THE T. & R.

BULLETIN

THE INC. RADIO SOCIETY OF GT. BRITAIN

AND THE BRITISH EMPIRE RADIO UNION

Vol. 11 No. 1 JULY, 1935 (Copyright) Price 1/6

THE INCORPORATED
RADIO SOCIETY of GREAT BRITAIN

HEADQUARTERS:
BRITISH EMPIRE RADIO UNION

53, VICTORIA STREET, LONDON, S.W.1 'Phone: Victoria 4412

Patron:
H.R.H. THE PRINCE OF WALES, K.G.

President:
ARTHUR E. WATTS (G6UN)

Executive Vice-President and Honorary Treasurer:
E. DAWSON OSTERMEYER (G5AR)

Honorary Editor:
H. BEVAN SWIFT (G2TI)

Council:
J. D. CHISHOLM (G2CX)
E. A. DEDMAN (G2NH)
A. D. GAY (G6NF)
A. O. MILNE (G2MI)
H. B. OLD (G2VQ)
T. A. ST. JOHNSTON (G6UT)
G. W. THOMAS (G5YK)
V. M. DESMOND (G5VM)
L. W. PARRY (G6PY)
H. C. PAGE (G6PA)

Secretary:
JOHN CLARRICOATS (G6CL)

Honorary Members:
SIR OLIVER LODGE, D.Sc., LL.D., F.R.S.
SENATORE G. MARCONI, G.C.V.O., D.Sc., LL.D.

Past Presidents:
The late A. A. CAMPBELL SWINTON, Esq., F.R.S., M.Inst.C.E., M.I.E.E. (1913-1920)
The late MAJOR J. ERSKINE MURRAY, D.Sc. (1921)
The late ADMIRAL SIR HENRY B. JACKSON, G.C.B., K.C.V.O., F.R.S., D.Sc. (1922)
PROFESSOR W. H. ECCLES, D.Sc., F.R.S., M.I.E.E. (1923-1924)
SIR OLIVER LODGE, D.Sc., LL.D., F.R.S. (1925)
BRIG.-GENERAL SIR CAPEL HOLDEN, K.C.B., F.R.S., M.I.E.E. (1926-7)
SIR IAN FRASER, C.B.E., M.P. (1928)
GERALD MARCUSE, Esq. (1929-30)
H. BEVAN SWIFT, Esq., A.M.I.E.E. (1931-3)

Honorary Vice-Presidents:
PROFESSOR SIR AMBROSE FLEMING, M.A., D.Sc., F.R.S.
G. F. GREGORY, Esq., M.I.M.E., M.I.C.E.
E. H. RAYNER, Esq., D.Sc.
E. H. SHAUGHNESSY, Esq.

Vice-Presidents:
MAURICE CHILD, Esq.
CAPTAIN P. P. ECKERSLEY, M.I.E.E.
COMMANDER R. J. B. HIPPISLEY, O.B.E.
RENE H. KLEIN, Esq., F.R.S.A., M.I.R.E.
COMMANDER F. G. LORING, R.N., M.I.E.E.
LESLIE MCMICHAEL, M.I.E.E., M.I.R.E.
J. H. REEVES, Esq., M.A., M.B.E.
E. J. SIMMONDS, Esq.
JOHN WYLLIE, Esq.

THE T. & R. BULLETIN

CONTENTS.

Honorary Editor:—
H. Bevan Swift (G2TI)

Advertising Manager:—
Horace Freeman, Esq.

Vol. 11

No. 1

OURSELVES

THE present issue of our Journal marks the opening of our eleventh volume. With our June number we concluded our tenth year of publication, a unique event for a magazine which has been produced by amateurs in every sense of the word.

Started purely as an experiment in the summer of 1925, even the most sanguine of its originators hardly expected they would see ten volumes completed.

Many journals, radio and otherwise, have been published during the past 10 years, but we doubt whether many can claim that 120 consecutive issues have been produced without remuneration being paid for a single contribution. This generous and whole-hearted support has done much to demonstrate to the world at large, the unselfish spirit which permeates throughout the amateur movement.

As we write, Volume 1, Number 1, lies before us under date July, 1925, and as an historical reminder of those days we are reproducing the cover of this first number. That issue contained twelve pages of reading matter and advertisement—our June, 1935, issue ran to 44 pages—such has been our growth. The number of pages forming each volume has steadily increased, and we visualise the day as being not too far distant when our Journal will contain some 60 or more pages per issue. Such a production is, of course, dependent upon many factors, chief of which is that of cost, but with the strides now being made we anticipate that a membership of 3,000 will enable us to greatly enlarge this publication. It was only in April of last year that we published a statement to the effect that the 2,000 mark had been reached ; but already this figure has increased to 2,400.

Those of our readers who are the fortunate possessors of the first few issues of the Bulletin, will find (as they probably often do) much interest in comparing those early numbers with those of more recent date.

It seems only a short time ago that the present Editor, in collaboration with Mr. J. A. J. Cooper (the first Editor), were collecting material and advertisements for the first issue. Neither had the slightest knowledge of newspaper production or how to set about the task of preparing the copy for the printers, but fortunately Messrs. Loxley Brothers came to the rescue and through the capable hands of their Mr. Watson, the first and subsequent early issues took shape.

We take this opportunity of recording our thanks to our printers, and particularly to Mr. Seymour Hunter, their General Manager, and to Mr. Watson, the Head of the Composing Room.

The *real* difficulties however did not begin to be felt until after the first four or five issues had appeared. In those days the Society was not so strongly placed from a financial point of view,

as it is to-day, and as the Journal was being produced by a sub-section (actually the T. & R. Section), of the main Society, it was not always an easy matter to meet production costs. Fortunately, the Bulletin had many good friends interested in its welfare, and it was largely due to their practical efforts that many difficult corners were rounded. The name of our past-President—Mr. Gerald Marcuse, G2NM, immediately rises in our memory in this connection.

Of those who have been associated with the production of this Journal during the past ten years, we can pay a tribute to but a few. We have already mentioned the name of Mr. Cooper, but we should amplify our previous comment by mentioning the difficulties he came up against in obtaining the first few contributions. Conditions have changed and articles are now more readily contributed, but we remember the time, not so many years ago, when one or two stalwarts had to sit down and write up a few thousand words before daring to offer a particular number to the membership!

During the early days, Mr. Arthur Hambling undertook the work of collecting and supervising the arrangement of advertising matter. No mean task, considering the relative small circulation of the Journal.

During the year 1929, we were fortunate to secure the services of Mr. G. W. Thomas, G5YK, as Honorary Editor, in succession to Mr. Cooper and the present Editor. Mr. Thomas began by reorganising, in a most efficient manner, the set-up of the Bulletin, a legacy which has been handed down to the present day. The editing of a journal concerns the arrangement of material, even as much as the checking of technical and non-technical contributions. Comparisons are odious, but we believe that the form and layout of the Bulletin compares more than favourably with the style adopted by many of our contemporaries, commercial as well as amateur. Mr. Thomas gathered round him a committee of willing assistants who individually or collectively took over various sections of the editorial work. These included such well-known personalities in amateur circles as Mr. J. W. Mathews (G6LL), Mr. J. D. Chisholm (G2CX), Mr. A. W. Alliston (G5LA), and Mr. A. O. Milne (G2MI). Mr. Alliston rendered invaluable service in connection with advertising, whilst Mr. Milne became (and remains) the Society's draughtsman. The excellence of his workmanship has been commented upon on numerous occasions.

Then there have been our many contributors. We have already referred to the early difficulties, when members were either shy or reticent about going into print with a technical article. Those difficulties have to-day been largely overcome, and we are now able to count upon the services of a gradually increasing group of members for technical and general articles. We thank every one who has written even a few lines for the Bulletin, for however small the contribution has been, it has helped to make up the ten successful volumes.


T. & R. BULLETIN

PUBLISHED BY

THE TRANSMITTER AND RELAY SECTION

of

THE RADIO SOCIETY OF GREAT BRITAIN.

53, Victoria Street, S.W.1

For "T. & R." Members Only. No 1—July, 1925. Price 1/-

GAMBRELL WAVEMETER

TYPE C

Complete as Illustrated £4 10s.

50-500 metres

Please note:

IMPORTANT!

GAMBRELL BROS., LIMITED,

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

Turning now to our own time, we must not forget those who help in the production of the current issues. Technical assistance is often given by Messrs. T. P. Allen and F. Charman, whilst the former acts as official book reviewer. "Uncle Tom," still vainly attempting to hide his identity in his whiskers, continues to amuse or irate us as the mood demands. Mr. H. C. Page faithfully endeavours to keep his R.E.S. Groups up to scratch, our D.R.'s and B.E.R.U. Representatives invent (as they have always done) their notes whenever news is scarce—and so we could go on, but we should never finally cover all who so willing help to fill the pages of each succeeding issue.

We have now to pay a tribute to the unfailing assistance accorded to the Society by its Advertising Manager, Mr. Horace Freeman. His task has, by no means, been an easy one, especially in view of the difficulties which have attended the radio industry in recent years, but in spite of these the Bulletin has continued to display a fair share of advertising material. The support given to us,

(*Continued on page 42.*)

Convention Programme

Thursday, August 22, 1935

2.30 p.m. **VISIT TO THE DOLLIS HILL RESEARCH LABORATORIES OF THE BRITISH POST OFFICE.** (The party will be limited to 30 members, therefore early reservation is essential. The first 30 applicants will be notified by postcard. The party will meet outside Society Headquarters at 1.15 p.m. Charge approximately 1/6 per head.)

7.0 p.m. Gathering of the clans on Stand 202 at Olympia (bring your QSL card).

Friday, August 23, 1935

10.30 a.m. **VISIT TO BROOKMAN'S PARK BROADCASTING STATION.** (Meet outside Leicester Square Tube Station at 9 a.m. Motor coaches will leave at 9.10 a.m. sharp.)

1.15 p.m. Coach parties take informal lunch at Whetstone and proceed at

2.30 p.m. To visit the works of **STANDARD TELEPHONES AND CABLES LTD.,** Oakleigh Road, New Southgate. (The party for these two visits is limited to 40, therefore immediate reservation is necessary. The first 40 applicants will be advised by postcard. Charge for the coach trip only, 2/6 per head.)

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, August 24, 1935

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

11.0 a.m. **BUSINESS MEETING** (Agenda to appear in August T. & R. Bulletin).

1.0 p.m. Informal luncheon at Slaters Restaurant, Strand.

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

2.15 p.m. Presentation of Society Trophies.

2.30 p.m. **LECTURE AND DEMONSTRATION** by G. Parr, Esq.: "Cathode Ray Tube Developments."

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 21, 6/- per head *after that date. Early reservation for this function requested.*

A MODERN TWO-VALVE RECEIVER FOR THE AMATEUR OF SMALL MEANS.

By J. Paddon, G2IS.

At the risk of being considered old fashioned we are publishing a description of a modern two-valve receiver, embodying an Electron Coupled Detector. We believe that many of our members will be interested in this comparatively simple design.

