation problems, skip distance and directional effects on the various amateur bands, for which eventually a full radiating permit would be necessary. For tests of this kind, an artificial aerial licence would be granted in the first place in order that the station could be built and the necessary gear installed, and experience gained in its operation and in procedure. While all this was being done the intending amateur transmitter could be learning Morse, so that when application was made for a full permit, it would only be necessary to pass the Morse Test to be all ready to go on the air.

From the foregoing remarks it will be evident that obtaining a transmitting licence of either grade is not just a matter of writing to the Post Office and asking for it. Sound technical reasons must be given in connection with the application and a case made out for the granting of the licence on purely technical grounds. The method of applying is therefore to decide on some experimental programme which fulfils the conditions outlined above —and which the applicant is able to explain to the satisfaction of the Post Office—and then to fill up the prescribed form, sending this with the circuit diagrams which are asked for and a *covering letter setting out fully the details of the application* to the Office of the Engineer-in-Chief, Radio Branch, General Post Office, London, E.C.1, from which address the forms are obtainable in the first place. It is no use going to the local Post Office or expecting any information from them, because the whole business of transmitting licences is handled by G.P.O. headquarters, and local branches have no knowledge of or any concern with the procedure.

Apart from the fact that it is necessary to give reasons for wanting a licence, certain technical requirements of the Post Office have also to be met. The most important one is that relating to frequency control. Since the total available frequency range between 1,500 and 28,000 kc.—the range with which we are chiefly concerned—is carefully " parcelled out " among the various services and claimants, commercial telegraph, broadcasting, Navy, Army, Air Force, ship-shore services, and the host of other users of the ether, it is of vital importance that amateurs should keep within the bands of frequencies which are allotted to them. While the frequency *range* between, say, 7,005-7,295 kc. (the 40-metre amateur band) can be freely used by any amateur licensed to work on that band, it is a serious offence to transmit outside these limits. In the interests of amateurs themselves and to obviate any possibility of interference with other services near the amateur bands, the Post Office insist that amateur stations should use some method of frequency control which will keep them within the bands. The simplest and most acceptable method is by means of a quartz crystal, which maintains frequency stability within very small limits and practically guarantees that transmission cannot take place outside the band. The response frequencies of such crystals can be chosen at any point within the bands to be used, and it is usual to choose them such that their harmonics " double " into the next highest frequency band, i.e., a 7,140 kc. crystal would also give a suitable transmitting frequency on 14,280 kc.

If the type of transmitter to be employed involves the use of master-oscillator drive circuits—that is, an inherently stable oscillator such as the ECO, the frequency of which can be changed and is not " locked " by a crystal—it becomes necessary to use a calibrated heterodyne frequency meter for checking the transmitter setting, and this frequency meter must itself be used in conjunction with some type of calibrated oscillator to check the accuracy. This means that if a home-constructed and calibrated meter is employed, its calibration must be checked from a crystal oscillator, the latter being either a low-frequency quartz bar of about 100 kc. or thereabouts, which would give a number of calibration points for the frequency meter, or a quartz crystal resonating within the range of the meter.

In other words, in all but very exceptional cases, a quartz crystal of some kind is necessary, and for the applicant who wishes in the first place to use straightforward apparatus of the type he will find fully described in the various publications of this Society, it is just as well to say that crystal control of the actual transmitter will at all times be employed.

As this article is concerned solely with the procedure in connection with getting a licence, we do not propose to deal with such matters as the type of transmitter to build or to describe an " artificial aerial." These things, and many others besides, will have their place in future issues of THE BULLETIN in this section, which exists to help and enlighten the new member. It is open to him to use the Technical Information Bureau, details of which are given elsewhere, for any assistance he may require outside that given in the series, and we hope to hear from readers as to their own particular problems.

To save possible disappointment we should say here that the one thing we cannot do is to handle members' licence applications. This is a matter solely between them and the Post Office, since licences are only issued on the qualifications of individuals, so that we cannot under any circumstances offer any further advice than that given herewith.

Next month, the September issue, we propose devoting a large part of the section to the suggestions and queries of correspondents, so that if you have anything which you think may be of general interest, write us and pass it on.

(EDITORIAL NOTE.—The five issues of THE T. & R. BULLETIN containing Parts 1 to 5 of " The Helping Hand " feature are available from R.S.G.B. Headquarters at a special price of 3s., post free.)

Thames Valley 56 Mc. Competition

Appreciating the value of close observation on the 56 Mc. amateur band from summer to winter conditions, the 56 Mc. group of the Thames Valley Amateur Radio and Television Society have organised a listening contest to take place over a period of six months commencing on August 1. Reports will be sent to amateur transmitters active on these frequencies and their co-operation in confirming reception will be much appreciated. All the members of the Society's experimental group interested in ultra-high frequency work are holders of transmitting licences.

56 Mc. Field Day

A combined Relay Test and Field Day has been arranged to take place during the week-end of August 21-22. It is realised that by the time this appears in print notice of the event will be very short, but everybody who can possibly manage to take part, either at home or portable, is urged to do so. Many of the well-known stations have received details in advance, and activity will be at a high level, with stations operating on Snowdon, the Mourne Mountains, the Peaks and other high points.

Any system, C.W., telephony or M.C.W., may be used, and the tests, on the whole, will follow the lines of those held on May 2 (see April BULLETIN), with the exception that messages should be cut down to a length not exceeding 12 words, in order to speed up the relaying of messages.

One object of these tests is to attempt to cover longer distances than have been achieved in the past, and in order to test the theory that better DX may be possible at dusk, they will commence at 19.00 B.S.T., August 21, and continue throughout the 24 hours until 19.00 B.S.T., August 22.

Logs should be sent to the writer as soon as possible after the event.

G5JU.

56 Mc. Contest

The North Wales group of 56 Mc. enthusiasts have put up for annual competition a silver cup to be known as "The G.W. 56 Mc. Trophy," and a contest will be held during the week-end, September 18-19. It is open to any R.S.G.B. member licensed to use the 56 Mc. band and any method of communication may be employed. The station can be either fixed or portable, but in either case, only one location may be used during the period of the contest.

The rules are as follows :—

1. The period of the contest will be from 18.00 G.M.T. (19.00 B.S.T.), September 18, to 18.00 G.M.T., September 19.

2. Licence conditions must be strictly adhered to, including power input, which, in the case of a portable station, must not exceed 10 watts. A declaration in writing to this effect is required.

3. Logs should give exact location, both in and out R.S.T.'s and time in G.M.T. QSA 3 R3 is the minimum report acceptable.

4. Points will be allocated on the following scale :—

A.	Up to 10 miles	...	...	1
B.	10 to 15 ,,	...	...	2
C.	15 to 20 ,,	...	...	4
D.	20 to 30 ,,	...	...	9
E.	30 to 50 ,,	...	...	15
F.	50 to 100 ,,	...	...	30
G.	100 to 150 ,,	...	...	40
H.	Over 150 miles	...	...	50

In the entries it is only necessary to show the letter applicable to the distance worked.

5. Only one QSO with any one station will count for points.

The scale has been worked out to make it as fair as possible for both fixed and portable stations. With regard to Rule 5, any number of QSO's may, of course, be made with any station, but only one will count for points.

Whilst only R.S.G.B. members are eligible, the contest is not being run by H.Q., and completed entries should be sent to Mr. J. N. Walker (G5JU) not later than October 2.

The 56 Mc. Band

BY L. G. BLUNDELL (G5LB). *

THERE is little to report this month owing to the added effect of "nil" conditions and holidays. The writer, owing to recent change in QRA (which please note) has been unable to make regular observation on the band inasmuch as the gear temporally in use is unsatisfactory.

However, 2HG supplies further information on the conditions during June and early July. As mentioned in last month's issue, this station has maintained regular schedules with G6DH and G6FL (Longstanton, Cambs.), and has had further contacts with the last-mentioned station as follows :—

June 28. 6FL weak, with bad fade. No QSO.
,, 29 and 30. Nil.
July 1, 2 and 3. 6FL heard and worked.
,, 4. Nil.
,, 5 and 6. 6FL heard and worked.
,, 7 to 13. Nil.

G2HG reports no further reception of signals from 6DH up to July 14, when HG was QRT for holiday.

On July 13 at 21.55 B.S.T. he heard a commercial harmonic on about 56.5 Mc. sending figure code. Signals were R5, fading to R2 for about five minutes, then fading completely out. No call sign given during the time signals were audible.

Conditions as indicated by last year's observations have not as yet been noticed, but there is plenty of time, and we may yet experience a burst of DX working.

Did your receiver find any HB1 signals on August 14? News of a test from HB1AQ (portable on Mount Tendre-Jura) received too late, but several G stations were advised by card of this test, which was maintained over a period of 22 hours (18.00 on August 14 to 16.00 August 15). If anybody in this country heard signals from HB1AQ they are requested to forward reports direct at the earliest.

We are also informed of another test by the N.V.I.R. This is a relay test, and is scheduled to commence on August 28 at 16.00 G.M.T. and run on to 16.00 G.M.T. on the following day.

A 50-watt station in Vlissingen (Flushing) will be on high ground, and will be looking particularly for "G" stations. PA0QQ, in bringing this test to our notice, mentions that Dutch stations taking part in this relay are keen to arrange schedules in advance, and he suggests that British stations (particularly those on the East and South-East coasts) should get into direct touch with the N.V.I.R. regarding such arrangements. PA0QQ can be reached at St. Gerarduolaan 10, Eindhoven.

Advice of this test has also been sent to R.B., R.E.F., U.S.K.A., E.D.R. and V.R.B., so it seems that the band will be in a very turbulent state on the days mentioned. Good luck to all who take part.

In closing, thanks to 2HG who kindly kept these notes going while the writer was "otherwise engaged." 5LB is now able to resume. Please therefore send any future reports direct to him.

* 22, Piquet Road, Anerley, S.E.20.

BOOK REVIEWS

ELECTROLYTIC CONDENSERS: Their Properties, Design and Practical Uses. By Philip R. Coursey, B.Sc., M.I.E.E., F.Inst.P., etc. (Technical Director, Dubilier Condenser Co., Ltd.). 172 pages and 112 illustrations. Published by Chapman & Hall, Ltd., London. Price 10s. 6d. net.

This book places at the service of readers much information which has been hidden away in scientific papers or has escaped publication altogether. It deals with the most recent developments, as well as giving a general survey of physical construction and methods of measurement of the peculiar properties of electrolytic condensers, the properties themselves being described in considerable detail.

The author firstly deals with the idea of capacitance, the general nature of electrolytic condensers, power factor, leakage current, etc., and then passes on to a brief historical survey of the subject, showing the development of the modern types.

The peculiar properties demand modification of ordinary testing methods, and chapter 3 is devoted to a description of the methods and apparatus for measurement of capacitance, power factor, leakage, and impedance.

Chapters are given to consideration of the construction and characteristics of the wet, semi-dry, and dry types, and to the influence of the separator on performance.

A long and detailed treatment of the electrical characteristics of the electrolytic condenser, and their influence on the choice of condensers for various purposes, forms one of the most valuable sections of the book and is illustrated by many curves.

The book concludes with a chapter on applications, including smoothing circuits following rectification, and the starting of single-phase motors.

The practical treatment of the subject, the many clear illustrations, and the need for such an expert work, will commend this book to all interested in the subject from whatever angle. T. P. A.

TELEVISION UP-TO-DATE. Second Edition. By R. W. Hutchinson, M.Sc. 211 pages and 142 illustrations. Published by University Tutorial Press, Ltd., London. Price 2s. 6d. net.

The first edition of this book was published in 1935, and in this edition there is much additional material on the latest phases of the subject. The author is already well known for his many educational books on electrical subjects, and his long teaching experience has given him the very important knowledge of what to leave out of such a book, as this, for the book is avowedly for beginners, whether general readers or students, and no radio or electrical knowledge is assumed.

Sufficient treatment of electricity, optics, and ether waves is given in the first chapter, and then a simple explanation of broadcasting, and valves, follows.

The groundwork of practical television is initially explained with reference to low-definition apparatus, and then a lucid survey of the necessity for high-definition leads up to the use of ultra-short waves and their characteristics.

The reader is taken to the sending end, and the various systems are described to him. The cathode-ray tube for the modern receiver and the operation of time-base circuits are fully explained, and this section concludes with a description of dipole receiving aerials and their feeder systems.

A special chapter deals with large-screen television, colour television, noctovision, and various systems such as Scophony, Te Ka De, and Mihaly.

The final chapter gives many details of the B.B.C. television station, and some miscellaneous notes.

The book is confidently recommended to anyone requiring a simple but soundly scientific explanation of the processes in television, and the publishers deserve a word of praise for producing the book so attractively at such a reasonable cost. T. P. A.

Trade Notes

British Mechanical Productions, Ltd., better known to readers as manufacturers of Clix components, inform us that their Fuse Plug No. 27 has been reduced in price from 1s. 8d. to 1s. 3d., whilst their Plug Adapter No. 29 has been reduced from 1s. to 9d.

The latest Clix leaflets are now available giving details and illustrations of the numerous useful devices especially designed for the experimenter.

Remember the motto " Clix for Perfect Contact."

* * *

Westinghouse Brake & Signal Company, makers of Westectors, have forwarded details of their new Battery Chargers and Metal Rectifiers. All Westinghouse rectifiers carry a 12 months' guarantee from the date of purchase.

Current prices for Westectors are:—W4, WX6 and W6 (half-wave types), 5s. each. WM24 and WM26 (full wave centre-tapped), 10s. each.

These and all new Westinghouse products will be shown at Olympia.

To The Editor

SIGN MORE FREQUENTLY

To the Editor, T. & R. BULLETIN.

DEAR SIR,—Might I put forward the suggestion that those operating code on the 56 Mc. band should sign their calls more frequently than seems the case at present?

At my QRA 56 Mc. signals of any sort are so rare, that it is exceedingly annoying to hear a weak and fading station answer my test calls, only to fade out after several minutes spent in sending my call sign only. This has happened on two occasions recently when I was testing a new directional aerial.

I would like to take this opportunity of asking anyone who hears my signals on 56 Mc. to be good enough to send me a report, as up to date no contacts have been made outside a range of twelve miles in any direction.

Yours faithfully, W. H. Allen (G2UJ).

OUR MOTHER TONGUE

To the Editor, T. & R. Bulletin.

Dear Sir,—As an old-timer, just breaking into the Amateur Radio game after four years' absence, may I offer you my heartiest congratulations on your timely Editorial in the current issue of The Bulletin.

It would appear that our beloved hobby is rapidly degenerating into a mad scramble to build stations of the highest possible power, and which appear to me to be Broadcasting Stations in everything but call sign, while the operators themselves seem to be engaged in a contest to see who can use the most nasal twang and the greatest number of American "gangster-talkie" phrases.