AFTER some months of operation with a receiver using 2 volt valves, it was decided recently to build a Detector and one L.F. set of modern circuit design using an E.C. detector. At the writer's station 50 volt D.C. mains are available, and consequently it is impossible to use ordinary A.C. heater valves.

Fortunately, at about this time, the *Mullard* universal type valves became available. These valves are made with 13 v. filaments rated at 200 ma., so that they can be operated economically from a 12 volt filament battery. The grids are brought out on top of the glass envelope, whilst a special base provides a much longer inter-contact path than is the case with the usual pin-type valves. It was hoped that these considerations would improve performance, and results more than justified the assumption.

In an oscillatory circuit, the grid to filament damping in the base moulding is an important factor. As will be seen from Fig. 1 (a Mullard universal type valve with glass broken away) not only is the grid connection made directly to the top cap, but also the wire making this connection is well free from all other parts of the valve assembly. Due to the wide base, the pinch is longer than usual, and the leads are better spaced than on the older type valves. The special valve holder makes a firm and positive connection, but at the same time makes removal of the valve much easier, as there is no tendency to sticking.

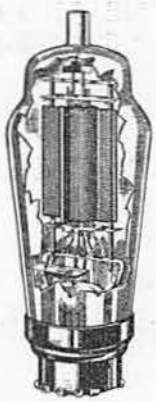


Fig. 1.
Cut-away diagram of the Output Pentode used by the author. Note the new pinless base, with silver-plated side contacts.

Circuit Considerations

V1 is an S.G. pentode operating as an electron coupled oscillator. This is choke coupled to a simple triode amplifier V2.

For the tuned circuit, plug in inductances on standard 4 pin *Eddystone* formers are used. Tuning is effected with two *Eddystone* 100 μmf. variable condensers. The one between grid and earth is "band set," that between tapping and earth is "band spread."

The winding data of the coils is as follows:—

Band.	Total Turns.	Cathode Tap.	Band Spread Tap.
1,450 to 3,400 kc.	54	3	29
3,050 to 7,100 kc.	27	1	12
6,100 to 14,200 kc.	14	¾	4¼
10,600 to 24,000 kc.	7	½	1¼
18,000 to 40,000 kc.	3½	¼	½

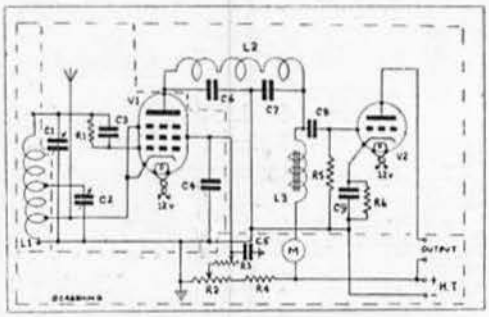
All windings occupy 1⅜ in. on the formers.

The position of the cathode tap is fairly critical and should be determined by experiment before it is finally soldered in position. A distinct improvement was noted when the coils were wound with silver instead of copper wire. In every case the reaction tapping had to be reduced as much as 50 per cent. when silver was substituted for copper.

The grid leak and condenser values should be adhered to. The grid leak is a 5megohm *Dubilier* and the grid condenser a *T.C.C.* mica tab type 100 μmf.

Reaction.

The reaction circuit is somewhat unusual. The screen voltage is first roughly adjusted by the slider on the 50,000 ohms potentiometer R2, which is in shunt across the H.T. through fixed resistance



Circuit Diagram of 2 Valve Receiver.

C1, C2.	*Eddystone, 100 μmf. Variable Condenser.*
C3, 6, 7.	*T.C.C. 100 μmf. Fixed Mica Condenser.*
C4, 8.	*T.C.C. 0.01 mf. Fixed Mica Condenser.*
C5, 9.	*T.C.C. 1mf. Non-Inductive Condenser.*
R1.	*Dubilier 1 megohm Grid Leak.*
R2.	*Erie 50,000 ohms Resistance.*
R3.	*Erie 25,000 ohms Resistance.*
R4.	*Erie 30,000 ohms Resistance.*
R5.	*Dubilier 1 megohm Grid Leak.*
R6.	*Erie 1,000 ohm 3 watt Resistance.*
L1.	*Eddystone Tuning Coil.*
L2.	*Eddystone R.F. Choke.*
L3.	*R.I. 300 henry L.F. Choke.*
M.	*Ferranti 0-5 m.a. or 0-1.5 m.a.*
V1.	*Mullard SP13 Valve.*
V2.	*Mullard HL13 Valve.*

R4. The sliding arm of R2 is connected through a second variable resister R3 to the screen. R3 is rated at 25,000 ohms. In practice, for code work, R2 is set at a point where oscillation is normal with R3 in mid position. A variation of R3 produces just enough shift in the frequency of the detector circuit to permit its use as a very fine tuning control.

For telephony reception, R2 is set just over the edge of oscillation with R3 at minimum. As R3 is increased, a very "long" reaction control is obtained, which permits the receiver to be operated at the optimum point of regeneration. The screen is earthed through two separate condensers: C4 and C5. C4 is a .01 mica and serves purely as an R.F. by-pass. This condenser must be soldered straight on to the "screen" pin of the valve-holder and taken to earth by the shortest path. C5 is a 1 mf. paper and serves as a suppressor of resistance noise.

L.F. Circuit.

The anode of the SP. 13 is coupled to the triode amplifier through an R.I. 300 henry choke. Connection is made through an *Eddystone* sectional R.F. choke, both ends of which are by-passed by a .0001 mf. mica tab condenser. An anode milliameter is included in this circuit, but this is no essential.

The rest of the L.F. stage conforms to standard practice. The coupling condenser is a .006 mf. mica type. A 1 megohm grid leak is used and the HL. 13 cathode is earthed through a 1,000 ohms biassing resister by-passed by a 1 mf. non-inductive condenser.

Screening

The receiver is so stable that it may be picked up and handled in operation without losing signals. This is due to the great care taken in screening. It should be remembered that hand capacity is not only due to a variation of capacity to earth of a given component, but is also due to a variation of the inter-capacity of two or more components.

The cabinet is made of $\frac{1}{8}$ in. aluminium plate, machined dead square and to dimension. Assembly is effected by means of $\frac{1}{4}$ in. square brass rod drilled and tapped. The cabinet is finished in cellulose "B.B.C. grey."

The cabinet is made with three internal screened compartments.

The bottom section runs the full length of the cabinet and contains the reaction controls, L.F. by-pass condensers, resistances, etc.

The top section is divided in the middle by a vertical partition. This partition carries the valve-holder of the SP. 13. Thus facing the front, there is a left-hand and a right-hand compartment above deck. The SP. 13 is supported horizontally and projects into the left-hand compartment.

Assembly.

The L.H. compartment contains the two tuning condensers. The band set condenser is mounted on the back panel and the band spread condenser is coaxial with it on the front panel. A paxolin strip is fixed between the front and back panels. This strip is positioned above and in line with the tuning condensers. In the centre of the strip is mounted the valve-holder for the inductance L1. Since this valve-holder is between and centred above the two condensers, the R.F. circuit leads are extremely short.

One end of the grid leak and condenser assembly is soldered straight on to the inductance valve-holder pin, whilst the other is connected to the grid cap through a very short flexible lead.

The R.H. compartment contains the 300 henry choke which is mounted on the back panel. The R.F. choke is soldered to two machine screws which project, through insulated bushings, into the bottom compartment. The choke is at least an inch from the nearest metal. The by-pass condensers C6, C7, are soldered to the bottom end of the machine screws in the bottom compartment and there taken to earth.

Valve V2 is mounted vertically in this compartment. The valve-holder is flush mounted and all connections are made below deck. The milliameter

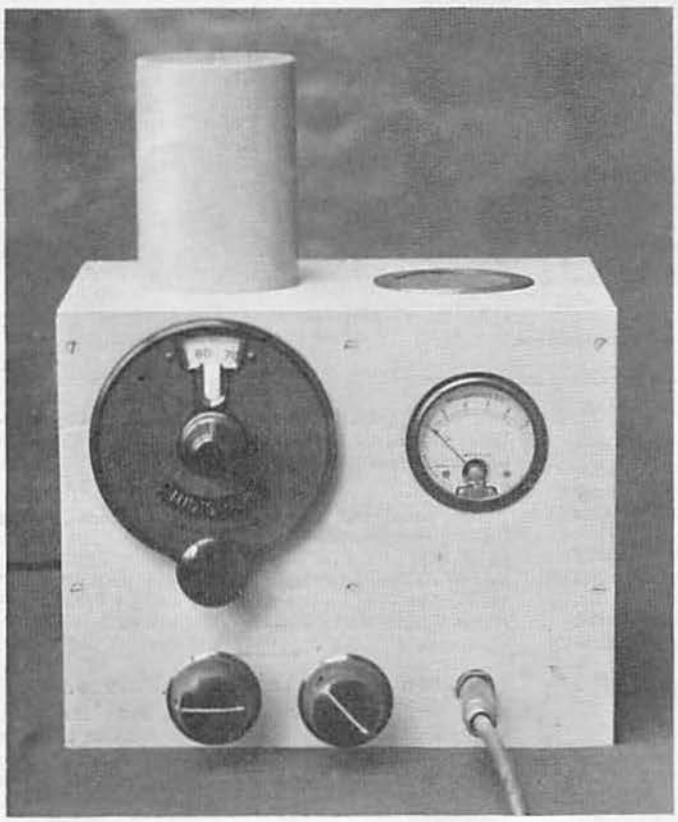


Fig. 2.
Front view. Large dial, band spread condenser, lower left-hand knob gives coarse reaction control, lower right-hand knob fine reaction control.

is flush mounted on the front panel and extends into the right-hand compartment.

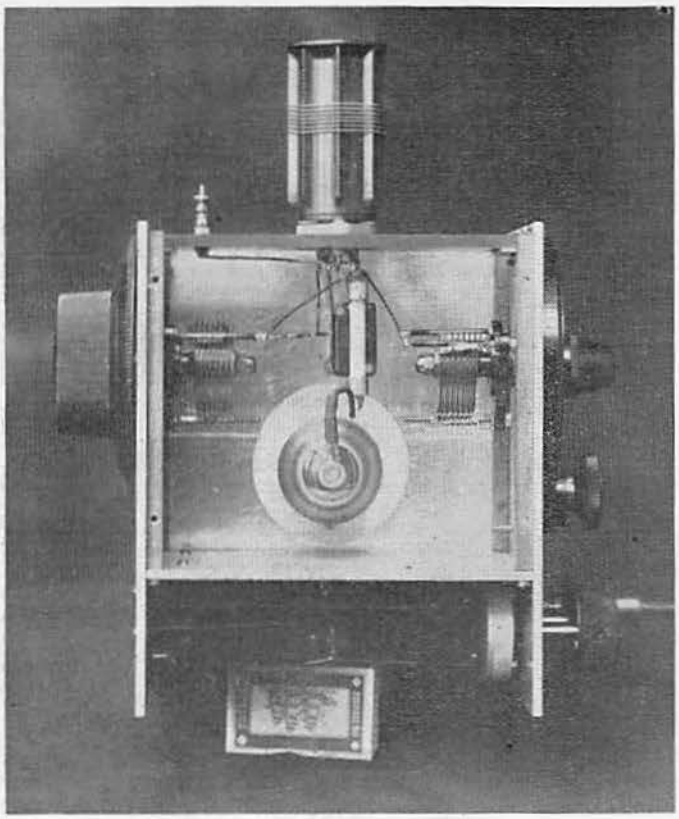


Fig. 3.
End view looking into the left-hand compartment.

The cover plate of the cabinet fits flush and is secured by machine screws which are threaded into the ¼ in. brass pillars. A hole is cut in the cover plate to clear the inductance and its valve-holder and is of a sufficient diameter to permit the cover to be dropped in place when the inductance L1 is in position.

An aluminium *Eddystone* shielding can is mounted on the cover plate. The lid of the can is fastened to the plate and centred about the inductance. The can slips in place on the cover and completely shields the inductance.

A large circular aperture, which is covered with fine copper mesh, is cut in the cover above the R.H. compartment, thus providing ample ventilation.

Performance

The performance of the set leaves nothing to be desired, being most stable in operation and highly sensitive. All U.S.A. districts have been heard and the American S.W. broadcast received at loudspeaker strength.

The inherent disadvantage of all oscillating detectors is lack of selectivity, but this has, to a large extent, been overcome by the use of a simple "Collins" network. Although this adds a control to tuning, it is not highly critical and its use has not proved embarrassing.

In this day of mighty "single signal supers," a detector and 1 L.F. combination seems very meek and modest; but how many of us achieved world-wide DX for years on a set as simple as the one described? Even allowing for the excellence of the location at G2IS (on a hill top with no mains near at hand and no cars), we still have in this design a rugged reliable receiver for the man of small means.

Congratulations

Mr. J. Shepherd Nicholson (VU2JP) has sent us a copy of the letter budget circulated to India, Ceylon and Burma members. We have seen many such budgets during the past few years, but this effort surpasses all others.

The March issue contains six foolscap *printed* pages, and gives details of the activities of no less than 17 members. The Editor-in-Chief is Mr. Nicholson, who is most heartily congratulated upon his foresight in producing such a valuable contribution to our cause.

We recommend every member in VU and VS7 to subscribe to future issues of this budget.

Strays.

Mr. Norman Isherwood, a recently elected member of the Society and a native of Bromley Cross, near Bolton, Lancs, informs us that he will be pleased to forward booklets describing scenes in California and descriptions of bridges which are under construction in that part of the U.S.A. Mr. Isherwood now operates under the call W6MDJ and his address is 2732, Humboldt Avenue, Oakland, California. These booklets will be sent free of all charge to those interested.

* * *

The small son of one of our members, when looking through the June "Bulletin" at the photos of N.F.D., said: "Daddy, I didn't know that Teddy Brown was a member of the Radio Society." Was he looking at the Secretary or the Treasurer? (How should we know—G5AR and G6CL!)

Mounting American Valves.

To avoid removing the valve from its base, solder a wire to each pin and thread them through the appropriate pins of an old British valve base, and allow the American valve base to rest on top of the other. Solder the wires to the new pins, then cut a strip of celluloid and fit round the join between the two valve bases, and secure it with "Durofix." Old bases taken from burnt-out Mullard valves are just about the correct size.

G6US.

A RACK AND PANEL 5-METRE TRANSMITTER

By Walter Johnson (G2IN) and John R. Fennessy (G5ZI).

IT is the opinion of the writers that an article has been required for some time describing a 5-metre transmitting equipment, complete in detail, for permanent installation, as against the more usual descriptions of experimental 56 mc. hookups. It should not be taken that the writers consider this, or, indeed, any other 5-metre rig as the ultimate ideal, for without doubt enormous strides will be made in both transmitting and receiving technique on these higher frequencies in the near future.

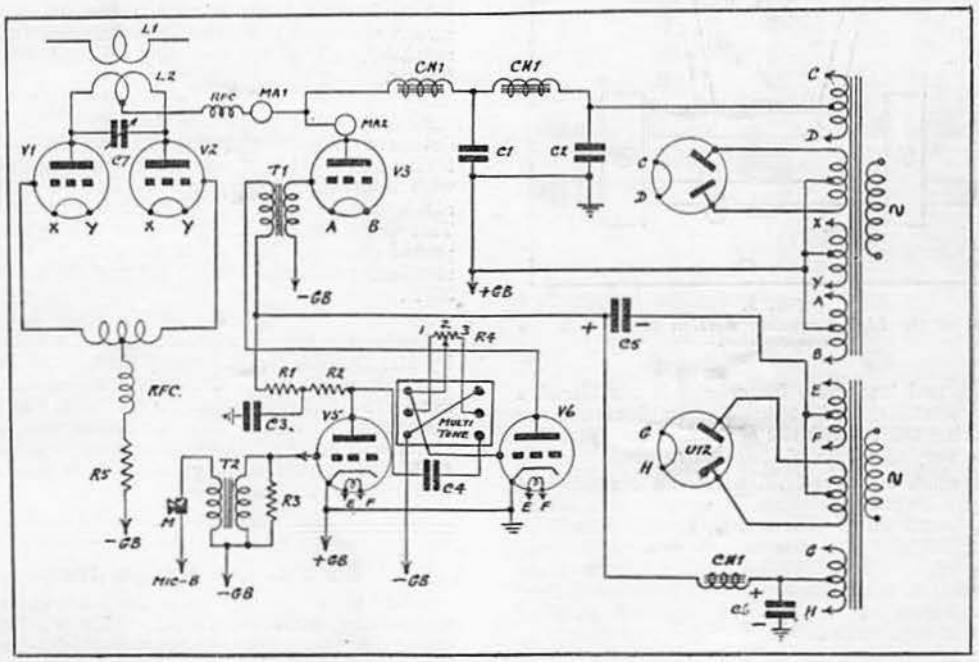


Fig. 1.
Circuit diagram of 5 metre transmitter.

L1, L2.	*1 turn 5 in. diameter ¼ in. copper tube.*	*T1.*	*Type OPM1 transformer, Ferranti.*
L3.	*6 turns 1 in. diameter ¼ in. copper tube.*	*T2.*	*Microphone transformer.*
C1, C2.	*4 mf. condenser, Amplion.*	*CH.1.*	*30 henry choke, Varley.*
C3.	*.5 mf. tubular condenser, Amplion.*	*V1, V2.*	*LS6A Marconi-Osram valves.*
C4.	*.01 mf. tubular condenser, Amplion.*	*V3.*	*D024 Mullard.*
C5, C6.	*8 mf. electrolytic condenser Polar—N.S.F.*	*V4.*	*U14 Marconi-Osram rectifier.*
C7.	*Max. capacity 15 umf.*	*V5.*	*AC/HL Mazda valve.*
R1, R2.	*40,000 ohm, resistance, Dubilier.*	*V6.*	*AC/P1 Mazda valve.*
R3.	*50,000 ohm, volume control, Reliance.*	*V7.*	*U12 Marconi-Osram rectifier.*
R4.	*Tone control, Multitone.*	*M.*	*Microphone.*
R5.	*60,000 ohm resistance, Dubilier.*	*MA1.*	*0-150 m.a. Ferranti milliammeter.*
		MA2.	*0-100 m.a. Ferranti milliammeter.*

Description and Lay-out.

The whole of the gear, as will be seen from the photographs, is really self-contained, and is, of course, all mains operated. The top shelf of the rack contains only the H.F. portion, which consists of two LS6A valves connected in push-pull. When finished, the outfit is capable of delivering an input of 30 watts, though the valves will of course be biased to operate on the normal 10 watts. Particular note should be made of the rigid and sturdy construction of the coils and the arrangement of the final lay out. The middle shelf contains both the modulation and the H.T. rectifying and smoothing units. This section requires but little description here, beyond the fact that Heising modulation is used, as it is found that it gives rise to less "frequency modulation" than any other system which has been tried.

The bottom shelf carries the speech amplifier and an H.T. and L.T. supply unit which is associated only with this amplifier. It is considered, when using these high frequencies, advantage should most certainly be taken of really high quality transmission, without the risk, usually attendant on lower frequencies, of creating more or less serious interference. This two-stage L.F. amplifier is actually quite straightforward in design. Tone compensation is incorporated in the form of a "Multi-tone" transformer, as variable attenuation

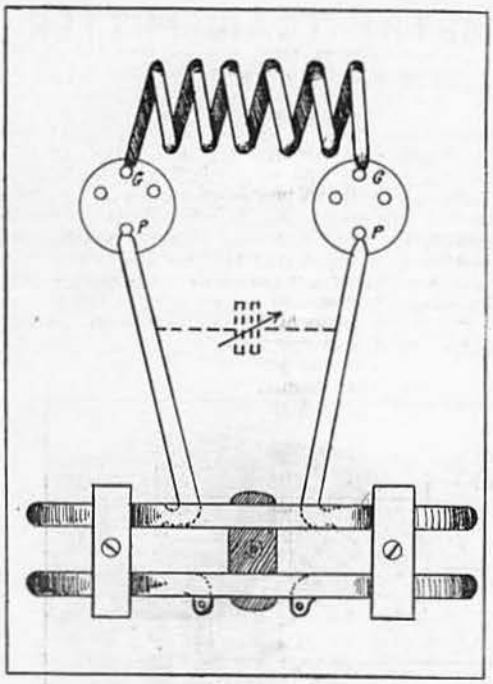


Fig. 2.
Layout of the high frequency portion of the 5 metre transmitter.

of high and low audio frequencies is considered a great advantage when working on 5 metres for increasing the possibilities of distant contacts, due to the varying forms of receivers in use.

The quite separate H.T. unit on the audio end has been included after much thought, and is certainly worth while. There is no trouble with H.F. finding its way into the L.F. portion of the rig, moreover, both H.F. and L.F. units are more stable in operation, as neither are dependent on each other in conditions of varying H.T. demand, such as oscillator adjustments, etc.

The Transmitter in Use.

No particular difficulty will be experienced in putting the transmitter into use, as it is very stable. All that is required to prepare the gear is to tune the single variable condenser to the required frequency with the usual absorbtion wave meter or lecher wire arrangement. After satisfactory radiation has been obtained, the speech amplifier may be switched on, and the volume control advanced until the required degree of modulation is obtained, the tone control being set at its mid-position; varying degrees of pitch can then be obtained by simply moving this control to the left or right.

In regard to results obtained, the first tests were carried out using an ordinary detector and pentode receiver; with separate regeneration and a large horn-type speaker, the receiver was placed in an all-metal Morris van and R9 signals were obtained within a radius of four miles on the loud speaker, *no aerial whatever* being used, good reception on the loud-speaker was obtained with the car in motion.

Further reception tests were carried out with the same receiving gear at a distance of 16 miles air line from the transmitter, and again a good R9 signal was enjoyed on the loud-speaker, in fact, the signals could be heard 150 yards away, with the pentode in the receiver hopelessly overloaded! It is thought that the cited results will be sufficient evidence of the transmitter's efficiency.