One may well ask Whither Amateur Radio? Cairo will supply the answer.

Yours faithfully,
Lawrence Fuller (G6LB).

To the Editor, T. & R. Bulletin.

Dear Sir,—May I be permitted to thank you for drawing attention to the pseudo-American accents adopted by amateurs in these islands to-day.

This is a matter which, in bringing to the notice of the culprits, you are doing a good service to amateur radio as a whole, but whether it will bear fruit is a matter of doubt to the writer after having listened to the matter now transmitted by stations to-day, especially on 7 Mc.

A point you have overlooked is that of installing commercial "All Wave" broadcast receivers without means of receiving CW; these are now in such common use as to make one think that the transmission of CW will be futile in a short while owing to the lack of stations suitably equipped to receive such signals.

At least three stations have been heard by the writer in the past week who have no means of receiving CW; surely this is an infringement of our licence conditions?

Yours faithfully,
L. Wakefield Hooke (G5XH).

CAN IT BE DONE?

To the Editor, T. & R. Bulletin.

Sir,—With the amateur bands becoming more congested every day, and with little hope of extension, the continued use of telephony by a large number of amateur stations calls for a drastic change in present licensing conditions. The simplest solution seems to be the allotment of certain frequencies to form an International Telephony Band. Although I should like to see this suggestion operative on all bands, more especially does it apply to 14 Mc., part of which band has already been "annexed" by the Americans for telephony purposes.

It is not my intention to criticise the "phone" man, as on a few occasions I have myself used telephony, but the relaying of broadcast stations over long periods, if not an infringement of our licences, calls for condemnation if only that it shows lack of ham spirit.

I hope that my suggestion will receive careful consideration as it seems to be the fairest way out of a rather delicate situation.

Yours faithfully, C. A. Butler (G2YB).

Editorial Note.

The Council at a recent meeting discussed at great length a proposal made by the French National Society (R.E.F.) that the 7 and 14 Mc. bands should be divided into Telephony and Telegraphy channels. After very careful consideration it was agreed that such a proposal is unworkable, particularly *in Europe*, unless agreement could be reached by the *Governments* of all the countries concerned.

It would, in the opinion of the Council, seem impossible to obtain such an agreement for the reason that many Governments probably consider that the whole of the exclusive amateur bands should be open for either telephony or telegraphy experiments.

If the suggestions of the R.E.F. were adopted it would mean that all amateurs would be restricted to a portion of the 7 and 14 Mc. bands. Such restrictions might, it is believed, lead certain interests to assume that amateurs can "manage" with narrower bands.

It is the intention of the Council to discuss this question at the Convention Delegates' Meeting.

The relaying of broadcast programmes is contrary to the conditions of British amateur licences, and it is the duty of all members to report such infringements to the G.P.O.

WIRELESS OR RADIO?

To the Editor, T. & R. Bulletin.

Sir,—Rarely have I agreed so wholeheartedly with an editorial as with yours on "Our Mother Tongue" in the July issue of the T. & R. Bulletin. But we are told that charity and other estimable qualities begin at home. That being so, why are we the *Radio* Society of Great Britain when for 20 years before our Society was founded the art of signalling without wires was known by the simple word *Wireless?*

Yours faithfully,
C. L. Fortescue.
Imperial College of Science and Technology,
South Kensington, S.W.7.

Editorial Note.—We appreciate the force of Professor Fortescue's comment, but would mention that the present title was, presumably, agreed to by the members of the Society present at the Special General Meeting called at the time when the change from Wireless Society of London was proposed.

VK2RU

Mr. M. E. Collett, of Lisarow, New South Wales, informs us that his old call VK2XL has been acquired for a Broadcasting station. He is now operating as VK2RU on 14 Mc. and is looking for British Isles contacts.

Valve Review

MAZDA AC4/Pen.

The valve reviewed this month is a Mazda AC4/Pen, manufactured by *Messrs. Edison Swan Electrical Co., Ltd.* The AC4/Pen is an indirectly heated beam tetrode power amplifier. The valve has a carbonised bulb and is fitted with a 7 pin busbase. The construction is on " beam " principles, in that beam confining plates are used instead of a suppressor grid, but no attempt has been made to arrange the screen grid turns to cover those in the control grid as in the American beam valves, with a result that the screen current is about 15 per cent. of the anode current, a figure usual for pentodes.

Characteristics.	*Makers,*	*Measured sample.*
Heated volts...	4.0	4.0
Heated current (amps.) ...	1.75	1.8
Anode volts (max.)	250	250
Screen volts (max.) ...	250	250
Grid volts	—8.7	—7.7 *
Anode current (mA.) ...	64	60
Screen current (mA.) ...	12	10.5
Amplification factor ...	—	230
Mutual conductance (mA./v.)	11	11
Impedance (ohms)	—	21,000
Autobias resistance (ohms)	100	100
Input swing (R.M.S.) ...	4.45	not measured
Optimum load (ohms) ...	3,400	See below
Power output (watts) ...	7	See below

Interelectrode capacity.

Grid ...	All other electrodes	23.5 μμF
Anode	All other electrodes	10.8 μμF
Grid ...	Anode	1.3 μμF

The valve was measured for power output and for harmonic content. The figures obtained show that the minimum second harmonic occurs when working into a load impedance of 5,000 ohms and a minimum third harmonic at 3,500 ohms. At a level of 4 watts output and 3,500 ohms load the total harmonic was 4.5 per cent. and at 5,000 ohms the total was 2.5 per cent. At higher power outputs the makers rated load, 3,400 ohms, was used, and the total harmonic content at 5 watts was 5.5 per cent., at 6 watts 7.3 per cent., and at 7 watts 14 per cent. The above figures compare very favourably with American 6L6 valves used under the 250 volt conditions. D.N.C.

*Equivalent bias for 60 mA. at 100 ohms auto-bias.

Test Report.

We have received for test purposes a short-wave superheterodyne receiver manufactured by *Radio Development Company*, of London.

The receiver is built on a metal chassis measuring 10½ ins. by 5 ins., and has an overall height of about 6½ ins. The circuit consists of an autodyne first detector, two stages of resistance-coupled I.F. amplification, a resistance-coupled second detector, and one stage of low-frequency amplification.

American type valves are used throughout, these being a 6J7 as first detector, two 6K7 as I.F. amplifiers, a 6C5 as the second detector, and a 6E6 as L.F. amplifier.

The set was supplied with two ¾-in. diameter plug-in coils, one of ten turns and the other seven turns. We were informed that the larger coil tuned from 7 to 10 metres and the smaller from 3 to 7 metres. On test, however, it was found that the smaller coil had too many turns to tune down to the 5-metre amateur band, and that a coil with about 5½ turns was necessary for this purpose.

The receiver has three controls: (1) the tuning control, (2) the regeneration control to the first detector, and (3) the I.F. gain control.

The 'phones are connected directly into the plate circuit of the final stage, but we are of the opinion that it would be an advantage to isolate them from the anode current by means of the usual choke and condenser.

The set was tested in South London and the signals from the Alexandra Palace, about 12 miles away, were received at R9 plus. On the 56 Mc. amateur band modulated signals were heard from G2MV, G2GZP, G2UXP, G5OX, G6NF and G6VA.

The I.F. amplifiers are broadly tuned so that the reception of self-excited oscillator stations is possible, and the tuning of the receiver is not at all critical. For the same reason, of course, the selectivity of the set is not very high.

The regeneration control to the first detector is very smooth, and this stage should only be just oscillating for greatest sensitivity.

The price of the receiver is £6 15s. in kit form or £7 17s. 6d. completely assembled.

E. H. S.

The VK-ZL Contest

In another page we reproduce the rules governing the operation of the forthcoming VK-ZL Contest. Mr. Petrie, the General Secretary of N.Z.A.R.T., asks us to draw especial attention to the following important points :—

1. Under the rules one or more operators are allowed from each station.
2. The log submitted is for the *station's* operation, and as such the loggings of one or more operators should be incorporated in the contest log submitted.
3. There is a break of one week-end between the Senior and Junior sections of the Contest.

British Isles amateur transmitters are reminded that unless special authority has been obtained from the G.P.O., their station may only be operated by the licensee in person.

Southport Activities

We are happy to record that a new organisation, known as the Southport Amateur Transmitters' Association, has been formed in that town. The following have accepted office :—President, Dr. N. S. Walls, G2LM ; chairman, Mr. W. Johnson, G2IN ; secretary, Mr. F. H. Pemberton, G5OP ; treasurer, Mr. F. H. Illingsworth, G8QG ; committee, Messrs. Fennessy, G5ZI, Fleet, 8JY, Nuttall, 6SQ, and Jackson, 2ANA.

Mr. Pemberton, who has also been elected T.R., will be glad to hear from members desirous of supporting the new club. His address is 95, Preston New Road, Southport.

BETWEEN  OURSELVES

Convention, 1937

THE stage is set for what should prove our best Convention to date. Every visit has been booked up and so far over 100 members have been good enough to inform us that they will be present at the dinner. There is still time to reserve your accommodation at this function, but remember that after August 31 your ticket will cost 6s. !

To refresh the memory of those who are not sure of the full Convention programme, we reproduce in this issue a list of events.

In regard to the Technical Group Discussions we are hoping to arrange for well-known members to take charge of each group. Following the lines of a similar and very successful scheme arranged last season for London members, groups will change leaders every 15 or 20 minutes, thus enabling an all-round series of discussions to take place.

The Convention group photograph will, it is anticipated, be shown in proof form at the dinner and orders taken at the time by the photographer.

In regard to the dinner, members are reminded that no set plan of seating is possible except at the top table. Those desirous of sitting together should arrive in good time to reserve their seats. As mentioned in our earlier announcement members and invited guests only will be permitted to attend this function.

Stand 214, *Olympia.*

Once again we desire to thank those members who have so generously offered to give up a portion of their annual vacation to do stand duty. The full rota will be exhibited on the stand and copies with passes will be distributed in advance to volunteers.

The Society's stand, as in previous years, will be located in the Gallery.

The new Guide will be on sale and it is hoped that every member will support the project by purchasing at least one copy. Due to its great increase in size (over 160 pages) the price when sent by post will be increased to 9d. per copy, post free.

Provincial and overseas members desirous of meeting the Secretary are advised to make an appointment in advance by card or telephone. During the major portion of the show period Mr. Arthur Milne, G2MI, will be assisting the Secretary on stand duty.

Subscriptions should be paid on the stand or at Headquarters, and not at Convention. A good supply of Call Books and other publications will be available for direct sale.

As in past years, one panel will be reserved for members' QSL cards. A visitors' book will also be available and we invite all members to sign before leaving the stand.

The telephone number of the stand will be Fulham 9512. Members wishing to make calls must seek permission from the official on duty and all calls must be paid for at the time.

Members are warned that the Society cannot accept responsibility for goods or wearing apparel left on the stand.

New D.R. for Mid-East England

Council are pleased to announce that Mr. W. Grieve (G5GS), of Summerford, New Waltham, Grimsby, Lincolnshire, has accepted their invitation to serve as Representative for District 17. Mr. Grieve is one of the oldest amateurs in the country and is well known to most of the members in his District.

We take this opportunity of wishing our new D.R. every success in his efforts on behalf of the Society.

PRESIDENTIAL MESSAGE

On the eve of our Twelfth Convention, I take this opportunity of extending a personal invitation to all members to partake in the events which have been arranged. Convention provides the occasion for renewing old and making new friendships. To our new members in particular I offer a cordial welcome.

E. Dawson Ostermeyer.

District 11

As from this date the town of Oswestry will be regarded as being attached to District 11 (North Wales). The change has been made with the agreement of the D.R.s concerned.

Rules for the Braaten Trophy

1. The Trophy (donated in April, 1937, by Arthur M. Braaten (W2BSR), of Riverhead, Long Island, New York) will, at the discretion of the Council of the R.S.G.B., be awarded annually to the fully paid-up Home member of the Society scoring the highest number of points (as recorded in *QST*) in the Annual DX Telegraphy Contest organised by the American Radio Relay League.

2. If at a later date the rules of the A.R.R.L. DX Telegraphy Contest permit Scottish, Welsh and Northern Ireland stations to score separately from English stations, the Trophy shall not be awarded to a Scottish, Welsh or Northern Ireland station, unless at least twelve entries are received by the A.R.R.L. from R.S.G.B. members in the entrant's country.

3. The Trophy will be held for one year and will be awarded at Convention.

4. The Council of the R.S.G.B. reserve the right to award the Trophy for any purpose other than that mentioned in Rule 1.

W.B.E. Awards

The following certificates have been issued :—

W. B. E.

Name	Call Sign	Date 1937
L. Madgwick	ZE1JG	2nd June
D. G. A. Richardson	ZS1B	4th ,,
H. J. Hunt	G5HH	8th ,,
E. Mitchell	G5MV	8th ,,
R. E. Trebilcock	VK3TL	17th ,,
G. A. James	G8CT	19th ,,
M. Nicholson	G2MN	21st ,,
R. J. Bradley	G2FO	23rd ,,
D. B. Fry	G5UY	2nd July
R. K. Sheargold	G6RS	2nd ,,
J. C. Rosenlund	LA3G	7th ,,
J. W. Mavis	ZE1JE	13th ,,
J. B. Tomczyk	W9DBC	15th ,,
W. Schierenbeck	D4AKK	24th ,,
C. H. Ranft	G5RF	28th ,,
28 Mc.		
J. Lees	G2IO	7th July
Telephony		
N. L. H. Platt	G5PB	13th May
R. J. Bee	VS2AG	28th June
F. A. Robb	GI6TK	16th July

H.B.E. Award

C. A. V. Heathcote, BRS1885. 21 December, 1936.

Winter Programme

The need for good technical articles is still urgent. Members who can assist are invited to communicate immediately with the Secretary-Editor outlining their proposed contribution.

To assist authors a circular has been prepared giving useful advice regarding the setting out of articles. A copy will be sent free to any interested member.

Remember, a large BULLETIN cannot be maintained without contributions.

Important Notice

Transmitting members residing in Monmouthshire are reminded that this county is in England and therefore they have no permission to use the prefix "GW." One station has been heard signing "GW" whilst a request was received at H.Q. asking if it was allowed.

H.B.E. Certificates

Council have decided that for the purposes of the H.B.E. certificate, Scotland (GM) and Wales (GW) shall *not* count as separate countries.

Headquarters

During the period of the Radio Exhibition Headquarters will be open from 10 a.m. to 5 p.m. Members are requested to note this change.

The 3.5 Mc. Band

Members holding 3.5 Mc. permits are reminded that during the month of September the band may only be used for week-end operation.