The photograph, diagram and plan of lay-out will enable any reader with ordinary transmitter experience to put together a similar equipment, but it is most strongly advised that the lay-out and materials used in the H.F. portion be adhered to. It should be noted that the inductances and their leads are in one piece, and are made of ¼-in. copper tube, supported on stand-off insulators, the aerial coupling coil being held to the plate coil with porcelain cleats as used in temporary electric wiring jobs. Another point to note is the 100 per cent. screen which encloses the first stage in the audio amplifier, which includes the microphone transformer.

Aerial.

It may be of interest to readers to have brief details of the aerial system used in the tests. A 12-ft. feeder was directly connected to the coupling coil with thermal ammeters in each leg. A half-wave dipole was arranged at the top in a vertical plane. This was made of half-inch copper tubing and supported on a 2-in. by 2-in. square pole by means of stand-off insulators. The height of the aerial was 30 ft.

Late News.

During the 56 mc. tests from Snowdon, conducted by Mr. Douglas Walters on June 29 and 30, the transmitter described in this article was successful in effecting two-way phone contact with G5CV at a distance of 75 miles. The transmitter was located at Ashurst Beacon, and signals were reported R7 to R9. Fourteen other contacts were established during the week-end.

56 mc. DX Possibilities.

Under the above title in our last issue we omitted to mention the fading effect which was noticed upon the harmonics of commercial stations and during the portable experiments referred to. It was this fading, coupled with the other facts, that led to the suggestion of the existence of variable conditions on the 56 mc. band, and the possibility of contacts far beyond the optical range.

Mr. Gay (G6NF), who has been investigating 56 mc. phenomena, thinks that the reception of these commercial harmonics may be due to a super-heterodyne effect of a powerful ultra short-wave transmitter situated 1½ miles away. G5LB and G6QB, who have also reported similar reception, are within the same range of this transmitter. We shall be interested to know if others, in more distant parts of the country, have experienced any unusual reception when listening-in on the 56 mc. band.

Reports Wanted.

G5MY (Long Eaton) on his 7 and 14 mc. c.w. and telephony transmissions.

Five Metres in Newquay

By C. S. POLLARD (G2GBP)

Alas ! Likewise alack ! In fact there was more than a lack ; except for a local receiver the band was dead !

But let me begin at the beginning. Great 56 mc. activity in North-West Kent induced me to apply for permission to take my 56 mc. transceiver to Newquay for my holidays on June 15. The gear survived the journey and worked perfectly. But not a sound penetrated the super-regenerative receiver's mush.

The mere mention of " five-metre transmitter " at the hotel caused me to be whisked away in the proprietor's son's car to see a radio agent who had a five-metre receiver he was anxious to try out. To him I had dropped straight from Heaven into a transmitterless district ! I began to feel a little uneasy, however, when I found that the receiver was a superhet. On a super-regen. my quality is reported as good, but what, I wondered, would happen on a sharply-tuned superhet ? I was right ! So I explained the meaning of the word " spitch " to the agent. Happily, his receiver wasn't working too well and so we put it down to that. A day or two later he improved his receiver, which then reproduced quite reasonable quality from me, and I prepared for the main test on June 23 at 20.30 B.S.T., knowing that at least one receiver would be trained on me.

At 20.20 I took up my place on the roof of the hotel and gave the agent a call. His house was only about a quarter of a mile away and I could see it from my hotel. I anxiously watched his window for the prearranged signal ; there it came—intermittent flashes from his torch told me that he was receiving me. So a quarter of a mile was possible in this mineralised area ! Then with more hope than common-sense I called Southern Ireland and South Wales. Huh ! I took the vertical aerial off the flag-pole and arranged it horizontally and sent out a general test call. . . . Again, huh ! ! Having swung the aerial round at right angles to where Ireland ought to have been I whistled " test " into the mike until 3,245 seagulls gathered round and squawked at me. I handed over the mike but they flew away, leaving me to bellow for reports from Ireland or elsewhere. By this time crowds had begun to gather down below so I stood by for a call from any five-metre station. I stopped tuning at about the middle of the band and listened carefully, for there, just above the mush, was a tiny morse signal !

Then I lost it ! It was extremely weak, but I could just recognise modulated c.w. such as that produced by a fairly high-pitched L.F. oscillator. Imagination ? Possibly, but I shall await any reports that may reach me with great interest.

To those who listened for me but didn't hear me—many thanks for your co-operation.

To those who listened and *did* hear me—I shall have quite a lot to say besides thanks !

TRADE NOTICE.

" *Short Wave Transmitting and Receiving Components* " is the title of a most informative little book produced and published by Mr. N. E. Read (Radio Engineer), 37, Willow Street, Oswestry, Shropshire. Mr. Read is a well known radio amateur, who operates under the call G6US.

This handbook-cum-catalogue contains not only a priced and illustrated list of components, but also many useful radio hints. It should find a place in the shack of every member.

A copy will be sent free of charge to those mentioning this journal.

Fig. 3.

Rear view of the transmitter described in previous page. The top shelf contains the H.F. oscillator, the middle shelf houses the modulation unit, and H.T. rectifying and smoothing unit. The bottom shelf contains the speech amplifier and an H.T. and L.T. supply unit associated with the amplifier.

"CALLING BEN LOMOND."

By "Scrutator."

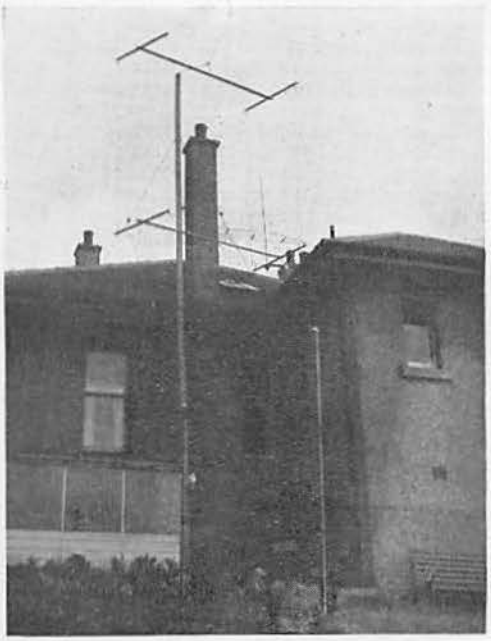
FOR several years past quite a number of Scottish transmitting amateurs have been carrying out spasmodic work around 56 mc. The pioneer was, of course, G6WL, whose enthusiasm, until failing health put an end to all that, was a thing to marvel at. Before leaving the lists he had, however, infected Archie Brown (G6ZX) with the 56 mc. "bug," and the writer feels he is safe in saying that ZX has been by far the most consistent worker in Scotland for the past two years. A considerable amount of fixed station to moving car work and vice versa was tackled in co-operation with G5YG, but latterly YG, who has never held much of an opinion of the utility of the band, pulled out, and ZX was left pretty much up in the air. He quickly realised that, while everybody cursed the super-regenerative receiver, it was the only receiver possible until something had been done in the direction of stabilising the transmitter.

The birth of a new Short-Wave Club in Glasgow, known as the Glasgow and District Radio Club, and its demand for 56 mc. transmissions, provided G6ZX with the necessary incentive to tackle the transmitter "wobbulation" problem, and right successfully he appears to have done so.

A new transmitter with a "High Q" or organ pipe grid tank was developed, which, on initial tests, appeared to have solved the problem. Regular Sunday morning schedules with the local Radio Club were begun, and results soon indicated that something much more ambitious in the matter of range might be attempted.

It was finally arranged that the Radio Club proceed, with the necessary equipment, to the top of Ben Lomond (2,500 ft.), which lies about 33 miles N.W. of G6ZX location at Clarkston. ZX on his part was to propagate on schedule on 56 mc. by means of a special beam antenna, and also via a straightforward vertical half-wave system. All was fixed for Sunday, May 5, and in due course the Radio Club (among whom are many R.S.G.B. members) set off with receivers, batteries, and all the necessary equipment. The day was hot. So were the climbers, both from the attentions of Father Sol and from enthusiasm, but after a stiff pull up, loaded down to the Locks with super capacity batteries and what not, they reached a spur on the 2,000 ft. level, upon which it was decided to take the first test.

Mr. A. C. Brown (G6ZX), with the 56 mc. gear used for the Ben Lomond tests.



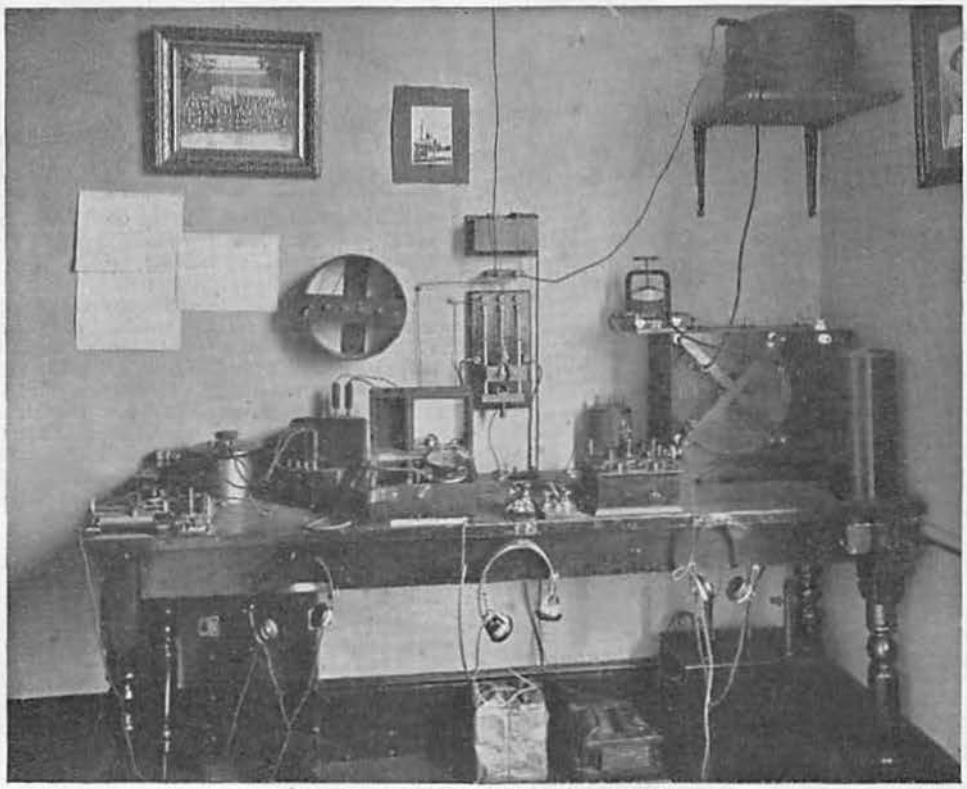
The antenna system used in the Ben Lomond tests. Note the small half-wave vertical on a chimney head bracket some distance behind the beam antenna.

Plentiful halts on the way up had been made to "admire the view" (*comme il faut*, when climbing on a hot day), so that the jolly old ganglions still had sufficient pep to vibrate to the prospect of G6ZX's dulcet tones. Off came the packs, and, while a short aerial was being erected, one of the receivers was hooked up. To everybody's amazement, G6ZX came rolling in at a good R6 without any aerial. The addition of the aerial system only

(*Continued on page* 42).

AN EARLY AMATEUR STATION.

THE photograph which we publish below shows the original amateur station erected by Mr. Maurice Child, one of our Vice-Presidents, at West Norwood in 1920. The following is a short description of the various pieces of apparatus shown. In the extreme right-hand top corner is the main aerial tuning inductance for the transmitter. On the table, extreme right, is the condenser box containing three Leyden jars, total capacity .006 mf. On the front of the box is a pancake coil for giving the necessary closed circuit wave-length, and direct coupling to the aerial. A Siemens quench spark gap is also shown mounted on the condenser box.



Mr. Maurice Child's Station during 1920

On the table from extreme right to left is the following apparatus in order. Large inductance for the reception of the Marconi transatlantic station at Clifton, Ireland (since burnt down during the Sinn Fein trouble), De Forest electrolytic responder (now to be seen in the South Kensington Museum, Wireless Section), two morse keys, Marconi wave-meter, aerial tuning, and secondary inductances, wound on wooden frames from household cooking sieves, variable condensers for tuning the secondary, crystal detector with potentiometer on the extreme left.

An extra aerial circuit loading coil for the receiver is shown on the wall, together with the aerial change-over switch from sending to receiving, and a small emergency spark coil for short distances immediately above it, and worked from a large dry-cell battery on the floor. The ½ kw. transformer oil-cooled can be seen under the table on the right-hand side of the photograph.

The normal power used was ¼ kw., but this could be increased by using more gaps in series, and raising the primary voltage on the transformer, by altering the taps on the low-tension transformer shown on the floor adjacent to the high-tension one. Tuning curves for the receiver will be noticed on the wall. The normal wave-length used was 450 metres, and on one or two occasions Mr. Child was successful in exchanging signals with amateurs in Liverpool and Bristol.

Empire Calls Heard.

By J. Alexander (2*AXX*), 63, *Tennyson Road, Birmingham* 10. *From April* 23 *to June* 18.

3.5 mc.: ve1bv (4.5.9.), 1el (5.5.8.).

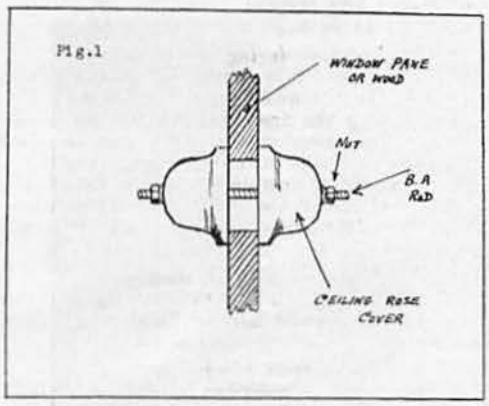
14 mc.: su1kg (5.6.8), 1mo (5.5.9), 1rk (5.6.8), 1tm (5.5.9), ve1ce (5.6.7), 1ed (5.6.6), 1ek (5.5.7), 1ep (4.5.8), 1gh (4.5.6), 1 hk (5.6.9), 2ai (4.4.9), 2bd (4.5.9), 2bg (5.6.9), 2cu (5.6.9), 2 dc (5.8.9), 2ey (4.5.8), 2fg (5.5.9), 2gf (5.6.9), 2fq (5.7.9), 3jv (4.6.fone), 3mj (4.5.9), 3ug (4.6.9), 4du (5.6.9), 4 ku (4.6.9), 5lz (4.5.9), vo1n (5.6.6), vq4crl (5.7 fone), vq8a (5.6.8), vu2dk (4.4.8), yi3fb (4.5.6), 7rr (4.5.8), zb1i (5.7.8), zc6fb (5.7.9).

0-V-Pentode receiver used. Figures in brackets denote signal strength and tone.

BRIGHT IDEAS.—No. 1.

Quite a good substitute for Pyrex lead-in bowls may be constructed from a length of 2 or 4 B.A. rod, and a couple of ceiling rose covers, which may be purchased at about 5d. each complete with ceiling rose. These are in white glazed porcelain, and are in every way practically as good as Pyrex, electrically, and for resisting the weather.

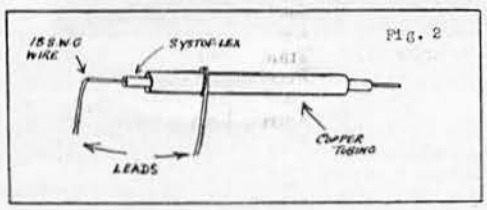
Two are used for each feeder, one either side of the window pane or whatever is used for the mounting, and bolted together by means of the brass rod.



For those who dislike the idea of using threaded rod as a conductor of R.F. may go to a little more trouble and obtain some plain rod and cut a thread at each end, sufficient to keep the whole affair tight. Fig. 1.

* * *

Small trimming condensers for bringing up the capacity of a circuit, or for coupling the aerial to the receiver, and a number of other similar jobs, may be constructed quickly and easily from copper tubing, systoflex, and some No. 18 s.w.g. bare or enamelled wire. The systoflex is slid through the copper tubing with a quarter of an inch protruding at each end to prevent short circuits. A length of the wire is passed through the systoflex, and a



perfectly good trimmer is the result, the maximum capacity depending upon the length. A rough idea of the capacity is as follows :—

With 3/16 in. external diameter tubing, systoflex usually fits snugly on the wire, and similarly inside the tubing and provides very roughly 5 μmf. per inch in length.

For varying this, the wire is merely pulled out until the desired capacity is obtained, and fixed with a spot of sealing wax, or seccotine. A lead should be soldered to the tubing for connecting purposes before introducing the systoflex, as the heat may damage it. If glass tubing can be substituted for the systoflex, so much the better, as the dielectric loss of systoflex is rather high. Fig. 2.

* * *

Some stations would like to drill their window panes for their leads in, but do not go to this trouble for fear of breaking the glass, and consequent inconvenience.

Those possessing sash windows may like to go to a little trouble and trifling expense to avoid this and yet have the advantage of the lead in coming through glass.

A frame should be made up from wood battens with an L section groove (made specially for garden frames), the width to be that which will just fit the width of the lower sash, and a height to individual requirements. A sheet of ordinary window glass is obtained from any builders' merchants cut to the size required, for a few pence per square foot, and holes drilled as required for about 6d. per hole. This sheet can then be fitted in to the wooden frame, which in turn is fitted into the lower sash by removing the beading at one side, and the lower sash is then pulled down until it shuts against the top of the frame. Lead in bowls can then be fitted as required to the holes which have been already drilled in the little windowlette.

The glass may be fitted into the frame by means of one or two tacks round the edge, and the groove filled in with putty, neither a difficult nor costly job, putty being about 2d. per lb., and a pound should do several frames ! Total cost, about 5s.

This frame will take the place of the board under the lower sash as described in the A.R.R.L. Handbook.

This arrangement prevents the locking of the window, but for shacks on the ground floor which require to be locked, this may be effected by inserting a fairly large screw into the top sash an inch above the lower sash. One either side will prove almost burglar-proof, short of smashing the glass.

* * *

Link coupling, as described in the BULLETIN under the excellent article by G2WD on Tri-tet Link coupled transmitters, may be used as a very convenient form of locking oscillators "á la Goyder."

Three or four turns on a former 1½ ins. in diameter or thereabouts, close wound, and each coil connected to the other by a length of flex, will lock a T.P.T.G. more efficiently than any other form of lock, and at the same time keeps down radiation of the crystal oscillator or frequency doubler to a minimum.

S. W. C.

THE FIFTH ANNUAL B.E.R.U. CONTEST, 1935.

IT may be remembered that we commenced our Report of the Fourth Annual B.E.R.U. Contests by quoting a line from a calendar pad in the possession of one of our members. By a curious coincidence, that same line appeared again on his calendar for the last day of the B.E.R.U. Contest, 1935 :

" Some men have achieved greatness in a night —but rarely without long and careful preparation."

The story of these annual contests seems to be very much wrapped up in the sentiment expressed in the last part of the above quotation, for it is only by long and careful preparation that success can be achieved by those who enter the contests with a determination to succeed.

Shortly after the rules for the current event were published, several members gave it as their opinion that a station located in Egypt would prove the winner of at least one, if not both sections. This prophecy has been more than fulfilled, for to-day we have to congratulate Lieut. Eric Cole (SU1EC) upon leading in the Senior event by nearly 2,000 points. Whilst it may be felt that the rules favoured stations within a couple of thousand miles of Great Britain, we consider that unless these stations had been operated with a maximum degree of efficiency, it would have been impossible for such an overwhelming score as SU1EC put up to have been recorded. An examination of Mr. Cole's entry shows that his very high score was achieved by virtue of the fact that he was successful in working the large number of 22 Zones, thus obtaining a big Zone multiplier.

In the Junior event it appeared at first sight that SU1EC had finished first, but after a careful examination of his entry form it was found that his original total was 167 points too high, with the result that Mr. J. Shepherd Nicholson (VU2JP) becomes the first South India winner of the Junior Trophy.

For the second year in succession Mr. G. C. Allen (BRS250) leads in the Receiving section of the Contest. Mr. Allen's work in connection with Band Occupancy, Commercial Checks, and Band Monitoring are already well known to many of our members, and his success in this important contest is but a fitting climax to a year of intensive work for and on behalf of the R.S.G.B.

It is with considerable pleasure that we find an old friend in Mr. George Merriman, (VS6AH) of Hong Kong, placed second in the Senior event. Mr. Merriman has been one of the Empire's leading amateurs for many years, and has in all previous contests put up a magnificent showing. Due to some cause, which is even now unknown, his entry, in company with those from other VS6 amateurs, was not received after the 1934 Contest, but we have reason to believe that in this event also he would have been very highly placed. Third place in the Senior has been won by our most energetic Hong Kong E.L.S., Mr. S. Conway (VS6AQ).

In the Junior, as has already been mentioned, SU1EC finished just behind VU2JP, with Mr. Fenner (ZC6FF) third, and nearly 2,000 points behind. It is an interesting fact that Mr. Cole and Mr. Fenner are now both in England, and we are looking forward to them being present at Convention to receive the awards due to them for the parts they played in this year's Contest.

Contest Periods.

For the first time since the B.E.R.U. Contests were inaugurated, the two transmitting contests were staged over alternative week-ends, and only 24 hours instead of the customary 36 were allowed for contacts during each half of the contest. We are not fully convinced that this arrangement has met with general approval, consequently it is highly probable that for the 1936 event we shall revert back to the old method.

Conditions during the Contest.