Calibration Fees

The Council have decided to increase the fee charged for the calibration of frequency meters to 5s. minimum (5 points).

Another Contest

The Dutch organisation, N.V.I.R., have asked us to announce that their Annual Contest between Holland and the rest of Europe takes place during the period September 18 and 25. Operating hours are from 17.40 to 21.40 G.M.T. per diem. Dutch stations will send a serial number consisting of six ciphers, the first three indicating the R.S.T. report and the last three a code combination selected by each competitor.

The contest is open to all licensed European amateurs and all bands except 1.7 Mc. may be used. Only one contact per day per band may be made with a specific PA station.

Foreign stations are requested to send their QSL's giving details of each contact to the N.V.I.R. QSL Bureau, Box 400, Rotterdam, before January 1, 1938. Each QSO confirmed on the QSL card by correct serial number counts one point. The highest scorer in each country will receive a special award.

NEW MEMBERS.

HOME CORPORATES.

W. H. MALCOLM (G6WX), 52, Second Avenue, Copsewood, Coventry.
S. STANLEY (G8GO), 15, Pelham Street, Sutton-in-Ashfield, Notts.
R. POSTILL (G8NO), Tonbridge School, Tonbridge, Kent.
J. C. EGERTON (G8MU), "Fairway," Bucklesham Road, Ipswich, Suffolk.
G. C. EYRE (G8OJ), 75, Droylsden Road, Newton Heath, Manchester.
WM. PRICE (G8OQ), 95, Ewhurst Road, Brighton, 7, Sussex.
L. A. KIPPIN (G8PL), 24, Percival Road, Romford, Essex.
A. D. BOARD (2BAD), 6, Glinton Avenue, Bideford, Devon.
J. R. BURTON (2BDR), 144, Ratcliffe Road, Sileby, near Leicester.
D. P. JOSEPH (2BJL), 10, Cluny Terrace, Morningside, Edinburgh.
H. F. KNOTT (2BKB), 108, Church Lane, Tooting, S.W.17.
E. R. WHITEHEAD (2BNP), Mill Close House, Town Bank, Ulverston, Lancs.
J. L. T. LEWIS (2BTY), 116, St. Peter's Road, Reading, Berks.
J. W. C. CROPPER (2BVM), 10, Manor Street, Audenshaw, Manchester.
W. J. BARKER (2CBX), 7, Deben Avenue, Martlesham, near Woodbridge, Suffolk.
L. G. BLUNDEN (2CNO), 39, Railway Road, Newhaven, Sussex.
W. J. W. GUY (2CQX), Firgrove, Fintona, Co. Tyrone, N. Ireland.
H. WHITAKER (2CVI), 10, Ighten Road, Park Lane, Burnley, Lancs.
F. R. DUXBURY (BRS2958), 15, Morley Road, Southport, Lancs.
W. G. HAVELL (BRS2959), 18, St. Margaret's Street, Ipswich, Suffolk.
E. C. COSH (BRS2960), "Anslyn," Mill Road, Angmering, Sussex.
P. KING (BRS2961), 26, Twyford Avenue, Shirley, Southampton, Hants.
R. W. HUNTER (BRS2962), 87, Marlborough Road, Swindon, Wilts.
H. BENFORD (BRS2963), 120, Berners Street, Leicester.
F. I. HILTON (BRS2964), 17, Buller Crescent, Harehills, Leeds, 9.
L. F. A. COPLIN (BRS2965), 248, Folkestone Road, Dover, Kent.
R. F. B. CROSS (BRS2966), 75, Bromley Road, Beckenham, Kent.
L. R. F. JOYNES (BRS2967), Pole Close Cottages, Brooklands Road, Weybourne Lane, near Farnham, Surrey.
R. H. COLE (BRS2968), 16, Elm Avenue, Eastcote, Ruislip, Middlesex.
F. R. WOOD (BRS2969), 40, The Crescent, Davenport, Stockport, Cheshire.
L. D. CAMERON (BRS2970), 56, Newport Road, Barnstaple, Devon.
R. THOMPSON (BRS2971), 3, Hall Park Villas, Oulton Road, Lowestoft, Suffolk.
J. H. PALMER (BRS2972), "Delmonte," Pier Avenue, Herne Bay, Kent.
C. A. BLAKE (BRS2973), 17, Hounsfield Road, Sheffield.
D. B. GAGGS (BRS2974), 4, Pine Grove, Victoria Park, Manchester, 14.
G. M. JENKINSON (BRS2975), 220, Priory Road, Derringham Bank Estate, Hull.
F. C. WARD (BRS2976), 118, Meynell Street, Derby.
M. PITTAL (BRS2977), Bede College, Durham.
B. BARRATT (BRS2978), 32, Ivy Road, Wylde Green, Birmingham.
H. RIDGE (BRS2979), 9, Mayfield Road, Heavitree, Exeter, Devon.
F. C. ELLERTON-TATE (BRS2980), 45, Bonsall Road, Erdington, Birmingham.

K. N. Greenaway (BRS2981), 223, Wolverhampton Road, Cannock, Staffs.
Wm. Grant (BRS2982), 55, High Street, Turriff, Aberdeenshire.
A. E. Ward (BRS2983), 81, Wicklow Drive, Leicester.
A. H. Parker (BRS2984), 8, Turner Road, Uppingham Road, Leicester.
J. C. Barron (BRS2985), 4, Hill Street, Aberdeen.
K. C. Ord (BRS2986), Ellington, Tattershall Drive, The Park, Nottingham.
A. J. Woolnough (BRS2987), 115, Querneby Road, Mapperley, Nottingham.
H. C. Pollard (BRS2988), Nadderwater, Exeter, Devon.
W. Spurgeon (BRS2989), Meadowcroft, Keighley, Yorks.
C. K. Street (BRS2990), Old Castle, Buckland St. Mary, Chard, Som.

Dominion and Foreign.

Lars. R. Heyerdahl (LA6A), Elisenbergvn, 35, Oslo, Norway.
Law Joo Ghin (VS2AO), c/o Swee Radio Co., 5-7, Bukit Bintang Road, Kuala Lumpar, Malaya, F.M.S.
H. E. F. Taylor (VU2FS), c/o Blacker & Co., Royal Exchange Buildings, Calcutta, India.
A. E. Scarlett, Junr. (W2CC), 58, Fayette Road, Scarsdale, New York, U.S.A.
M. S. Trpkovic (YT7MT), Kneza Pavla 43, Beograd, Jugoslavia.
A. O'Meara (BERS404), P.O. Box 581, Nairobi, Kenya Colony.
A. Stevenson (BERS405), W/T Section 47 (B) Sqdn., Khartoum, Sudan.
W. L. Watts (BERS406), Barrow Cottage, Athy, Co. Kildare, I.F.S.
L. J. Thomas (BERS407), "A" Corps Signals, Rawalpindi, Punjab, India.
W. J. King (BERS408), Reserve Police Quarters, Maharanipeta P.O., Vizagapatan, Madras Residency, South India.

QRA Section

Manager: H. A. M. Whyte (G6WY).

All new members possessing a G.P.O. licence (Full or A.A.) are requested to inform the QRA Manager, on a separate sheet or postcard, of their address. Changes in address should be forwarded in the same way, and these will duly appear in the Amateur Radio Call Book Magazine.

NEW QRA'S

G2AA.—W. F. Reeve, 14, Helena Crescent, Leicester.
G2GC.—W. W. Field, 5, Albert Hill, Bishop Auckland, Durham.
G2IG.—R. H. Hammans, 28, Tudor Way, Petts Wood, Orpington, Kent.
GW2OP.—Capt. G. Courtenay Price, The Mount, Pembroke Dock, North Wales.
G2QO.—F. Dearlove, 601, Endyke Lane, Hull, Yorks.
G2TP.—Lieut. C. W. Andrews, "Haslemere," Pilgrims Way, Westhumble, Dorking, Surrey.
G5AY.—A. E. Young, 126, Whinneyfield Road, Walkergate, Newcastle-on-Tyne.
G5BB.—A. H. Bruce, 8, Mariland Court, Highbury New Park, London, N.5.
G5BD.—A. C. Simons, "Windyridge," Admiralty Road, Mablethorpe, Lincs.
G5CH.—C. Hampson, 14, Lowood Avenue, Davyhulme Road, Davyhulme, Manchester.
G5LP.—L. F. S. Parker, 22, Second Avenue, Wellingborough, Northants.
G5NR.—E. G. Nurse, 540, Whitton Avenue West, Greenford, Mddx.
G5NU.—W. H. Lord, "Winlaton," Whaley Lane, Whaley Bridge, Stockport, Ches.
G5OT (VP90, VO48).—Gilbert W. Ottaway, 75, Waverley Road, Southsea, Hants.
G5QN.—N. Best, B.Sc., c/o Mrs. Johnson, 23, Glencoe Road, Stoke, Coventry, Warwickshire.
G5QR.—Portable, Operator G6SN.
G5SO.—L. E. H. Scholefield, 47, East Beach, Lytham, Lancs.
G5YP.—John H. Wood, "Iris," 23, Windermere Road, Harlescott, Shrewsbury, Salop.
GW5ZL.—L. S. Garley, "Scarisbrick," Cherry Grove, Sketty Park, Swansea, Glam.
G5ZZ.—(ex ZL4AI) G. G. Samson, 53, Manor Court, York Way, Whetstone, London, N.20.
GM6DG.—D. A. Gray, 1044, Crookston Road, Nitshill, Glasgow, Scotland.
G6DS.—Ray C. B. Barnes, 14, Lambley Avenue, Westdale Lane, Mapperley, Notts.
G6GA.—H. R. B. Gautby, Aston Hall West, North Ferriby, East Yorks.
G6OM.—Ian D. Auchterlonie, "Pandora," Victoria Avenue East, Blackley, Manchester.
G6PD.—P. G. Day, 170, Oundle Road, Peterborough, Northants.
G6VX.—(ex ZL2CJ) M. D. Mason, "Lu Blu," Barton Road, North Cray, Kent.
G6XK.—Portable, Operator G8HO.
GW6YJ.—F. R. Canning, 33, Cardiff Road, Bargoed, Glam., Wales.
GM6ZP.—J. G. Ross, 27, King Street, Aberdeen, Scotland.
G6ZQ.—John E. Squire, "Jesmit," 227, Arle Road, Cheltenham, Glos.
G8CY.—W. V. Champion, 12, Bedford Road, Tottenham, London N.15.
GI8DB.—John L. Pinkerton, High Street, Ballymoney, Co. Antrim, N.I. (Station at Secon, Ballymoney, Co., Antrim, N.I.).
G8DF.—A. E. Mitchell, "Woodlea," Four Marks, Alton, Hants.
G8FJ.—H. S. Norris, 53, Fisher Avenue, Hillmorton Paddox, Rugby.
G8FU.—G. B. Hunt, 190, White Road, Quinton, Birmingham.
G8GN.—A. G. Forbes, 33, Rake Lane, Wallasey, Cheshire.
G8HO.—A. E. Smith, 30, Beverley Road, Rubery, near Birmingham.
G8IN.—D. T. Blunden, 560, Purley Way, Croydon, Surrey.
G8JS.—W. H. Skidmore, 495, Worsley Road, Worsley, Manchester.
G8OK.—P. Denison, "Sea View," Ville Amphrey, Guernsey, Channel Is.
G8OU.—(ex YI2FU) R. A. Underhill, 13, Leconfield, Beverley, Yorks.
G8PQ.—D. Derry, Y1 Flight, "A" Squadron, Cranwell, Lincs.
G8PU.—E. J. Beard, 38, Bloomfield Road, Blackwood, Mon.
G8QF.—A. H. E. Scott, 36, Sheldon Avenue, Highgate, London, N.6.
G8QJ.—D. Mason Gledhill, "Beverlac," Tavistock, Devon.
G8QU.—A. J. Mouston, 54, Chalfont Road, Holloway, London, N.7.
G8QW.—D. L. Davies, 160, Desborough Road, Eastleigh, Hants.
G8QZ.—Henry O. Sills, "Elmhurst," Briar Gate, Long Eaton, Notts.
G8RB.—A. Fachtor, 33, Thompson Street, Blyth, Northumberland.
G8RF.—J. R. Raby, 20, Lord Street, Wolverhampton, Staffs.
G8RG.—G. S. Dee, "The Croft," Upper Halliford, Shepperton, Mddx.
G8RH.—J. A. Jagger, "Katja," Holford Road, Merrow, Guildford, Surrey.
GM8RJ.—J. Troy, 35, Hermiston Avenue, Springboig, Glasgow, Scotland.
G8RK.—R. Dennett, 81, Beaver Road, South Ashford, Kent.
G8RL.—L. F. Woodhams, 90, Railway Terrace, Rugby, Warwick.
GM8RM.—A. T. Milligan, 26, Sinclair Street, Clydebank, Scotland.
G8RO.—Leslie G. Willard, "Egerton," Tangmere, near Chichester, Sussex.
GW8RS.—F. E. Sperring, 23, Old Road, Llanelly, Carmarthenshire, Wales.
G8RT.—J. P. Tourle, St. Ives, Leicester Road, Laindon, Essex.
GM8RU.—W. E. Firth, 4, Kennoway Dr., Glasgow, W.1, Scotland.
G8SA.—Dr. E. S. G. K. Vance, White Hart Inn, Blackwell Road, Huthwaite, Notts.
G8SC.—C. Collins, Bagot House, Over Monnow, Monmouth.
G8SF.—D. H. Pennington, Lynbrook, Marple, Cheshire.
G8SG.—R. Lyall, Ewart, Wooler, Northumberland.
G8SH.—P. Newton Nield, Park Street, Loughborough, Leics.
G8SJ.—John R. Treadwell, 108, Sandhall Green, Pellon, Halifax, Yorks.
2ADJ.—D. H. Jones, "Glen Cot," Windmill Lane, Northam, North Devon.
2BHJ.—W. P. Kempster, "Flowerpatch," Brokengate Lane, Denham, Bucks.
2BIP.—R. M. Barger, R.A.F. Officers' Mess, Honington, Bury St. Edmunds, Suffolk.
2BMV.—David F. Waddington, 28, West Shrubbery, Redland, Bristol, 6.
2BSN.—D. Alan Dyer, 29, Ladysmith Road, Penylan, Cardiff, South Wales.
2CGW.—A. T. Anderson, 12, Goodyear Terrace, West Thurrock, Grays, Essex.
2CHQ.—R. J. Leaman, 35, Sycamore Road, Lynthorpe, Middlesbrough, Yorks.
2COW.—P. W. J. Gammon, "Sunnyside," Fernhurst, Sussex.
2CSM.—Wm. McCann, B.Sc., Radio House, Todd Lane, Lostock Hall, Preston, Lancs.
2CTO.—H. T. Lunson, 80a, Beaconsfield Road, Brighton, 6, Sussex.
2CTZ.—Wm. Rogers, No. 1, South Bridge, Northampton.
2CUH.—A. Graham, Technical College, The Broadway, Dudley, Worcs.
2CUI.—W. J. Chalk, 30, Ripon Road, Ansdell, Lytham, Lancs.
2CUK.—N. W. White, 59, Eastlands Road, Rugby, Warks.
2CVA.—D. T. Boffin, "The Shack," Market Square, Faringdon, Berks.
2CVF.—Lawrence A. Kelsall, 342, Franklin Road, Kings Norton, Birmingham.
2CVG.—R. J. Murray, 74, Admiral Street, Liverpool, 8.
2CVN.—Chas. H. Ashmore, 33, Winfield Street, Rugby, Warks.

2CVV.—F. C. Ward, 118, Meynell Street, Derby.
2CWB.—Albert H. Parker, 6, Nursery Road, Scraptoft Lane, Leicester.
2CWO.—E. W. Lark, 11, Winnipeg Road, Lowestoft, Suffolk.
EI8G.—Frank de Burgh Whyte, The Cottage, Greystone, Co. Wicklow, I.F.S.
Cancelled: G2QL, G5XP, 2ACV, 2AFN, 2AGD, 2AIX, 2AJR, 2AND, 2AOO, 2AOS, 2ATB, 2AWX, 2AWZ, 2AYV, 2BCV, 2BHD, 2BLN, 2BLQ, 2BQF, 2BSI, 2BUJ, 2BYX, 2CAP, 2CAR, 2CUK.

R.S.G.B. Slow Morse Practices

Details will be found below of the slow Morse practices organised by the Society for those members wishing to learn or improve their code. As usual, test matter will be taken from recent issues of the T. & R. Bulletin. The page number and month of issue will be given at the end of each test—by telephony. A telephony announcement will also be given at the commencement of each test to assist those interested in tuning in the sending station. It is emphasised that reports will be appreciated and are desired in order to ascertain useful range of transmission and numbers utilising the service. If, however, a reply is desired, a stamp should be sent. Will stations in areas not at present served offer their services to Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4 (Telephone: Silverthorn 2285). G5SU, of Gravesend, is discontinuing owing to lack of time; however, G6VC, of Northfleet, will be taking his place. The QRA of G6VC is V. H. S. Curling, 66, Burch Road, Northfleet, Kent.

Schedule of Slow Morse Transmissions.

		B.S.T.	k.c.	Stations
Aug. 22	Sunday	0945	7155	GI5UR
,, 22	Sunday	1000	7260	G5JL
,, 22	Sunday	1015	1920	G6VC
,, 23	Monday	2315	1741	GI6XS
,, 24	Tuesday	2200	7184	G6UA
,, 25	Wednesday	2315	1741	GI6XS
,, 26	Thursday	2200	7184	G6UA
,, 28	Saturday	2300	7145	GI5QX
,, 29	Sunday	0945	7155	GI5UR
,, 29	Sunday	1000	7260	G5JL
,, 29	Sunday	1015	1920	G6VC
,, 30	Monday	2315	1741	GI6XS
,, 31	Tuesday	2200	7184	G6UA
Sept. 1	Wednesday	2315	1741	GI6XS
,, 2	Thursday	2200	7184	G6UA
,, 3	Convention			
,, 4	,,			
,, 5	,,			
,, 6	Monday	2315	1741	GI6XS
,, 7	Tuesday	2200	7184	G6UA
,, 8	Wednesday	2315	1741	GI6XS
,, 9	Thursday	2200	7184	G6UA
,, 11	Saturday	2300	7145	GI5QX
,, 12	Sunday	0945	7155	GI5UR
,, 12	Sunday	1000	7260	G5JL
,, 12	Sunday	1015	1920	G6VC
,, 13	Monday	2315	1741	GI6XS
,, 14	Tuesday	2200	7184	G6UA
,, 15	Wednesday	2315	1741	GI6XS
,, 16	Thursday	2200	7184	G6UA
,, 18	Saturday	2300	7145	GI5QX
,, 19	Sunday	0945	7155	GI5UR
,, 19	Sunday	1000	7260	G5JL
,, 19	Sunday	1015	1920	G6VC
,, 20	Monday	2315	1741	GI6XS
,, 21	Tuesday	2200	7184	G6UA

Philatelists

Mr. W. E. Lane (VQ4CRH), Box 570, Nairobi, Kenya Colony, will be pleased to exchange Coronation stamps with amateurs in other parts of the Empire.

Members are reminded that an R.S.G.B. Philatelic Section is being conducted by Mr. M. Williams (G6PP), 7, Woodberry Down, Finsbury Park, London, N.4, who will be pleased to hear from enthusiasts.

TECHNICAL ENQUIRY BUREAU

The service is free to members except that a nominal charge of 6d. per query is made to cover clerical and postage expenses.

The Rules governing the service are :—

1. Questions must be written legibly and concisely on one side of the paper.
2. A sixpenny postal order must accompany each question.
   The postal order must be made payable to the R.S.G.B., and the letter addressed to Technical Enquiry Bureau, R.S.G.B., 53, Victoria Street, London, S.W.1.
3. The service is only available to fully paid-up members of the Society.

Don't Do It

Mr. W. V. Leyland (G8MV) complains about those amateurs who, having made prearranged schedules with one or more stations, call Test or CQ knowing that they intend to listen on specific frequencies only. This procedure causes unnecessary QRM besides being selfish in the extreme, as other amateurs are liable to answer the call.

Presumably those who practice this method like to have several "strings to their bow" in case the scheduled contact fails.

Stations on schedule should intimate the fact by calling the station or stations they wish to work.

Reports Wanted

G5FD (Bedford), on his 7 Mc. C.W. transmissions.

CALIBRATION SERVICE

Crystals should be sent direct to the Calibration Manager enclosed in a small tin, and securely packed to avoid loss in transit. The Society cannot be responsible for any loss that might occur in sending crystals through the post.

Return postage must be enclosed as postage stamps, and not attached to the Postal Order.

Calibration fees: 1.7, 3.5 and 7 Mc. crystals, 1s. 6d.; 100 kc. crystals, 2s. 6d.

All communications should be addressed to :—

Mr. A. D. Gay (G6NF),
"Oak Dene,"
156, Devonshire Way,
Shirley,
Croydon,
Surrey.

See *A Guide to Amateur Radio* for particulars of frequency meters, etc.

R.S.G.B. SALES DEPT.

53, VICTORIA STREET, LONDON, S.W.1

PUBLICATIONS

RADIO AMATEURS' CALL BOOK

(Published quarterly in U.S.A. on the 15th of March, June, September and December.)

Contains Call-Signs, Names and Addresses of all Transmitting Amateurs.

PRICE : To Members, 6/- ; Non-Members, 6/6

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Type A. Frequency, Inductance and Capacity.
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Type C. Wire data.
Type D. Decibel Calculator.
Type E. Resistances in parallel, and condensers in series.
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NOTES and NEWS from the BRITISH ISLES

DISTRICT REPRESENTATIVES.

DISTRICT 1 (North-Western).
(Cumberland, Westmorland, Cheshire, Lancashire.)
Mr. J. NODEN (G6TW), Fern Villa, Coppice Road, Willaston, near Nantwich, Cheshire.

DISTRICT 2 (North-Eastern).
Yorkshire (West Riding, and part of North Riding).
Mr. L. W. PARRY (G6PY). 13, Huddersfield Road, Barnsley, Yorks.

DISTRICT 3 (West Midlands).
(Warwick, Worcester, Staffordshire, Shropshire.)
Mr. V. M. DESMOND (G5VM), 199, Russell Road, Moseley, Birmingham.

DISTRICT 4 (East Midlands).
(Derby, Leicester, Northants, Notts.)

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
Mr. J. N. WALKER (G5JU), 4, Frenchay Road, Downend, Bristol.

DISTRICT 6 (South-Western).
(Cornwall, Devon, Dorset, Somerset.)
Mr. W. B. SYDENHAM (G5SY), "Sherrington," Cleveland Road, Torquay.

DISTRICT 7 (Southern).
(Berkshire, Hampshire, Surrey.)
Mr. E. A. DEDMAN (G2NH), 75, Woodlands Avenue, Coombe, New Malden, Surrey.

DISTRICT 8 (Home Counties).
(Beds., Cambs., Hunts., Rutland and the town of Peterborough.)
Mr. G. JEAPES (G2XV), 89, Perne Road, Cambridge.

DISTRICT 9 (East Anglia).
(Norfolk and Suffolk.)
MR. H. W. SADLER (G2XS), "The Warren Farm," South Wootton, King's Lynn, Norfolk.

DISTRICT 10 (South Wales and Monmouth).
Capt. G. C. PRICE (GW2OP), The Mount, Pembroke Dock.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
MR. D. S. MITCHELL (GW6AA), "The Flagstaff," Colwyn Bay, Denbighshire.

DISTRICT 12 (London North and Hertford).
(North London Postal Districts and Hertford, together with the area known as North Middlesex.)
Mr. S. BUCKINGHAM (G5QF), 41, Brunswick Park Road, New Southgate, N.11.

DISTRICT 13 (London South).
MR. J. B. KERSHAW (G2WV), 13, Montpelier Row, Blackheath S.E.3.

DISTRICT 14 (Eastern)
(East London and Essex.)
MR. T. A. ST. JOHNSTON (G6UT), 28, Douglas Road, Chingford, E.4.

DISTRICT 15 (London West).
(West London Postal Districts, Bucks, and that part of Middlesex not included in District 12.)
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell, W.7.

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
Mr. W. H. ALLEN (G2UJ), 32, Earls Road, Tunbridge Wells.

DISTRICT 17 (Mid-East).
(Lincolnshire and Rutland.)
Mr. W. GRIEVE (G5GS), "Summerford," New Waltham, Lincs.

DISTRICT 18 (East Yorkshire).
(East Riding and part of North Riding.)
Mr. W. A. CLARK (G5FV), "Lynton," Hull Road, Keyingham, E. Yorks.

DISTRICT 19 (Northern).
(Northumberland, Durham, and North Yorks.)
Mr. H. C. D. HORNSBY (G5QY), "Newlands," 105, Kenton Lane, Newcastle-on-Tyne, 3.

SCOTLAND.
MR. JAMES HUNTER (GM6ZV), Records Office, 51, Camphill Avenue, Langside, Glasgow.

NORTHERN IRELAND.
Mr. T. P. ALLEN (GI6YW), 62, Balmoral Avenue. Belfast.

NEW MEMBERS ARE CORDIALLY INVITED TO WRITE TO THEIR LOCAL DISTRICT REPRESENTATIVE.

DISTRICT 1 (North-Western).

MANCHESTER.—Eighteen members attended the last Manchester meeting held at Brookes Café when it was decided to have slow morse practice at every meeting during the coming season ; this will start at 7.30 and continue until 8 o'clock ; will all those wanting such practice please be at the café on the meeting nights between these times and bring a pair of headphones with them ?

It was also decided to have a half-hour period for questions during the meeting hours, and this will probably commence at 8 o'clock and will give members the opportunity to debate any problem that has cropped up during the month.

The September meeting will be devoted to 56 Mc., when it is hoped to have two mobile car transmitters on the air, and everybody is invited to bring along his 56 Mc. gear for inspection. It would be a good idea if all those interested would rip up a wavemeter so that a check could be taken at this meeting.

A report has been received of the reception of our 7 Mc. NFD station at NZ16W New Zealand, who reported signals 549. We have also received a certificate of merit from the USKA in class 2.

It is understood that G6TL is on the air on a crystal controlled 56 Mc. transmitter, and he would welcome schedules or reports. 2OI, 5YD and 2WQ will be on 56 Mc. about the middle of August, and ask for reports and schedules.

Congratulations to G8SF, ex BRS2491, on receiving his full ticket.

A number of short talks have been arranged for the winter months, which should be of interest to all. G5YD, 2OI, 5CH and 2BDA have agreed to deliver these, and other offers will be appreciated.

Rochdale.—An informal meeting was held on July 4 at G6QA, when 8NL, 8NF and 8QS were present. A visit was later paid to the projection room of a cinema in Rochdale.

It has been suggested that arrangements be made to visit the Rochdale Fire Station one Sunday afternoon ; interested members please get in touch with G6QA.

Active stations include G8DJ, 6QA, 5XF, 6AX and BRS1152.

Birkenhead and Wirral.—Reports are very scarce, so will members please let G6GL have notes each month.

G8PG has been testing aerials and working W's with QRP. 6GL paid a visit to OH2 and SM5, and wishes to thank amateurs there for their hospitality. Congratulations are offered to 8QO on getting his ticket.

Members of the Wirral Amateur Transmitting and Short Wave Club paid a very interesting visit to the Liverpool Central Telephone Exchange on July 14, when a good attendance was registered.

Liverpool.—No meeting was held in July, and no reports have been received from local members, but there is nevertheless a certain amount of activity in the district.

FORTHCOMING EVENTS

Aug. 19.—District 13 (Anerley, Tooting, Balham, Kennington and New Cross Areas), 8 p.m., at Brotherhood Hall, West Norwood.

,, 25.—R.M.A. Exhibition opens at Olympia.

Sept. 1.—S.L.D.R.T.S., 8 p.m., at Brotherhood Hall, West Norwood.

,, 1.—District 1 (Manchester Section), 7.30 p.m., at Brookes Café, 1, Hilton Street, off Oldham Street, Manchester. Discussions on 56 Mc.

,, 2-4.—Twelfth Convention.

DISTRICT 3 (West Midlands).

Mr. Gardner (G5GR), 40, Medina Road, Coventry, is now acting as District Scribe, and all reports should reach him by the 25th of each month. Mr. H. B. Burton (G2JR) is assisting him.

Coventry.—Interest here is centred on 56 Mc. G5ML is using 300 watts C.C. and hopes to work real DX. Regular QSO's have been maintained with the Malverns, and a report received from Czechoslovakia. G5QN, with other members of the local Society, operated a station during 56 Mc. Field Day, and several contacts were made. G6YU is also active on 56 Mc.

On July 10 a party of C.A.R.S. members visited the G.P.O. station at Rugby. At a local meeting the annual Challenge Cups were presented, the winners being Mr. Palmer (G5PP), who holds the Desmond Trophy for the best score in the Transmitting Section, and Mr. W. R. Worden (G8PJ), who holds the C.A.R.S. Trophy for the best entry in the Receiving Section. (We are not clear which contest is referred to above.—Ed.) Rules for future contests were discussed with Birmingham members.

G6NG and I1KG have been recent visitors to the town.

Rugby.—BRS2504 is now 2CUK, and 2AWK is G8RL.