It would appear that conditions generally were poor during the first week-end, but an improvement occurred during the first week-end of the Senior, which was maintained during the second week-end of the Junior. Conditions during the last week-end of the latter Contest were slightly better than during the first week-end of the Senior, but by no means so good as is generally expected for the latter part of February.

Details of Leading Stations.

Following our usual practice, we give below details of the equipment used by the leading stations in each event.

Senior Contest.

(1) SU1EC ... Transmitter, C.O. (LS5B), F.D./B.A. (LS5B), P.A. (T61D). Receiver, *Hammarlund* Comet Pro. Aerial : 66 ft. matched impedance.

(2) VS6AH ... Transmitter, Tri-tet C.O. (RK20) P.A. (850 S.G.) Receiver : Single Signal Super with R.F. reaction pentode second detector. Aerial : Transmitting 66 ft. windom, receiving doublet.

(3) VS6AQ ... Transmitter : C.O. (247), F.D. (246), P.A. (203-A). Receiver : O-v-2. Aerial : Zepp 66 ft.

(4) VK6FO ... Transmitter : E.C.O., F.D., P.A. Receiver : O-v-1, E.C. all A.C. Aerial : ½-wave 7 mc. windom.

(5) VU2JP ... Transmitter : C.O., F.D., P.A. Receiver : *Eddystone* Ham Band Two (1932). Aerial : ½-wave Hertz Zepp with 45 ft. feeders parallel tuned.

(6) ZL2CI ... Transmitter : C.O. (47), F.D. (46), B.A. (210's in push-pull), P.A. (852). Receiver : Single signal 6 valves (May, 1934 *QST*). Aerial : ½-wave Zepp.

(7) VU2JT ... Transmitter : DE5B, PQ5, AT50. Receiver : *Eddystone* Ham Band Two (1934). Aerial : 66 ft. Zepp, 48 ft. feeders.

(8) ZL4AI ... Transmitter: C.O., F.D., P.P. P.A. (852).
Receiver: 8 valves super het with crystal and audio filters.
Aerial: 33 ft. vertical and 33 ft. horizontal and various directional receiving aerials.

(9) VK5SU ... Transmitter: E.C O., B.A. and B.A.
Receiver: 5 valves single signal.
Aerials: 14 mc., Parabolic beam and Windom, line of beam through South Europe; 7 mc., half-wave Hertz, fed by low impedance transmission line directional to England.

(10) VK4BB... Transmitter: 3/4 stage C C.
Receiver: A.C., E.C., with 58 and 59 valves.
Aerial: Zepp.

Junior Contest.

(1) VU2JP ... Transmitter, C.O., F.D., P.A.
Receiver: *Eddystone* Ham Band Two.
Aerial: as for Senior.

(2) SU1EC ... As for Senior.

(3) ZC6FF ... Transmitter, T.P.T.G. with T25D final.
Receiver: S.G. H.F. detector, pentode.
Aerial: Zepp 66 ft. long, 70 ft. high.

(4) VU2LZ ... Transmitter: Tri-tet C.O., B.A. B.A. T.P.F.G. push-pull amplifier.
Receiver: H.F. Pen, H.F. Pen, Pen.
Aerial: ½-wave vertical and horizontal voltage fed.

(5) VK3MR ... Transmitter: CO(47), F.D. (4), F.D. (47) (B.A.) QCO/5 P.A. (800).
Receiver: T.R.F. A.C.
Aerial: Full wave 7 mc. 48 ft. high, feeder end 102 ft. high.

(6) VK4BB Transmitter, as for Senior.

(7) VU2BL ... Transmitter: C.O. (47), F.D. (47), P.A. (DET. 1).
Receiver: Tuned H.F., detector pentode.
Aerial: Horizontal ½-wave with twin matched impedance fed at centre.

(8) ZL3GM ... Transmitter: C.O. 59 F.D. (246), P.A. (246).
Receiver: 7 valves superhet.
Aerial: Current fed Zepp.

(9) VK4EI ... Transmitter: C.O. (47), B.A. (2-46's), P.A. (PR.1).
Receiver: T.R.F. (35), detector E.C.O. (57), L.F. (27), output (27).
Aerial: Zepp 133 ft. 10 in. long.

(10) VU2FY... Transmitter: C.O. B.A. P.A., using LS5B's.
Receiver: A.C. *National* S.W.3.
Aerial: ½-wave Zepp.

The Final Positions.

SENIOR CONTEST.

Positions of the first 20 stations are set out in Table 1; the following is a list of all other entrants in order of merit, with their scores:—

21, F. J. Fenner, ZC6FF, 1,027; *22*, H. A. M. Whyte, G6WY, 987; *23*, F. E. Frame*, ZL4BQ, 924; *24*, R. Stacey, VK2HY, 884; *25*, R. L. Belstead, VK4EI, 846; *26*, F. L. Hawthorn,* ZL1GX, 840; *27*, G. E. King, ZE1JF, 810; *28*, L. R. Arnott, ZE1JO, 780; *29*, R. E. Earle, VS8AB, 765; *30*, W. E. Russell, G5WP, 700; *31*, G. F. K. Ball, VQ3BAL, 616; *32*, J. P. Thomas, SU5NK, 600; *33*, W. F. Self,* ZL4CK, 584; *34*, R. G. Blake, ZL3AJ, 567; *35*, E. J. Lake, VK4EL, 470; *36*, A. Smith, G6VP, 459; *36*, F. Charman, G6CJ, 459; *38*, W. E. Lane, VQ4CRH, 420; *39*, J. H. Lawrence,* VK5MZ, 407; *40*, A. E. Dyson, G6NJ, 400; *41*, J. S. Owner, G6XQ, 390; *42*, H. Biltcliffe, G5HB, 384; *42*, W. P. Andrew, VE3WA, 384; *42*, A. W. Alliston, G5LA, 384; *45*, J. G. McIntosh, VU2LJ, 351; *46*, W. A. Clark, G5FV, 350; *47*, A. D. Gay, G6NF, 336; *48*, L. W. Parry, G6PY, 280; *49*, S. G. Fisher, VQ4CRP, 252; *50*, C. Sharp, G6KU, 240; *51*, K. G. Allen,* VK3UH, 224; *52*, L. A. Deane, VK5LD, 220; *52*, R. A. Bartlett, G6RB, 220; *54*, J. H. Pullin*, ZS5Z, 204; *55*, R. C. Neale, G6GZ, 192; *56*, A. N. Thackeray, VK2TA, 175; *57*, C. L. Ward, G5NF, 160; *58*, F. W. Garnett, G6XL, 143; *59*, P. W. Moores, VQ8A, 138; *60*, O. Egenes, ZT5R, 126; *60*, A. O. Milne, G2MI, 126; *60*, H. F. Yule,* ZU5B, 126; *63*, W. H. Tittley, ZT5V, 120; *63*, J. N. Walker, G5JU, 120; *65*, A. C. Simons, G5BD, 117; *66*, B. Hall, G2DZ, 112; *66*, W. H. Browning,* ZU6E, 112; *68*, D. C. McDonald, VK3DM, 108; *69*, B. M. Scudamore, G6BS, 104; *70*, J. D. Chisholm, G2CX, 91; *71*, A. J. Perkins, G6KP, 88; *72*, J. Lees, G2IO, 81; *73*, E. S. Wilson, G5CW, 78; *74*, H. V. Wilkins, G6WN, 77; *75*, J. K. Tutton,* VK3ZC, 76; *76*, D. Hunter, VP4AA, 72; *77*, F. A. Adams, VK2ER, 66; *78*, T. P. Allen, GI6YW, 64; *78*, J. J. Alvarez,* VS6AG, 64; *80*, V. de Robillard, V8AF, 60; *81*, L. O. Rogers, G2HX, 56; *82*, V. G. Mellor, G5MR, 54; 83, P. E. Kernick*, VK6PK, 48; *83*, R. D. L. Dutton, G6QQ, 48; *85*, R. Barr, GI5UR, 35; *86*, D. H. Pharazyn,* ZL2LT, 30; *87*, E. R. Radford, G2IM, 24; *87*, H. C. Spencer, G6NA, 24; *87*, J. Clarricoats, G6CL, 24; *87*, R. D. Elliott, VK5RD, 24; *87*, A. H. Heath*, VK5ZX, 24; *92*, G. G. Stopani-Thomson, VS6AS, 9; *92*, J. H. Payton, G2JB, 9; *92*, G. P. Anderson, G2QY, 9; *95*, J. Moore, VO2J, 6; *95*, F. Gilfillan, VQ4CRO, 6; *97*, A. R. Stansfield, VO4Y, 3; *98*, J. C. Callander,* ZL4BT, 2; *99*, C. E. Jefferies, G5JF, 1; *99*, G. Brunyee, ZS1AA, 1.

* Non member, B.E.R.U.

JUNIOR CONTEST.

The position of the first 20 stations are set out in Table 2; the following is a list of all other entrants in order of merit, with their scores:—

21, A. F. Frame,* ZL4BQ, 549; *22*, F. Charman, G6CJ, 528; *23*, R. F. Galea, ZB1E, 525; *24*, J. H. Pullin * ZS5Z, 352; *25* J. H. Laurence * VK5MZ, 348; *26* N. F. Ollivier, VK6FO 320; *27*, G. Featherby, G5FB, 319; *28*, L. Grech, ZB1C, 318; *29*, Miss Corry, G2YL, 308; *30*, C. R. Emary, VS6AX, 306; *31*, E. J. Lake, VK4EL, 300; *32*, H. C. Turner, G5OJ, 280; *33*, H. F. Yule,* ZU5B, 252; *34* W. G.

Real DX Now Coming Over on 28MC/S.

TABLE 1.—SENIOR TRANSMITTING CONTEST.

Position.	Name.	Call.	Input Power in Watts.	Points.
1	E. S. Cole	SU1EC	70	4,246
2	G. Merriman	VS6AH	50	2,300
3	S. Conway	VS6AQ	50	2,160
4	N. F. Ollivier	VK6FO	7 mc. 115 14 mc. 85	1,989
5	J. S. Nicholson	VU2JP	10	1,936
6	W. A. Wilson	ZL2CI	7 mc. 200 14 mc. 184	1,751
7	N. I. Bower	VU2JT	50	1,512
8	G. G. Samson	ZL4AI	200	1,482
	F. M. Gray	VK5SU	100	1,482
10	R. J. Beatson	VK4BB	50/60	1,474
*11	L. Wickham	ZL3FG	200	1,456
12	L. Mellars	ZL1AR	140/208	1,376
13	M. R. Campbell	VK3MR	100	1,350
14	E. J. Dunkley	VU2LZ	50	1,332
15	W. E. C. Bischoff ...	VK2LZ	25/100	1,300
16	R. O. Davidson	VQ4CRL	40	1,216
17	H. D. Price	G6HP	250	1,160
18	A. H. Mackenzie ...	VK4GK	50	1,156
19	F. Johnstone	ZB1F	10	1,120
20	C. S. Taylor	VE1BV	7 mc. 240 14 mc. 200	1,105

* Non-member, R.S.G.B.-B.E.R.U.

TABLE 2.—JUNIOR TRANSMITTING CONTEST.