Cannock.—G2YV and G6SW are again active, the former after changing QRA and the latter after a Continental trip.

Sutton Coldfield.—G5OI, 5BR and 5TU operated a portable station during N.F.D., whilst 2CHM and a new member successfully operated the canteen! G5BR, although on D.C. mains, is getting out well on 7 Mc. 2CHM is adding a P.A. to his 53 C.O.

DISTRICT 4 (East Midlands).

A successful meeting was held at the Trent Bridge Hotel, Nottingham, on July 25, when, pending the appointment of a new D.R., an informal discussion took place on the winter's programme.

The next meeting was arranged to take place at the Trent Bridge Hotel (Nottingham) on Sunday, September 19, at 3.30 p.m., and it is hoped that a technical expert from *Messrs. Cossor, Ltd.*, will give a talk.

It was also decided at the last meeting that the following suggestions should be placed before the September meeting :—

1. That during next winter, the monthly meetings be held in various towns in the District.
2. That a talk be arranged for each meeting and that some of the talks so arranged be of an elementary type.
3. That a committee be set up of members from each part of the District and that the District be divided into a number of areas in order to secure adequate representation from all parts.
4. That the District Committee convene all District meetings in co-operation with the D.R. and also assist the D.R. in general District arrangements and policy.

It is hoped that every member who can will attend the September meeting when the above matters will be further considered. G2WS.

DISTRICT 5 (Western).

The postponed demonstration of *Lissen* "Hi-Q" components and short-wave receivers took place in Bristol on July 18, and interested a good gathering of local members.

Another interesting event was the visit on July 15 to the Somerton Beam Receiving Station, where some very modern apparatus has recently been installed. A recorder is in use to measure earth currents, and it is found that the amplitude of these follow sunspot activity *exactly*. R.E.S. members please note.

Activity is normal for the time of year, many members being away on holiday. More stations are making use of the 56 Mc. band, and several took part in the 56 Mc. N.F.D., although, on the whole, results were poor.

G5WI is still in hospital, and is undergoing severe tests to find out the exact nature of his trouble. He will be very pleased to see, or hear, from members. G2VK, of London, is welcomed to the city, and he will shortly be active on 56 Mc. G6AC is back in Bristol during the week-ends only. G6BW is getting very good results on 14 Mc. telephony, and he also is restricted to week-end activity.

In Cheltenham, G5BM successfully maintains a 40-mile QRA to ORA 56 Mc. schedule with G5ML and G6IH, using two T20 valves in the transmitter. Severe fading has been noticeable of late. G8DT and G8ML are also using this band, the former with crystal control. Others active are G5BK, G8DA, G8LB and 2ASU. Meetings are postponed until December.

The D.R. will be attending Convention, and hopes to meet there a good number of District 5 members.

DISTRICT 6 (South Western).

The first part of the contest for the 56 Mc "G2CI" Cup, which was held on Sunday, July 18, was very well supported, nearly all those in Devon and Somerset holding portable 56 Mc. permits taking part. The weather was fine but there were heavy thunderclouds about in places, and this may have had something to do with the way signals varied. It appears that the longest distance covered was by G2JM, on the Quantocks, his signals being read with ease by G5SY, on Beacon Hill near Paignton. This distance is approximately 50 miles. Unfortunately contact was not possible, as 2JM could not read 5SY's signals. The fact that the signals each way had to pass over four ranges of high hills, and that 2JM was on much higher ground than 5SY, was probably responsible for the lopsided result.

The results so far of the phone section of the contest are as follows:—G2JM 232 points, G2CI 218, G5AK 191, G5SY 177, G5QA 147. The CW part of the contest will be held on Sunday, August 22, as there seems no reason why this should not be run in conjunction with the tests organised by G5JU for that date. It is hoped that as many as possible will be on the air on that day, and that B.R.S. and A.A. members who hear any signals will forward a report on them as soon as possible to the D.R.

Our sympathies go to BRS 2339 regarding the BERU result. It is evident from the scores put up by BRS 2339 that if they had been combined he would have occupied a very high position. The rules on this matter must certainly appear vague to new members and so we hope that in future years the rules will be made clearer on this point. In any case we have much pleasure in awarding the "Wright" Trophy this year to BRS 2339 for his outstanding effort. (The combined score would not have given a correct figure as prefix zones count only once per Contest. No other case of misread Rules has been reported.—Ed.)

Summer time and holidays to some extent take the place of radio just now, and on account of this the D.R. frequently finds himself entertaining RSGB visitors to Torquay. He generally gets several every week, and most of them turn up without any previous warning. This is often decidedly awkward for the D.R., who may not at the moment be in a position to give the attention he would like. No doubt other members living in sea coast towns have had similar experiences, so it is hoped that this mild protest will mean that in future, intending visitors will at least send a card asking when it will be convenient to call. Don't forget that the D.R. likes to receive visitors, and hopes to get many more in the future, but please write or 'phone first.

Exeter.—The usual meeting was held here on the first Wednesday of the month. There was a good attendance, and the local NFD film was shown. This was a decided success, and VU2EB is to be heartily thanked and congratulated on the excellent result of his labours. It is sincerely hoped that many District 6 members will be present at Convention to see it in conjunction with the other films.

Congratulations to BRS 2785 on obtaining the call of 2CWR.

Bridgwater.—Cards have been circulated to the members stating that there will be no further meetings until September. We would, however, like to remind Somerset members that 5AK and 2JM are often out with 56 Mc. portable gear, and would be pleased to meet other amateurs on these occasions. Congratulations to 2JM on heading the contest list so far.

North Devon.—On July 7, a meeting was held in Bideford, with 2CGA as host. Present were: 2ADJ, 2BAD, 2CBK, 2CGA, BRS 2442 and G6FO, while G6GM joined in via the ether. A most enjoyable evening resulted, with an examination of 2CGA's Tobe receiver and CO-PA TX as an interesting feature. RSGB affairs were discussed, and it was also decided to run a Letter Budget. The first issue is now on its rounds.

2CHY reports active and continues her morse practice and station building. 6FO has had visits from G2JL, GW2UL, GW8HI and G5KT, G5UM and GW8HI have visited G6GM, who has rebuilt, and left his gas-tight and air-proof shack for a more healthy atmosphere.

Torquay.—A very interesting informal meeting was held at G5SY on Thursday, July 29 on the occasion of G6LL's visit to Torquay. Members present were: G6LL, 2MH, 5QA, 5SY, VU2EB, 2AUI, 2BDV, 2BXU, 2CMF, BRS 2338, 2649, 2816, 2927, and two prospective members. A good time was had by all, pulling to pieces the D.R.'s new shack! The DR hopes to be in London for Convention, and to renew old acquaintances there.

DISTRICT 7 (Southern).

Reading.—Some twenty amateurs attended the July meeting of the R.T and R.S. which was held at the Y.M.C.A. Several new members were present including G6CU and 8MG. We also wish to welcome to the Reading District G6CU of Maidenhead, and G2VN of Sonning. General business was discussed and N.F.D. photographs were on view. A lively discussion arose concerning the possible allocation of an International Phone Band. Most local stations report active. G5HH has both WAC and WBE. G5TP and 8MG active with 20 meter phone and good reports have been received. G6GT rebuilding TX, and 2YB a new receiver. 5AO also trying out new receiver. 8BK is believed to have left the district. Contact with VO4Y was established on his return to Newfoundland, after his stay in Berkshire. Pirate British calls have been heard by G5AO vis. G1QB and G4RO, the former working W3EOX, while G5TB's call (he has been in Bahrein Isle for some months) is being pirated. The next Reading meeting will be on Wednesday September 15, at Y.M.C.A.

Portsmouth.—Interest in 56 Mc. is reviving. G2XC and 5XY are c.c. on this band, and 2XC has contacted 8DM in Southampton. 8BD and 2VH are active with long lines TX's. 8JB, 2AGG and BRS 2727 are re-building. 8LO keeps 1.7 Mc. alive. 6SS and 6NZ active.

Croydon.—5AN on holiday, but still working original DX. 2MV still active on 56 Mc. and has had trouble with a T55. 5XW building new p.p, modulator with 6L6's. 5XH rebuilding and preparing to stage a come back in the autumn. 2BTF active, but having trouble with crystal. 2BWY has passed test and will be on the air soon. Good Luck, Bernie. 2KU has installed T20 and can now work W6 and 7 with ease. Hopes to be on 28 and 56 Mc. very soon.

Southampton.—G5OB has erected his new aerial and is waiting for the 14 Mc. band to open up so that he can test it. He is redesigning final using T20. G2VF has installed communication receiver and is very pleased with its performance. Congratulations to G8QW (ex 2AND), he is very active on 7 Mc. phone. G8DM has contacted Portsmouth on 56 Mc. G2IL, G5PT, G8OV, 2ATT, BRS 207, BRS 1702 are all active in their respective spheres, but no reports to hand. It is hoped that monthly meetings will be resumed in September.

Kingston.—G2GK of Walton writes to say that he has been successful in applying for G.P.O. permit for 28 and 56 Mc. with power increase to 50 watts; and he has built a 6 valve s.s. RX which is proving satisfactory. 8HA also of Walton has gone QYL but is still active with radio. He says that he has built a directive aerial for the U.S.A. (wavelength unknown) with which he radiates very well towards VQ4 and SU. 5MA of Ashtead, and 2BNS, went to Kithurst Hill, near Storrington, on the South Downs, on July 4, where they worked many 56 Mc. portable stations, including 5RD near Watford, a distance of approximately 55 miles. The gear included a self-excited 5 watt oscillator, with dipole fixed on roof of car so that it could easily be turned in any direction. G6BI is active on 14 Mc. using 210 final, but reports conditions very poor. 2CFW has a very large new shack which will be ideal for future "open aerial" transmission. G8HN continues to work splendid DX on 14 Mc. His QSO's have lately averaged 75 per week, and include VS1, VS2, VU, etc. G8IX working portable on 56 Mc. recently covered over 50 miles with 0.6 of a watt. G6RS returning to 14 Mc. has worked KA, VU, NY, VK in four evenings. Activity on 56 Mc. continues, all the "regulars" having been worked. K.D.A.R.S. are finding monthly summer meetings necessary to cope with greatly increased membership.

DISTRICT 8 (Home Counties).

Four members, including the D.R., attended the District 9 meeting at Great Yarmouth on July 4, and had quite a good time. Reports this month are few, although certain stations not reporting are to be heard operating. G5DR continues with consistent DX on 14 Mc., mostly with the Far East. 5OV is maintaining an excellent schedule with VK2XU on 14 Mc. phone. He also reports that the station operating on approximately 14,330 under the call XZ2DY is quite genuine, and the QRA is Mr. F. J. Mustill, Minto Lodge, Maymyo, Burma, who will be pleased at all times to contact with G's on either telephony or CW. 2XV continues to obtain excellent results on 14 Mc. telephony, still using the semi-vertical Windom. 2CGO is rebuilding his transmitter, having acquired two new crystals and a new receiver, which he has tested out on 28 Mc. 6FL persists in his researches on 56 Mc., but needs stations to co-operate. (Will other 56 Mc. enthusiasts within 50 miles please communicate with him?)

From the Peterborough group comes the news that G2UQ has purchased a new "Sky-buddy," with which he is very pleased. 2CCF is rebuilding on metal racks and hopes to be licensed in about a month. A new call in 2BYI is welcomed to the area, and we hope to see the holder, Mr. Barnes, at more of the district meetings. 2NJ has again won the local Society's receiving contest, having heard GI5TK when his input was 1 watt. 2BQC is building the RES SS Super, but has had much difficulty in securing certain parts.

Owing to Convention, the next district meeting will be held on September 10 at the Fitzroy Arms, Fitzroy Street, Cambridge. Also, since all members should by now have acquired the habit of attending the monthly meetings, it is proposed to discontinue the practice of sending out individual notices unless it is necessary to call one of an extraordinary nature. Regarding the district frequency register, which has already been sent to most active members, will those interested enough to point out errors and/or omissions please do so by return of post, in order to make the next edition more correct and complete?

The Great Yarmouth Conventionette.

DISTRICT 9 (East Anglia).

We seem to have followed up a successful N.F.D. with a very successful Conventionette, held at Great Yarmouth on July 4. Although the attendance was by no means as great as had been hoped, those present showed the ham spirit, and all had a good time.

After luncheon our Secretary, Mr. J. Clarricoats, in a very informative talk, told us of the growth of the Amateur Radio Movement, particularly with regard to East Anglia, and said he was glad to see the increased interest which had taken place recently. He explained very clearly the relations which exist between the G.P.O. and the amateur movement. Thanks, Clarry, for a very able explanation of things.

We were also honoured by the presence of our President, Mr. E. Dawson Ostermeyer (G5AR). Although he did not make a lengthy speech, those who came into contact with him found a ham ready to discuss anything connected with amateur radio.

After tea the party visited the Telegraph Repeater Station at Lowestoft. There the chief of the station, Mr. E. G. Furneaux, and his staff, did everything possible to give their visitors a good time. The distribution of technical booklets was very much appreciated. After this, the various cars left Lowestoft, and so concluded the first District No. 9 Conventionette. The D.R. wishes to thank those members, not attached to District 9, for their support.

Activity reports are rather scarce this month, probably owing to holidays.

G5IX, of Norwich, is constructing a new battery-operated U.H.F. receiver, and is shortly leaving for a holiday abroad. 6QZ has been making further observations on the U.H.F., and also installing some

labour-saving devices in his shack. G2UT, it is rumoured, is going "all commercial." He is now licensed for 50 watts. G6UA is putting out a very healthy phone signal on 7 Mc. 2MN is believed to be doing some gardening!

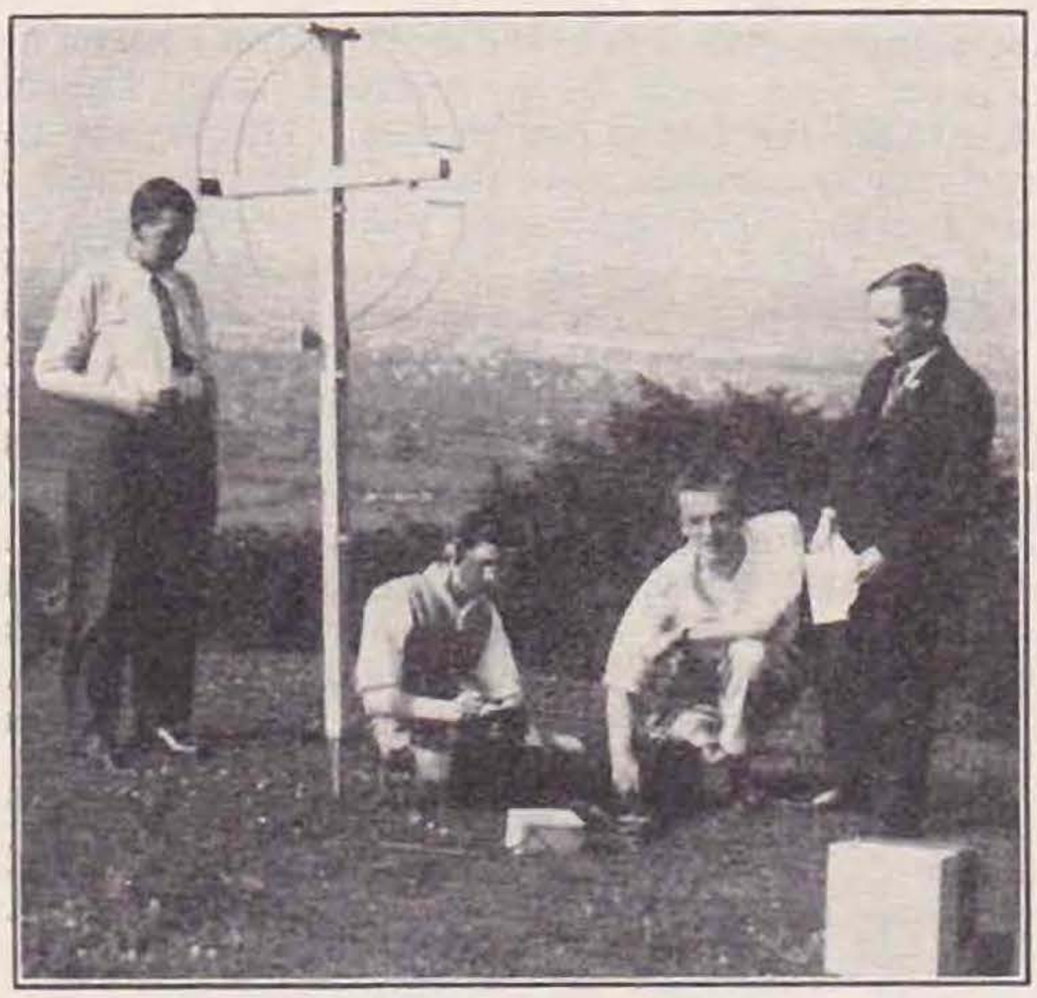
2CRN is now prepared to compile reports and transmissions on all bands from 1.7 to 14 Mc. QRA is 40, Lower Olland Street, Bungay. 2CTR, of Beccles, is commencing tests with 6L6 oscillators. Mr. Algar is still working on the plans for his transmitter.

G2XS, of King's Lynn, is considering installing a petrol motor generator, which means that we may soon hope to hear him on his old power again.

G8DD and 2CJF are the only members active in Lowestoft, both are doing constructional work. G5QO spends all his time chasing reports and writing these notes. He has also had several visitors. Mr. Edgar Lark is now licensed under the call 2CWO, and hopes to get busy shortly.

At Great Yarmouth, Mr. Don Davy, 2BND, is experiencing trouble with a RFP 15, and would welcome communications from anyone who has used this type of valve extensively.

The scribe would like to hear from the following: G6TI, 8AN, 8IS, 5UD, and 5UF.



G5BKP, Leckhampton.

The portable 56 Mc. gear used during N.F.D. The Reinartz aerial gave very directional results. Left to right: G8DT, 8DA, 2AKR, 5BK.

DISTRICT 10 (South Wales and Monmouthshire).

Only two individual reports are to hand this month, and the Scribe appeals to all members to send in notes by the 25th of each month.

There is general gratitude to Council for obtaining the new GW prefix and the membership wish to thank them for it. A QSL from BERS195 in Australia states that during N.F.D. G2NG was the most consistent 7 Mc. station heard out there.

The D.R. is spending the summer in a shack on the South Pembrokeshire coast where he is operating with a maximum input of 50 watts on all bands except 56 Mc. Power is derived from a Kohler lighting plant. If any members visit Tenby or district, will they please let him know? 2NG is still working W6 on 7 watts and was recently QSO FQ8. Congratulations to 8PU on obtaining his ticket. 6BK and 8CT are on 14 Mc.

The Scribe recently spent a most enjoyable evening with 5TJ, who is one of the oldest licence-holders in S. Wales, and has become active again after a long absence. 2JL and 5BI are on 56 Mc. and 1.7 Mc. at week-ends. 2BSN has passed his morse test and hopes to be on the air soon. Others known to be active are 6ON, 8NP, 8AM, 5XN, 5VX, 5PH, 2WO, 2SN, 5FK, 8HI, 8QI. GW2UL and 5KJ have been running 'phone skeds with SU1AM and SU1SG.

Six months ago there was not a transmitter in Cardiff, now there are three. Fortnightly meetings are held there and particulars may be obtained from 5BI.

DISTRICT 12 (London North and Hertford).

News of district activity for the month is still scarce, although the chief item of interest appears to be the 56 Mc. Field Day held in the first week of July. Detailed reports of the contacts made have not yet been received, but the district had at least four stations on the air, three of which were portable

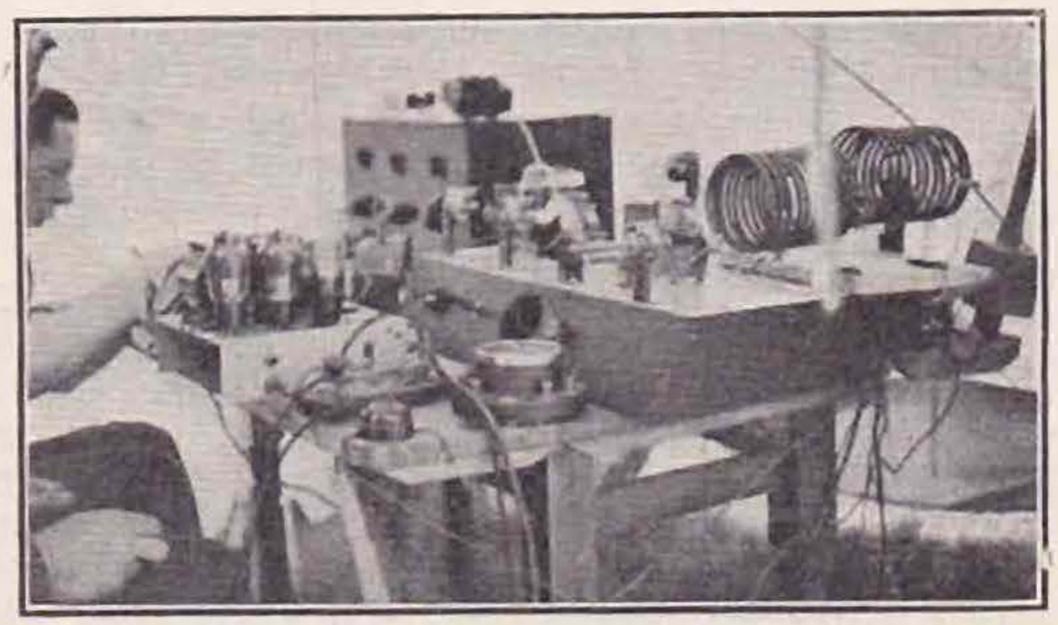
G2QY is very active on the 56 Mc. band, using a doubler antenna with reflectors, impedance matched with a 72-ohm line. With a self-excited rig he has been getting R7-8 reports from 22 miles, and he hopes shortly to be frequency stabilised on this band. Reports of his transmissions would be welcome, and should state exact time of reception.

A report was received from G8NY which was a little late for inclusion in last month's notes. He mentions a QSO with EI2L during a violent storm, but he decided to QRT when the condensers in the aerial coupler started sparking across with static!

Reverting to the U.H.F. band, PAOFB says that the Dutch stations on 56 Mc. foregather for a ragchew at 11 a.m. Dutch time (10.40 B.S.T.), so that is the time to see if the new receiver is as good as you think it is! EI2L is also active on this frequency every night from 20.00 to 20.30 B.S.T., using 150 watts C.C. He stands by at 20.30 B.S.T. for replies.

The last two items are given as a matter of interest, and in the hope that they may be of some use to the many members of the district who are interested in 56 Mc. work.

G8NV is still occupying the 7 Mc. phone band and has just completed his 300th contact. He only requires Africa and South America for W.A.C., and DX includes W, VK, U9, XTF5Q and TA1CC. G8GC is temporarily off the air. G6QM is trying



G6ZOP, Mill Hill, Middlesex.

out a new super which cover the 1.7 to 14 Mc. bands, and he now finds it possible to work duplex. G6CL hs worked ZL, YV, VP6 and other DX countries on telephony.

Watford District.—BRS1224 reports that the July meeting of the Watford group was held at Kings Langley on July 23, when seven members attended.

The ultra high frequencies were again the subject of discussion, particularly concerning measurements in the sensitivity of 56 Mc. receivers which is being carried out by G5CD, G6GR and G5RD.

2BTV is developing some 56 Mc. crystal-controlled gear on artificial aerials. 2CKM has finished building his transmitter, using a 59 C.O. and E.C.O. driving a 210 P.A. with plate modulation.

District notes should reach the district scribe, A. W. Hartley, 35, Essex Park, Finchley, N.3 (note new address), by the 25th day of the month.

DISTRICT 13 (London South).

It is with great pleasure that we are able to announce that the B1 station working on the 7 Mc. band during N.F.D. has won an N.F.D. replica. Heartiest congratulations to all those who took part in making the results achieved by G5PYP so successful. Incidentally this station has also won one of the Swiss diplomas for working the most HB portables. It now only remains for South London to win the N.F.D. Trophy outright, and in the meantime we offer our sincere congratulations to District 16 for their success this year.

Reports this month are again few and far between owing to the holiday season. G2UX is on leave in Norfolk and has taken his 7 Mc. gear with him. He has now worked a W5 station, which makes him 36 zones worked and 29 confirmed. 5PY spent the 56 Mc. field day at Whitstable, but without any DX reports to make. 2UX, 2GZ, and 2JB were on Keston and Hayes Commons working portables, whilst 2ADY and 2BKB spent the day on Ranmore Common. 2GZ is erecting an 8-foot copper vertical aerial on the roof for use on the higher frequencies. 2ZQ has evolved an instantaneous switching system for all stages between 14,390 and 14,028 kc., and can now change frequency in two seconds. His latest country worked is FQ8AB.

There appear to be many new members in the District this month and the D.R. is endeavouring to get in touch with them all. BRS2941, at Eltham, has passed his morse test and is now waiting for a licence. His results on the air should be very interesting in the future as he has some most original ideas on the propagation of radio waves in relation to the magnetic north pole. He is arranging for rotating aerials and the like! Incidentally he possesses a telescope with which it is possible to read the time shown by Big Ben *at night*, 14 miles away! No excuse now, O.M., for being late with your skeds.

The meeting at the Brotherhood Hall on July 22 was well attended and there were some interesting discussions, not forgetting the one between G6OW and 2WV on 56 Mc. aerials. It would be of great assistance if new members would try to get along to the local meetings as announced in "Forthcoming Events." In this way they would at once get into touch with the other amateurs in their area. By the time these notes appear, Convention will be upon us, and we look forward to meeting many old friends. To the new members we would say, Do please come along and make yourself known to the D.R., as he is very anxious to meet you. To those who were with us last year we would say, May you have as good a time as you had in 1936.

DISTRICT 14 (Eastern).

East London.—Amongst the items discussed at the July meeting held at G6UT, Chingford, were numbers of stations to operate for 1938 N.F.D. The 4 station plan was agreed upon. Subdividing the bands for telephony and telegraphy operation was advocated. An appeal was made for members to join the Band occupancy and Monitoring Groups. A slow morse station is also required in this area. G6LB the T.R. for Chelmsford attended the meeting. There will be no meeting during August but QRA's for September and subsequent months are required. A Radio Exhibition at Romford is being held by A. H. Silcocks and Son, Ltd. (October 6 to 9). Space has been offered to the Society and the D.R. will organise an exhibit of amateur-built gear, provided members come forward and offer gear, etc. G6UTP was operated on the 56 Mc. field day at Toot Hill and despite the fact there were 3 Transmitters and 6 Receivers, not a single signal was heard on the band. A report, however, has since been received from Laindon where G5UKP heard our signals. During the day receivers in cars sent out from the station received our signals. The following were at the station: G8KM, G8JM, G8AB, G6SG, G2NW, G6WT, 2ANB, 2BNK.

Chelmsford.—In connection with the N.F.D. station G6LBP of East Hanningfield thanks are due to Mr. L. G. Western who kindly allowed the grounds of the Hatchery to be used. Mr. Western has since become BRS 2930. The operators were G8PB, G6ZC and G6LB. Thanks are also recorded to G6ST for loan of gear. Will new members in the Chelmsford area get in touch with the T.R., Mr. L. J. Fuller, G6LB, 85, High Street, Chelmsford.

East Essex.—There was an attendance of 20 at the July meeting held at G5VQ of Westcliff, including EI6M. At the sale of disused apparatus much more gear was to be seen than cash!

2BQN, BRS 2625 and 2BNR went to a lot of trouble at the last moment to construct a portable station for the 56 Mc. N.F.D. G5UKP was situated at the top of Crown Hill, Langdon Hills, but although results were negative as far as QSO's, G5WW and G6UT were heard about 30 and 20 miles away respectively.

G2UK having returned from his trip to South America reports personal QSO's with amateurs in Brazil and Buenos Aires.

Congratulations to G8RT of Laindon ex 2BYX.

The next meeting will be held in September and details will appear next month.

DISTRICT 15 (London West, Middlesex and Buckinghamshire).

May we remind members that their reports should reach the T.R.'s by the 20th of the month and that the T.R.'s should forward them to the D.R. by the 25th. Of late some of the reports have missed the letter budget. 2CCK has morse record and would lend it to interested members.

We are very sorry indeed to have to record the passing of the father of G5JL. Mr. Maling, who, although known to only a few members, was responsible for the N.F.D. print, which appeared in the August 1936 issue of the District Magazine. We offer our sincere sympathy to his relatives.

It is with pleasure that we announce the arrival of a junior op. to Mr. and Mrs. Wilberforce (G2IY). Congratulations!

It is welcome news that G5ND has returned to the air after being off for a year.

West London.—The new address of the T.R. is 22, Chipstead Gardens, N.W.2. He is experimenting with aerials and is at home on Wednesdays to meet members but asks for a postcard first. 5IJ contacted 5WW, 6SK, 6GR and 2QY from Horsendon Hill during 65 Mc. Field Day.

North Middlesex.—G6LJ reports progress with superhet, BRS 2828 reports.