Position.	Name.	Call.	Input Power in Watts.	Points.
1	J. S. Nicholson	VU2JP	10	3,406
2	E. S. Cole	SU1EC	25	3,340
3	F. J. Fenner	ZC6FF	15	1,520
4	E. J. Dunkley	VU2LZ	24	1,440
5	M. Campbell	VK3MR	7 mc. 20 14 mc. 25	1,292
6	R. J. Beatson	VK4BB	25	1,224
7	D. L. Martin	VU2BL	25	1,218
*8	R. A. Andrews	ZL3GM	25	1,116
9	R. L. Belstead	VK4EI	25	1,100
10	O. A. F. Spindler ...	VU2FY	10	1,020
11	G. H. Todd	VS7GT	10/15	858
12	W. E. Lane	VQ4CRH	20/25	736
13	Miss Mackenzie	VK4GK	24.7	672
14	A. G. Lapworth ...	G6DL	25	630
15	J. P. Thomas	SU5NK	16	611
16	V. de Robillard	V8AF	18	600
17	J. G. McIntosh	VU2LJ	7.7	592
18	G. F. K. Ball	VQ3BAL	20/25	585
19	L. R. Arnott	ZE1JO	20	560
20	A. E. Dyson	G6NJ	25	558

*Non-member, R.S.G.B.-B.E.R.U.

TABLE 3.—RECEIVING CONTEST.

Position.	Name.	Call.	Points.
1	G. C. Allen	BRS250	2,028
2	R. W. Rogers	2AIO	1,357
3	E. W. Trebilcock	BERS195	1,296
4	C. A. Bradbury	BRS1066	1,029
5	C. J. Greenaway	2BWP	864

Pyke, G6PK, 234 ; *35*, L. A. Moxon, G6XN, 231 ; *36*, L. O. Rogers, G2HX, 195 ; *37*, W. Self,* ZL4CK, 192 ; *38*, E. H. Swain, G2HG, 187 ; *39*, C. S. Pollard, G2GB, 180 ; *40*, W. H. Tittley, ZT5V, 176 ; *41*, L. A. Deane, VK5LD, 171 ; *42*, H. G. Newland, G5ND, 165 ; *43*, F. H. Cooper, G2QT, 154 ; *44*, E. S. Wilson, G5CW, 152 ; *45*, P. W. Moores, VQ8A, 144 ; *46*, A. E. Allen,* ZL1JQ, 136 ; *47*, S. A. G. Cook, G5XB, 135 ; *48*, G. W. Slack, G5KG, 126 ; *49*, P. G. Tandy, G2DU, 108 ; *49*, J. N. Walker, G5JU, 108 ; *51*, S. Riesen, G5SR, 105 ; *52*, J. M. Drudge-Coates, G2DC, 98 ; *53*, R. D. L. Dutton, G6QQ, 91 ; *53*, G. Merriman, VS6AH, 91 ; *53*, R. P. Walker-Alexander, VS7RA, 91 ; *56*, S. W. P. Henton, G5VU, 84 ; *57*, W. G. Leyland, ZE1JM, 75 ; *58*, L. Cooper, G5LC, 72 ; *59*, F. A. Robb GI6TK 70 ; *60*, R. Y. Parry, G5XV, 60 ; *61*, R. Barr, GI5UR, 56 ; *62*, G. C. Price, G2OP, 55 ; *63*, E. R. Radford, G2IM, 54 ; *64*, F. A. Adams, VK2ER, 48 ; *64*, O. Egenes, ZS5L, 48 ; *66*, C. H. Burchett, VU2DX, 42 ; *67*, S. Buckingham, G5QF, 40 ; *68*, J. H. Hargreaves, G5VO, 35 ; *68*, L. E. H. Scholefield, G5SO, 35 ; *70*, J. Lunt, ZT1Q, 32 ; *71*, J. H. Hayes, ZB1B, 30 ; *71*, D. B. Fry, G5UY, 30 ; *73*, K. E. B. Jay, G2HJ, 25 ; *74*, G. P. Anderson, G2QY, 24 ; *74*, R. W. Kidner, G6KI, 24 ; *76*, P. Varney, G6PV, 21 ; *77*, J. K. Tutton,* VK3ZC, 20 ; *78*, F. Wiseman, G6TM, 18 ; *79*, A. H. Heath,* VK5ZX, 9 ; *79*, A. Pollard, G2PN, 9 ; *79*, C. E. Jefferies, G5JF, 9 ; *79*, R. E. M. de la Pole, VS7RP, 9 ; *83*, R. H. Rowe,* ZL3GR, 3 ; *84*, F. E. Gillfillan, VQ4CRO, 1 ; *84*, G. Hutson, G6GH, 1.

* Non member, B.E.R.U.

Receiving Contest.

Positions of the first five stations are set out in Table 3 ; the following is a list of all other entrants, in order of merit with their scores :—

6, J. Alexander, BRS822, 578 ; *7*, A. H. Ridley, BERS242, 518 ; *8*, D. C. Hall, BERS228, 510 ; *8*, P. H. Dutton, BERS271, 510 ; *10*, J. F. Isaac, 2ASI, 468 ; *11*, B. E. P. Sadler, 2AGW, 432 ; *12*, P. Seymour, 2AZX, 416 ; *13*, R. J. Lee, BRS1173, 299 ; *14*, H. H. Gent, BRS1651, 288 ; *15*, P. A. B. Malvern, BRS1503, 250 ; *16*, G. Beckett, 2BQR, 198 ; *16*, H. Leishman, 2BMP, 198 ; *18*, G. M. Howie*, VK5GIL, 189 ; *19*, H. S. Brown, BERS265, 168 ; *20*, J. B. Walker, BRS1590, 160 ; *21*, F. J. R. Taylor, 2AUW, 120 ; *22*, A. J. Woiwod, BRS1192, 105 ; *23*, W. L. Ely, BRS1535, 102 ; *24*, H. S. Chadwick, BRS1340, 96 ; *25*, J. M. Kirk, BRS1575, 84 ; *26*, G. F. Wakefield, BRS1417, 66 ; *27*, C. J. Green, BRS1684, 9 ; *28*, R. E. Middleton, BERS260, *8* ; *29*, A. T. Soper, BRS1676, 4.

* Non member, B.E.R.U.

Prefix Zone Certificate Winners.

In accordance with the rules, the following have qualified for Prefix Zone Certificates :—

Senior Contest.

Australia	F. M. Gray ...	VK5SU
Canada	C. S. Taylor	VE1BV
Ceylon & S. India	J. S. Nicholson	VU2JP
Egypt & Sudan ...	E. S. Cole ...	SU1EC
Great Britain ...	The late H. D. Price	G6HP
Hong Kong ...	G. Merriman ...	VS6AH
India (North) ...	N. I. Bower ...	VU2JT
Kenya, etc. ...	R. O. Davidson	VQ4CRL
New Zealand ...	W. A. Wilson...	ZL2CI
South Africa ...	J. H. Pullin ...	ZS5Z
Western Australia	N. F. Ollivier...	VK6FO

Junior Contest.

Australia	M. Campbell ...	VK3MR
Ceylon & S. India	J. S. Nicholson	VU2JP
Egypt & Sudan	E. S. Cole ...	SU1EC
Great Britain ...	A. G. Lapworth	G6DL
India (North) ...	D. L. Martin	VU2BL
Kenya, etc. ...	W. E. Lane ...	VQ4CRH
Malta	R. F. Galea ...	ZB1E
New Zealand ...	R. A. Andrews	ZL3GM
South Africa ...	J. H. Pullin ...	ZS5Z

Receiving Contest.

Australia	E. W. Trebilcock	BERS195
Great Britain ...	G. C. Allen ...	BRS250

The Awards Committee agreed to make a Zone Award to VK6FO in the Senior Contest, although only two entries were accepted from Western Australia. There were, however, three additional entries, but these were disqualified as mentioned later.

It is regretted that many Zone Awards had to be withheld due to the fact that less than three entries were received from the Zones in question.

Check Logs.

We wish to thank the following for sending check logs of stations heard and worked :—

Senior : G. Moens, SU1RO ; E. W. Osborn, ZT1H ; G. Horton, G5GH ; H. Hodgens, EI5F ; J. B. Corbin, VK2YC ; R. F. H. Cannon, VK7RC ; H. Ackling, VK2PX ; H. L. Garfath, G2BM ; W. H. E. Jensen, ZL2CW ; B. Naylor, VE5BI ; L. Grech, ZB1C ; N. Walding, ZL1FT.

Junior : G. Blake, ZL3AJ ; T. F. Emeny, VK3GQ; G. King, ZE1JF ; F. W. Garnett, G6XL ; F. L. Hawthorn, ZL1GX ; G. Moens, SU1RO ; W. M. Richards, VK5WR ; Lt. Stewart, VS8AJ ; M. Buckwell, G5UK ; G. A. Shoyer, ZS1H ; A. A. Hammond, G6AH.

Disqualified Entries.

It is with considerable regret that the Awards Committee found themselves compelled to disqualify a number of competitors, because the entrants (being non-members of the R.S.G.B.-B.E.R.U.) failed to make the declaration required under General Rule 3. The entries disqualified were from :—

Senior : VK2NS, VK2EO, VK2RK, VK3GQ, VK3HG, VK3OW, VK5GW, VK5KL, VK5RX, VK6CP, VK6MN, VK6SA, VK7JB, VK7KV, ZL1DV, ZL2LB, ZL3AN, VE1FN, ZU6B.

Junior : VK5GW, VK5KL, VK5RX, VK6CP, VK6JW, VK7KV, ZL1DV, ZL2OD, ZU6B.

It is only fair to state that in the report of the previous Contest, we drew attention to the point mentioned above, and said : " These entries have been accepted on this occasion, but will be disqualified in future years."

Awards Committee Comments.

The Committee wish to thank all who forwarded letters of appreciation, and especially those who made useful suggestions. It is regretted that space limitations prevent extracts from these letters being published.

As mentioned earlier in the report, due consideration will be given to the rules for the 1936 Contest, furthermore the question of reverting to the Prefix Zone Scoring Chart, with possibly a bonus for each new zone worked, will also receive consideration.

The number of entries was smaller than in 1934, due possibly to the changed methods.

Thanks are extended to all who took part in this Contest.

SOLILOQUIES FROM THE SHACK.

By Uncle Tom.

(Our tame Humorist-cum-Moralist discovers that it takes all kinds of hams to make a world.)

'Twas about this time last year, O readers, that your disrespected Uncle got himself into trouble by letting out one or two nasty remarks about Field Day in general, and South London in particular. His skin, since then, has assumed that reassuring crinkliness usually associated with the elephant, and he feels strong enough to withstand anything that's done to him, so he *might*, in the course of these ramblings, be rude again. We shall have to see.

In that stirring article entitled "We Visited Nine," which appeared last month, the Secretary-Bird undoubtedly established his reputation as a journalist. What did fall down a mighty boomp was his reputation for observation of detail—witness that terrible remark about a "Baby Austin." Oh, Mr. Sec., how *could* you refer to an expensive and thoroughbred six-cylinder sports M.G. as a "Baby Austin"? Ooooh!