West Middlesex.—G8FA rebuilt transmitter in rack, 5JL nil report, BRS 2853 applying for AA. 2142 hears SKNC on 14 Mc. and wants identification.

South Middlesex.—The following are active: G2NN, 2VV, 2ZY, 5VB, 6GB, 8FV, 8HN and 8MK, while 2KI and 2LA are away. 5ND back on 7 and 14 Mc., BRS 2697 inactive.

Bucks.—Most stations preparing for change from D.C. to A.C., G8JK testing telephony, 2BVX erected sixty-six foot doubled fed with seventy-two ohm cable.

At the June meeting of the T.V.A.R.T.S. a large number of members listened to a lecture given by G6WN on 28 Mc. activities, this was followed by a showing of N.F.D. films taken by one of the members. Arrangements were also made concerning the 14 Mc. Society Field Day.

DISTRICT 16 (South-Eastern).

We are very pleased to announce that, as forecast in last month's notes, District 16 is the winner of N.F.D., with the B2 (14 Mc.) station (G5JZP) qualifying for the 14 Mc. replica award. Hearty congratulations all round, and thanks to those stations who gave us the points to do it!

Ashford.—Good luck to 2BLN, who is now G8RK. 2QT put up a fine performance in the B.E.R.U. contest and was placed ninth. His score was 660 points against the winning station's 768. After a lapse of something like eighteen months, we are pleased to hear 2KJ again putting out a signal; this time on 1.7 Mc.

Brighton.—There is little to report, save that activity is general, especially on 56 Mc.

Eastbourne.—2BIU, the T.R., suggests that as there are a number of active members in the smaller towns in Sussex coming outside the area of the T.R. scheme, it would be a good idea to try and get their reports and so make the notes more representative of the activity in the county. Good idea, but there is nothing to stop anyone outside a T.R.'s area sending in notes to the D.R. direct. Anyway, let's see how the scheme works. Will members in Lewes, Seaford and Newhaven send their reports to 2BIU at "Fernside," 14, Gore Park Road, Eastbourne? Active stations are G2AO, 2KV, 5IH, and 2BIU.

Gravesend.—N.F.D. has had the effect of making the local group "portable conscious," and 6BQ is applying for a portable permit on behalf of the club. An interesting series of lectures and talks is being arranged by 2IZ for the winter session of the local society, and it is hoped that they will be given on alternate weeks. G5SU has had to give up the 1.7 Mc. slow-morse schedule, and our thanks are due to him for the long spell he has put in at the job.

Heathfield.—All the usual stations are active. Television has been demonstrated to the local society and perfectly good results were obtained, despite the distance.

Whitstable.—Active during the 56 Mc. Field Day, but, although transmitter and receiver were functioning well, the only signal heard or worked was 5PYP, operating portable not far away.

Tunbridge Wells.—G6OB has completed his rebuild, and is now the possessor of really well-built, neat-looking gear. The first station worked was VK with an S6 report, so it looks as though beauty *is* more than skin deep! 2UJ is testing on 56 Mc. with ICW and phone fairly frequently, mostly in the late evening, and would much appreciate reports of any kind. 2AKQ has an efficient TX going in anticipation of getting his ticket in the near future, and has nearly completed his new SSS.

Hastings.—G6XF is having some trouble with PA valves in his TX: he has just taken delivery of an RME 69. 5BS has now settled in at his new QRA at Fairlight, and if appearances go for anything, DX should be had for the asking!

G6CL had the pleasure of meeting G2AO, 2AX, 5BS, and 6XF whilst on vacation at St. Leonards. G6NF, 2JO, and the D.R. were also visitors during his stay.

BRS 2763, of Snodland, reports direct, and says he is having great difficulty in getting results from a recently constructed SSS.

DISTRICT 18 (East Yorkshire).

News from Hull being scarce this month, it is left largely to surmise as to the activities of members. We should like, however, to congratulate G6OS on attaining his phone WBE/WAC after patiently waiting for the elusive VK. 2AGK is once more to rebuild. 2ARB has applied for his licence.

Mr. Nicholson (BRS2844), after a brief stay, is going on the high seas, and we hope to hear him in some far-flung outpost of Empire. Best of luck, OM.

The Whitstable Radio Amateur Group at District 16, P.D.M. G6PA at extreme left.

The next meeting will be on August 25, and members will be notified of the programme later. As these notes will not appear in print until after the July meeting, members will have been told of the proposed excursion to Convention on September 4, but as a reminder and also as a notice for those not present the T.R. would like, as early as possible, the names of intending members so that he can ascertain the likely charge for the trip.

In conclusion, he would again ask members to drop him a card outlining their activities so that these notes may have a little more body, sadly lacking at the moment.

DISTRICT 19 (Northern).

Sunderland.—The T.R. is endeavouring to organise regular meetings of the local transmitters. The following are active :—G8AR on 7 Mc., G5NS on 7 and 14 Mc., G6UD on 14 Mc., G6GY on 7 Mc. phone, and G6TR on 14 Mc. G5AC is rebuilding.

South Shields.—Plenty of activity in this area, but no reports as the T.R. is on holiday. G5WZ has been rebuilding and doing a lot on 56 Mc. Also active are G8JO, G8IF, G6XO and G5YO.

Darlington.—Congrats to 2BYY, who is G8SN and active on 7 Mc. G8HQ is trying out a new Zepp aerial and making a new RX. During his holiday he visited G6YQ. 2BZN is a new member from Saltburn. Together with 2CKN he is working hard at morse.

Stockton.—G8OH has been testing various aerials on 14 Mc., and has worked W and PY. G8GL and G5QU are active on 14 Mc., the former on QRP. BRS2859 has been rebuilding his receiver and has applied for his A.A. licence.

G2FO has at last made W.A.C. in his first week at the new QRA. G5XT is on 14 Mc. phone. 2BQO and G8CL are active.

Newcastle and District.—G6IR has been on a trip to D4. G2PN is on 56 Mc. phone. 2BLQ, of Wooler, is now G8SG, and we extend congrats. He is on 7 and 14 Mc. G2YY is on QRP, and added a lot of new countries to his list. 2CKC is building a new TX. G5RI has been testing out a Bruce on 14 and 28 Mc. G5QY is on 1.7, 28 and 56 Mc., and is trying to QSO G6YL, who is now on 56 Mc. C.W. 2BGG has been testing out 56 Mc. apparatus, and is now using a beam for reception. Also active are G2OS, 8OA, 8AY, 5AY, 2XT, 2AJK, BRS2217, 2770. G5QY had a visit from G5WZ and G6XO, complete with 56 Mc. superhet.

Scotland.

With the holiday season at its height at the time of writing, news, naturally enough, is very scarce indeed. "C" District at their last meeting discussed N.F.D. plans for 1938! There are quite a number of new licences to record. Mr. J. Troy, 2BUJ, and Mr. W. E. Firth, 2BQF, have been granted the licences GM8RJ and GM8RU, respective, and in "G" district Mr. W. Vinnicombe, 2CCA, has been granted GM8RV and Mr. T. Christie, BRS2331, is now 2CVH. "H" District also has two changes, Mr. G. Proctor, 2APM, has been issued GM8SQ and Mr. J. Gouck, BRS2884, 2CWG. Despite the lack of news and the summer counter-attractions, activity throughout the country is at a high pitch.

We hope to have a stand at the Scottish Radio Exhibition, which will be held in Glasgow between September 15 and 25. Offers of assistance especially for attending the stand during the afternoon from 2.30 to 6 o'clock, will be gratefully received by GM6ZV. All members will be welcome at the stand and are asked to sign the visitors' book.

Northern Ireland.

GI5SJ, 2SP and 6YW combined to run the portable station GI6YWP in the Mourne Mountains during the 56 Mc. N.F.D. Telephony was used, and G6OKP on Snowdon was worked. This is believed to be the first 56 Mc. QSO between GI and G; the distance was 113 miles.

GI.5SJ is working W6 and ZL. 2SP is getting across well to LU. 6YW records an enjoyable visit from GM6ZV of Scottish H.Q.

No other reports have been received.

Congratulations to District 16 on winning the N.F.D. Shield, and replica; also to Districts 8 and 13 on winning replicas.

Japanese S.W. Broadcasters.

With characteristic thoroughness the *International Wireless Telephone Co.*, of Tokyo, have prepared for distribution among interested amateurs a reception report form for logging transmissions from their new 50-k.w. station, which operates under the calls JVM (10,740 kc.) and JZJ (11,800 kc.) between 19.30 and 20,30 G.M.T. daily.

The Risafmone Code, which covers Carrier Strength (R.), Interference (I.), Static (S.), Degree of Fading (A.), Frequency of Fading (F.), Apparent Degree of Modulation (M.), Quality of Modulation (O.), Noise Level (N.), and Overall rating of audio signal (E.), is used as the basis for reporting.

Members desirous of assisting in observations are asked to send a stamped addressed envelope to Headquarters for the necessary form.

Reports should be addressed to T. Nakagami, Esq., Messrs. Kokusai Denwakaisha, Osaka New Building, Uchisaiwaichoitchome, Tokyo.

AC4YN.

Many of our readers will remember the call VU2DR which was allotted to Mr. R. N. Fox, during the time he was in Assam. We are now informed that Mr. Fox is with the British Political Mission, Lhasa, *via* Gyantse, Tibet, and that he is operating under the call sign AC4YN.

Reports for this station may either be forwarded direct or *via* the R.S.G.B.

Amateur Radio in Malaya.

Our representative in Malaya, Mr. MacIntosh (VS1AA), informs us that the following notice extracted from the Annual Report of the Posts and Telegraphs Department, was recently circularised to all Malayan amateur transmitters :—

"The number of amateur experimental licences in force at the end of 1936 was 15. An increasing interest is being shown in radio transmission as a hobby by amateurs. The necessary licences are readily issued by the department, provided that the applicant has the necessary scientific qualifications and proves that he is genuinely interested in some line of radio research or investigation, since the activities of such amateurs have definite research value."

Empire B.E.R.U. News.

British West Indies (Eastern Group)

By VP2AT.

After a lapse of two years these notes appear once again, and it is hoped to be able to continue them every month. During these two years much has taken place, but space does not permit recording, at this late date, even the more important happenings. VP4TA, who had been B.E.R.U. Representative for this Section, left Trinidad in April and returned to England. We wish him all good luck in his new work. A hearty welcome is extended to ex-G6BD who has succeeded 4TA in Trinidad Leaseholders, Ltd.

In order to compile these notes each month an endeavour is being made to get an interested amateur in each island to collect and forward news of activity. So far the response has been poor, only one island reporting this month.

Barbados.—There is inclined to be good activity here, but the recent stiff regulations have put an end to much of this state of affairs. There are two licences obtainable, the first issued to those passing a Morse test of 12 w.p.m. permits operation on 7 Mc. only, whilst the second is granted to those who have passed a Morse test of 20 w.p.m. and also a stiff technical examination. Only two amateurs have been granted this latter licence, VP6MR and 6YB.

VP6TR has been active on 7 Mc. phone, having built a 6L6 portable rig. 6NW also reports active on 7 Mc. phone, but is experiencing trouble with his modulator. 6YB continues to do good work with his 14 Mc. phone, and has been running a regular schedule with VE1. We welcome 6LN who has just been granted his 7 Mc. licence, and is doing well on this band with C.W.

Trinidad.—No news from here. Activity seems to be very spasmodic.

Grenada.—There was much activity some months ago, but at present all seems to be quiet. 2GA and 2GB are the only two stations here. Before the regulations came into force 2GA operated under the call of 2DF.

St. Lucia.—The two stations here, 2LA and 2LB, are both active, the former has had very good DX on 14 Mc. 2LB has been on 7 Mc. phone, but has had difficulty in getting his rig down to 14 Mc.

Antigua.—2AT is at present living away from his station and this greatly hampers his activities. His hopes of doing much on 28 Mc. this year have therefore been in vain. During the B.E.R.U. contest he operated from batteries at the country residence where he is staying. 2TG is now getting good results with his Gross rig, and has been working DX. He will be rebuilding his receiver shortly. 2BX, who has been off the air for many months, hopes to be on again soon. He has been having trouble with his 32-volt motor-generator. 2CD and 2DA have also been active. Conditions on 14 Mc. continue good at this time of year, but on 28 Mc. they are at their worst during these months.

St. Kitts.—2KM, the only station here, has been off the air for some time, awaiting his rig from the States, where it was sent for repairs.

Ceylon.

By VS7RP.

The following members report active: VS7RF having built a new receiver has been on 14 Mc. LU was worked in June. Good local QSO's have been made on 3.5 Mc. VS7JW, whose QRA is 6,000 ft. above sea-level, finds conditions good up to 19.00 G.M.T. and then notes a fade-out for three hours. After 23.00 G.M.T. South African and the British Isles stations can be received. Several G's have been worked.

VS7GJ has found conditions on 14 Mc. below normal for the time of the year, although on several occasions batches of G's have been contacted late in the evening. VS7GS is experimenting with aerials. VS7RA also found conditions poor in June and July. Business confines VS7EB to week-end operation. VS7RP, except for local 7 Mc. contacts, on Sundays, has been active on 14 Mc. VE3AH was heard on June 24, but in spite of several calls no contact resulted. Had a QSO been made VS7RP would have qualified for W.B.E. Canadian signals are very elusive in VS7.

The writer has noticed an increase of commercial and telephony QRM on 14 Mc., whilst QRN has been bad at times. He has also noticed that on evenings when incoming signals from the east of VS7 have been good the opposite has been the case with west bound signals.

On a recent Sunday six of the seven active Ceylon stations were operating and an enjoyable morning was spent.

Pirates are still using VS7 calls which do not exist. All newly licenced calls will appear in these notes.

Irish Free State

By EI9D.

To EI8G, leading I.F.S. station in the Senior contest, and thus winner of the I.R.T.S.-B.E.R.U. cup, and to EI5J, winner of the zone award in the Junior, we offer congratulations. To EI9F, EI7F and EI5G, who also entered and actively supported the tests, we record appreciation.

There is little activity to report this month, due, presumably, to the arrival of summer. EI2L and EI8L, however, are active on 56 Mc. and a report is awaited.

EI5M is a new licence issued to Lt. Stewart, Defence Corps, Spike Island, Cork.

Malaya and Borneo

By VS1AA.

VS1AL is rebuilding his transmitter in aluminium in one unit. This will also house the power units.

1AN has left for G. We welcome 2AO to our ranks, and trust he will enjoy our company. 2AK has been on the air very considerably of late, and reports having finished his new transmitter. He is delighted with his H.R.O. Senior, and is getting good reports.

1AA claims first contacts for Malaya on 28 Mc. He worked VK3CP and ZE1JU on June 20, and VK3BQ, 5KO and 5LJ on July 11. Times about 0740 to 0840 G.M.T. Conditions poor on 28 Mc. and 7 Mc., but excellent on 14 Mc. Heard PY and CM2 on 14 Mc. The latter is the first CM heard by VS1AA. QRN is terrific on 7 Mc., but KA also complains of terrible QRM which is inaudible in Penang !

Malta

By ZB1E.

The prevailing hot weather is certainly having adverse influence on activities, as only one report has been received, and that from ZB1J. 1J has completed and tested his new battery receiver built on the unit principle suggested by G6QB in the BULLETIN but with the addition of one L.F. stage. He is now carrying out preliminary tests on his new 28 Mc. transmitter, which will be commissioned as soon as the new licences are issued—and the band open to signals ! He is to be congratulated on winning both zone awards in the B.E.R.U. contests.

ZB1H is away from the Island on holidays and is not expected to be back on the air before the end of August.

Conditions on 14 Mc. have been very poor lately, although South America is heard on some evenings and W's can be worked after 2100 G.M.T. The 28 Mc. band is dead except for a rare occasion when a European signal is heard around 1600 G.M.T.

It is hoped that next month's notes will contain definite news about the new conditions of the amateur licence.

Members are requested to expedite the Letter Budget.

New Zealand.

By ZL3AZ.

As is usual at this time of year, conditions have been very poor on the high-frequency bands, excepting for a very short period during early evening on 14 Mc., when a few Europeans are audible. No listening has been done on 7 Mc., but reports indicate the usual winter fade out. 28 Mc., in the South Island at least, is completely dead at the moment.

ZL3CP, ex B.E.R.U. Representative, is now stationed at Otira, some 90 miles from Christchurch, and in the very heart of the mountains. He intends coming on 14 Mc. with a very QRP rig, 59-802, with only a small input, as they are only allowed to draw 100 watts off the line, and with power at 10d. per unit in that region, high inputs are out of the question. QRM is very bad there owing to the frequent electrical storms, and to a 10-mile electric train section. This section includes the 6 mile Otira tunnel, the longest in the British Empire.

News is also to hand from another QRP worker, ZL3JX, of Kaiapoi, 16 miles from Christchurch. Tom Rowlands is a "cow cocky," which is simply Colonial for "dairy farmer." He has acres and acres of land, and his hobby is erecting new aerials. He has obtained some very fine results with inputs around 30 watts. He worked ZB1H in the Junior B.E.R.U. with 24 watts, and reports hearing several VQ4 stations.

New gear is continually coming to hand in the radio dealers here now, and amateurs have no room to complain about a shortage of equipment. Perhaps it could be a little cheaper, but dealers are not in business for the fun of it. The newer American transmitting valves, transformers, condensers, etc., are now readily available, and are being rapidly bought up.

ZL3AZ is in the middle of designing a quick band change rig, which will employ two exciters and two pre-tuned finals to facilitate changing.

Northern India.

By VU2LJ *via* G5OV.

BERS311 has been spending most of his time on the 7300/7500 kc. commercial check as QRN is too heavy on 7 Mc. to receive amateur signals. The 28 Mc. band has at last yielded a signal, VS1AA, but nothing else has been heard since.

VU2BG is trying out portables on 56 Mc. with a view to auxiliary corps work.

VU2AM and 2LJ have been using low power during the month, whilst 2DR has been doing his best to keep Assam on the map. Telephony has been installed at the former stations, using suppressor grid modulation. From reports received the quality of VU2AM seems to be better than that from VU2LJ.

South Africa

Division One.—The report ZS1H received on his 56 Mc. transmission turned out to be a fake. He is closing down altogether for the time being, but hopes to be on again towards the end of the year.

ZU6P expects to be working on 56 Mc. by the time these notes appear. ZS2A will also be operating shortly.

ZS1B uses a combination of 56 and 7 Mc. for duplex working. The 7 Mc. signal being picked up about half a mile away and relayed over 56 Mc. to ZS1B.

A local short-wave listener reports having heard two VE's on 3.5 Mc., so it looks as if this band may open up for DX.

ZS1B.

Division Five.—Conditions on 7 and 14 Mc. are very erratic, QSB and QSC being troublesome. Consequently, DX, except for short periods, is scarce.

ZU5L has built a receiver which apparently is unique in design and selectivity.

ZT5R and ZS5AK have been active on 1.7 Mc.

The following R.S.G.B. members have also been active : ZU5AC, ZS5Z, ZS5R, ZU5AF, ZT5Y, ZU5D, ZU5Y and ZU5Q.

ZU5Q.

Division Six.—The African Radio Research Union is becoming a popular Association with South African Amateurs, and it is with gratification we record increasing membership.

ZT6X is on vacation in Durban, and whilst in Natal hopes to enrol amateurs in the B.E.R.U. and the A.R.R.U.

ZU6C is moving to a new residence in the Northern Suburbs of Johannesburg, and intends to erect a 28 Mc. transmitter for DX work.

ZT6AQ has likewise acquired a new locality, and as soon as his new V Beam is completed, will probably be heard working 14 Mc. DX.

ZU6AD is active mostly on 7 Mc., and is using a Windom aerial.

ZT6AC is still rebuilding; it will be a pleasure to hear his signals again.

ZU6AQ is active on 3.5 and 7 Mc. ZU6N is using a V Beam on 14 Mc., and keeps regular schedules with W6.

ZT6AD can be heard on 14,364 kc.; he reports his locality to be full of interference from man-made static. ZS6T is holidaying on the South Coast, Natal.

ZS6C and ZS6AM are removing soon to the Germiston district; will Johannesburg amateurs please note that QRM from this shack will now be minimised! Their new address is 71, First Avenue, Alberton, Transvaal.

ZU6V is still active on 14,276 kc., using C.W. Regular weekly contacts are maintained with FN1C of Bengal, Portuguese India. Recent DX included LU3, CR9, XZ2 and ON4. A three hour phone chat with ZU5AC, from the shack of ZS6C/ZS6AM was greatly appreciated.

Members are now engaged in slow Morse transmissions for the competition being held during the months of July to September, mention of which was made in a recent issue of the A.R.R.U. Bulletin.

The following stations have intimated their intention of competing, but other members desirous of doing so may enter: ZU5AC, ZS6T, ZS6AM, ZT6AD, ZU6V and ZU6AD. Competitors are requested to ask for reports, which reports will count for scoring purposes. ZU6V.

South India

By VU2JP.

VU2FH is the only member to report this month. 2AU has been down with fever, and, while convalescing, stayed with 2FH, but time was still found to work the latter's station. Local transmitters forgathered, those present being 2FH, 2AU, 2FQ, 2GJ and 2LK, 2GK being our newest member. Activity in and around Bombay is on the increase and all the above are active. 2JP hopes to be on the air shortly. The writer has managed to get Calicut listed as another examination centre, and it is hoped that other centres will be opened up in the near future. Our congratulations go to the winners of the B.E.R.U. Trophies.

VS6AH on 56 Mc.

Mr. G. Merriman informs us that commencing July 1, last his station was working from 0500 to 0530 G.M.T. daily on 56 Mc., using an input of 250 watts. Here is a chance for the early birds to capture a piece of real DX. An auto sender is being used. We also understand that XU8ZW is transmitting between 1300 and 1330 G.M.T. on the same band.

Egyptian Notes

The writer wishes first of all to thank Headquarters on behalf of all SU members for the privilege given to us in allowing these notes to continue to be published in the Bulletin. This is much appreciated by all Egyptian R.S.G.B. members.

The foremost item of news has been a meeting with our Patron, H.H. Prince Abdel Moneim, SU1AM, at which SU1SG officially inaugurated the E.R.S.E. QSL service by presenting SU1AM with the first QSL cards. Upon a request by SU1AM each of the cards was signed by SU1SG, SU1RD, and SU1WM as a memento of the occasion. Since then SU1AM has been away in Europe, but is expected to be active with a new rig very soon. We wish him every success when he starts up once more.

SU1AX has at last broken a long silence, and an interesting three-way QSO took place between him on 7 Mc., SU1SG on 14 Mc. and SU1WM on 28 Mc. SU1AX is using about 6 watts input to a 59 E.C.O.

SU1KG has been in G for two months. During his absence schedules have been kept with the several G stations visited by him. SU1KG, Jnr., has kept the station on the air whilst his father has been away.

To BERS381 we offer our congratulations on receiving his full licence and call, SU1RD. He has been very busy with numerous modifications after making his debut on phone on 7 and 14 Mc., using 6L6's as class AB modulators. Line voltage regulation seems to have been causing him much trouble. He has just left for a holiday in Europe, and is returning with new gear for 28 Mc.

SU1RO complains that conditions in Cairo are still poor, there being nothing on 28 Mc., with 14 Mc. erratic and 7 Mc. noisy as usual. He has built a voltmeter and found its uses very varied. He is preparing the QRO rig for SU1AM.

SU1SG received a visit from SU1AM before his departure for Europe, and both had a phone QSO with G6CL. Unfortunately receiving conditions were very bad at this end, and in spite of many QSY'S, the QSO was not the success hoped for. At present SU1SG is maintaining daily schedules with GW2UL, carrying out aerial tests on 14 Mc. In the autumn these tests will also be conducted on 28 Mc. in conjunction with SU1WM. This is to last for a whole year, after which time SU1SG *might* change his views on aerials!

Members in G also include SU5NK and SU1TM. Prior to leaving, the latter had been trying out phone on 14 Mc., but had not been able to spend sufficient time to get it working at its best.

SU2TW has been unable to devote much time on the air, due to rebuilding. A D.E.T.1 will be used in the final, and will be modulated by two 10's in class B using controlled carrier.

SU1WM has been preparing for 28 Mc. One of two things seem evident from the work done, either a separate exciter must be used for 28 Mc. and 56 Mc., and/or use must be made of Eimac 35T's.

BERS387 is having cards printed, and will soon be sending out reports. It is believed that these will be the first SU listener cards. SU1WM.

Reports Wanted

G8SA (Huthwaite, Notts), on his 7013 and 7163 kc. C.W. and telephony transmissions.

G8NO (Tonbridge), on his 14332 kc. C.W. transmissions.

1937 OLYMPIA TRANSMITTER—(*Continued from page* 61).

required as the frequency increases is much greater, and it is for that reason the author used two R.F. pentodes on the 28 Mc. channel. This was proved to be amply justified when it came to tuning the grid circuits of the P.A. unit, for equal drive was obtained on both frequencies.

In connection with the grid tuning condenser for the 28 Mc. P.A. grid tank, it has been found that by removing two stator and two rotor plates from the *Eddystone* 978 condenser better stability is obtained, and with the coil as specified the maximum grid drive is obtained with the condenser just a little more than half way in.

In the photograph the position of the rotor plates for the 14 and 28 Mc. tanks is the position for resonance in the set illustrated, but this may vary due to length of leads, circuit, layout, etc.

For the insulated condenser operating rod, a *Bulgin* Type TT1 is excellent.

SOME USEFUL MEASURING GEAR—(*Continued from page* 73).

C1 can be of any capacity, providing that its value can be stated with a reasonable degree of accuracy, but it is preferable, although not absolutely essential, that this should be somewhere in the neighbourhood of the estimated value of C2, the unknown condenser.

The procedure for obtaining the value of C2 is as follows:—With the audio applied to the terminals marked "input," R1 and R2 should be adjusted until no sound is heard in the headphones. It may not be possible to obtain an absolute zero, but a good minimum can be taken without upsetting the result in any way. When this zero or minimum has been obtained, the value of the unknown condenser C2 will be given from the formula:—

$$C2 = \frac{C1R2}{R1}$$

Conclusion.

The instruments described in this article can all be relied upon to give a fair degree of accuracy if constructed with the components stated, but if any difficulty should be experienced please do not blame the writer as he neither invented nor developed any of the meters mentioned, although he will be only too pleased to answer any queries which may arise.

Stray

Mr. Faithful, well known as VS8AA, of Bahrein Island, is leaving for India, and his QRA will be c/o *Cables & Wireless, Ltd.*, Karachi. During his stay in Bahrein, VS8AA was prevented from obtaining his W.B.E. due to the elusiveness of VE signals. South America robbed him of his W.A.C. Mr. Faithful has worked all U.S. districts with an input of 4 to 6 watts.

VS8AA will probably return to Bahrein in about six months.

Knock, Knock!

Mr. Webster (G8CR) asks where expanding bits with straight shanks suitable for wood or soft metals can be purchased in England. American radio catalogues feature these useful items, but he can find no source of supply locally.

CORRESPONDENCE—(*Continued from page* 95).

THE 7 Mc. BAND IN GREAT BRITAIN

The Editor, T. & R. Bulletin.

Dear Sir,—There are many shades of opinion as to what the 7 Mc. band is, and what it ought to be. It must, therefore, be difficult for the R.S.G.B. to take up a definite attitude on the subject. May I, however, beg the space of your columns to mention some points which I feel are not sufficiently considered?

A few years ago the 7 Mc. band was used mainly for DX work, and history was made in many QSO's; to-day it has developed, or, as some would say, degenerated into a channel mostly used for telephonic intercommunication between British stations when conditions permit, or for European contacts, telephony or C.W.

Although DX is still heard, and occasionally worked, it must be admitted that in actual practice, as apart from inclination, it has become a secondary consideration. It must also be admitted that the average QSO on 7 Mc. telephony is not a beautiful thing. Where accurate measuring instruments are often lacking, due to their expense, a transmitter is bound to rely on reports of other stations, and the standard of transmission is so lamentably low because of the large number of flattering reports given by a number of optimists, who are more anxious to please than to describe facts.

In consequence of the unhappy state of the band many DX workers and more serious experimenters have come to ignore the 7 Mc. band entirely, save as the recipient of occasional disparaging remarks. It seems to me that this is wrong.

I would like to see much emphasis laid in this Journal on the necessity for accurate and outspoken reports on transmissions. This would encourage the elimination of much over-modulation, spurious emissions due to incorrectly adjusted class B modulators, suppressor and control grid modulated amplifiers, etc.

I would like to see the better-informed amateurs coming on to the 7 Mc. band to discuss their work with other stations with which they cannot communicate at most times on any other band, and, in particular, I would like to hear the H.F. group telling as many amateurs as they can find (and they can find a large number on 7 Mc.) the times and the nature of their H.F. transmissions in the immediate future. This is possibly the only way of getting these transmissions published immediately before they are due to take place.

I am absolutely certain that if some of the old hands would occasionally do as I suggest, the general amateur standard in this country would be raised and many of the present disorders eliminated. Co-operation of this sort by workers on all bands will open the door wider to what we all need—amateur education.

Yours truly,

K. Morton Evans,
G5KJ.

Hillside,
Llanelly.

EXCHANGE & MART

(Continued on page v.)