The owner of the said car, a keen 5-metre enthusiast, is, if I know him, of too retiring a disposition to call attention to this slight error, and so I feel in duty bound to do it for him. "Baby Aus . . ." No, I won't say it.

National Field Day *did* penetrate into South London this year, although quite a few members who assisted at the "South London" stations actually lived outside the district. But still, they got going, although I understand that both stations had their little spots of bother. One of them, I believe, engaged a staff of semi-trained cooks, but after the first semi-trained meal, the rebellious operators saw to it that the cooks' activities were confined to washing-up.

'S a funny thing how hams appear in quite a different light during times of stress and strain such as the said N.F.D. One D.R. tells me that he could compile a book on the subject, with the amateurs in his district grouped under different headings. At one end of the scale is the quiet little feller who seldom says a word in ordinary life, but manages to do as much donkey-work during N.F.D. week-end as all the others put together. At the other is the talkative chappie whom you'd expect to run the whole show with one finger, but who actually sits on the nearest camp-stool and surveys the show with a fishy eye, having done zero.

In between the two extremes comes the various gradations, such as the man-who-can't-op-but-can-cook, and the man-who-can't-op-but-doesn't-yet-know-it, not to mention the man-who-can-op-but-can't-keep-awake. It certainly takes all sorts of hams to make a world, and, believe me, we've got 'em *all*.

Quite a big fan-mail this month, including three letters beginning "My dear old Uncle Tom"—very charming, but rather assuming that the age is what it's said to be. One hails from South Africa, and the writer says, "How d'you get on without little Eva and your log cabin? This latter must have gone bit by bit in the shape of ammunition hurled at bad hams; but I would like to commit a radio sin if I could be sure of getting a whack from such a dear old man as you. Had you been a schoolmaster I'd have been honoured to get a good hiding from you."

But the main burden of his letter is to wonder whether all the amateurs in the B.E.R.U. realise what they owe to the men at the head of things who are "born to blush unseen (or unknown)." I wonder, too.

Next one, from London, enquires whether 14 mc. has become infected with a world-wide epidemic, or whether it has suddenly become compulsory to insert the letters "DX" into every test call? What exactly is the use of this addition? Why *must* you all only work with men who are more than 2,000 miles away? Is it because you only feel safe working people who can't get at you? Goodness knows. But, as this writer says, when he wants a reply from a fairly short distance, he usually *has* to call a man who is pumping out "DX" because there's no one that isn't! And the reply is usually curt, with a "get-off-the-air" tang about it. Hardly Ham Radio.

The third hails from a 5-metre bloke who thinks it's time something was done about the oscillating-receiver menace on that wave. He had a whole QSO spoilt by a local receiver, although the other man wiggled up and down the band to get away from the racket. We still have our Pillworthies on the air.

One or two South Londoners and North Kent-ers have taken to using H.F. in front of their 5-metre detectors, and that has done the trick as far as re-radiation troubles are concerned.

Having had yet another bout of listening on 7 mc. (not in *my* shack—oh no!) I have come to the conclusion that International Amateur Radio needs three or four laws, to be strictly observed in the letter and the spirit. Something like this:

(1) The owner or operator of any amateur station who, knowingly or wilfully, radiates telephony from a transmitter that is not frequency-stabilised by crystal control or some equally efficient means, shall be guilty of a criminal offence, and shall be dealt with by a committee of five fellow-amateurs as they think fit.

(2) The ditto ditto of any ditto who calls (*a*) Test, (*b*) CQ, or (*c*) anyone else's call-sign for more than two minutes continuously shall instantly be removed, as forcibly as possible, from the air by any means which local amateurs may be able to devise.

(3) Anyone who receives a "QSA5" report and then, in his reply, proceeds to send "doubles," shall be instantly and painlessly exterminated.

(4) Anyone who says "rr OK," and then asks for a repeat shall be instantly exterminated. (The word "painlessly" to be omitted from this clause.)

A rigid application of these four draft rules would clear up the air quite a little. Short of reducing everyone to 10 watts again, I can't think of anything that would make the amateur bands sound healthier.

By the way, I nearly forgot—I have a letter and QSL from a "G" station, disclosing the facts that the operator uses (*a*) an American commercially-built transmitter; (*b*) an American 14-tube receiver; and (*c*) his DX is 24 countries, including VE1 and W1 and 2. I s'pose he puts in so much time doing experimental work that he hasn't any left for mere vulgar DX? Or is he still trying to learn how to handle that receiver?

RESEARCH AND EXPERIMENTAL SECTION

MANAGER :

H. C. Page (G6PA), Plumford Farm, Ospringe, near Faversham, Kent.

ASSISTANT MANAGER :

Dr. G. F. Bloomfield (G5MG), c/o Mrs. Aldous, Alice Villas, Brantham Hill, near Manningtree, Essex.

GROUP MANAGERS :

No. 1 : 1.7 and 3.5 MC. WORK
J. H. Hum (G5UM), "Byeways," The Drive, Welwyn, Herts.

No. 2 : 56 MC. WORK
Messrs. J. N. Walker (G5JU), 4, Frenchy Road, Downend, Bristol, and A. J. Forsyth (G6FO).

No. 3 : ARTIFICIAL AERIALS
Mr. L. E. H. Scholefield (G5SO), 2, Balmoral Road, St. Annes-on-Sea, Lancs.

No. 4 : ATMOSPHERE AND PROPAGATION.
J. C. Elmer (G2GD), Aethelmar, Seabrook Road, Hythe, Kent.

No. 5 : TELEVISION
C. W. Sands (G5JZ), Springfield, Heathfield, Sussex.

No. 6 : CONTEMPORARY LITERATURE
R. A. Fereday (PAOFY), Abrikozenstraat, 87, The Hague, Holland.

No. 7 : RECEIVER DESIGN
E. N. Adcock (G2DV), 206, Atlantic Road, Kingstanding, Birmingham.

No. 8 : TRANSMITTER DESIGN
A. E. Livesey (G6LI), Stourton Hall, Horncastle, Lincs.

No. 9 : AERIAL DESIGN
F. Charman (G6CJ), Orchard Cottage, Stoke Poges, Bucks.

No. 10 : VALVE RESEARCH
D. N. Corfield (G5CD), 10, Holders Hill Gardens, Hendon, N.W.4,

No. 11 : 28 MC. WORK
W. A. Clark (G5FV), "Lynton," Hull Road, Keyingham, Hull.

No. 12 : AUXILIARY EQUIPMENT
A. O. Milne (G2MI), "Southcot," Larkfield, Kent.

IN spite of all that has been written in these notes of late there still seem to be a certain number of people who are under a misapprehension as to the nature of R.E.S. I have tried to make it clear to everyone during the past three months that the section has undergone a change in policy. Whereas in the past anyone, whether he had qualifications or not, could join any group he chose, that will now be impossible. The chief point to be borne in mind is that this is no longer a nursery for those wishing to gain experience of the rudiments of the science of radio. The section is for the use of, and aid to, serious research and experimental workers, as its title quite clearly shows. Membership of the Radio Society of Great Britain does not in itself entitle one to instant admission to the ranks of the Research and Experimental Section. The chief qualification is knowledge of the branch of the science one proposes to study, and a wish to co-operate with others in the furtherance of such study. It entails, among other things, a desire to work seriously and steadily at the same subject for months on end, if need be, and to do that without any encouragement or publicity until definite results are obtained.

Now I will turn from the general to the particular for a few moments, and try to explain how the above ideas must be put into practice. In the past it has been usual to accept any applicant for membership of any group or groups he cared to join. In future all applications will be much more strictly scrutinised, and the applicant will be expected to state his reasons for wishing to join any particular group. The completion and return of the usual application form alone will not be sufficient. Perhaps it will be as well to amplify these remarks by explaining that it is useless for a member without any kind of transmitting licence to apply for membership of the Transmitter Design or Artificial Aerial groups, as these obviously require the use of a licence of some sort for practical work.

The various group managers of the different sections of R.E.S. will, from now on, be entitled to accept or refuse any individual applicant as they feel inclined. A group manager is responsible for all the work of his section, and it is only right that should he feel that the section will not benefit by the inclusion of any particular applicant he should have power to refuse his application. There are at present a considerable number of members of the various groups who are doing no useful work in the section, and the group managers will now have full authority to remove the names of such members from their records if they do not resign of their own accord.

The foregoing may all sound rather drastic, but I feel that it is necessary if we are to realise what the section was formed for. Membership of R.E.S. will in future be the privilege of the research and experimentally minded, and not the right of everyone.

G6PA.

The Luxembourg Effect.

IN the January Bulletin Dr. G. F. Bloomfield (G5MG) raised the question of " wireless ghosts," i.e., the superposition of one station as a faint background on another (not necessarily harmonically related in frequency), and enquired if a satisfactory explanation is available.

Perhaps, therefore, the following summary may interest him and others. I also append a list of references of original papers for anyone who wishes to refer to the subject in greater detail.

Firstly, the phenomenon is commonly known as the " Luxembourg Effect," it being pointed out by Tellegen in June, 1933, * that a background of the high-power Luxembourg station could be heard on Beromunster (being received in Holland), and, subsequently, further similar cases have been observed.† A detailed explanation has been given by Bailey and Martyn,‡ in effect as follows :—

When an electromagnetic wave passes through an ionised region it sets the ions (free charges) in oscillation, this being the fundamental cause of ionic refraction. Such ions will, further, be liable to collide with molecules, with a consequent loss of energy (this energy being taken from the e.m. wave).

The wave, therefore, attenuates in passing through the medium on account of "collisional friction." The extent of absorption depends on the "mean free path" of the ion, i.e., the distance which it travels before making a collision. This is chiefly determined by the pressure, so that it is the "E-layer" (K-H layer) which is responsible for such absorption.

Now, if a powerful *modulated* wave is passing through the ionised region the motion of ions will also be modulated, i.e., the mean free path will vary in accordance with the modulation; consequently if *another* wave passes through this medium it will be subjected to an attenuation which varies as the modulation of the first wave, i.e., its intensity fluctuates according to this modulation, so that a background of the former station will be audible on the other.

It can be shown that the effect will be greatest with a long-wave station, and depends directly on the power of the interfering station, and for a 200 kw. station it is shown by Bailey and Martyn that it will influence an area of about 100 kms. diameter above the station in the E-layer, so that if the "sky-wave" of another station passes through this area this type of interaction will be observed.

The conditions for such "ghosts" then are that the "sky-wave" of the station is audible and that it should pass through an area as indicated; also the effect is, as would be expected, greater when absorption is greater, i.e., one should expect increased disturbance when the "sky-wave" is weakened by increased absorption—that is, round about sunset and sunrise, and in the daytime. (If signals are still audible).

It is further pointed out that atmospherics should also produce a similar modulation on the carriers of stations, quite apart from their being received directly.††

The foregoing is, I feel, rather a striking example of the power of the "magneto-ionic" theory.

G5AM.

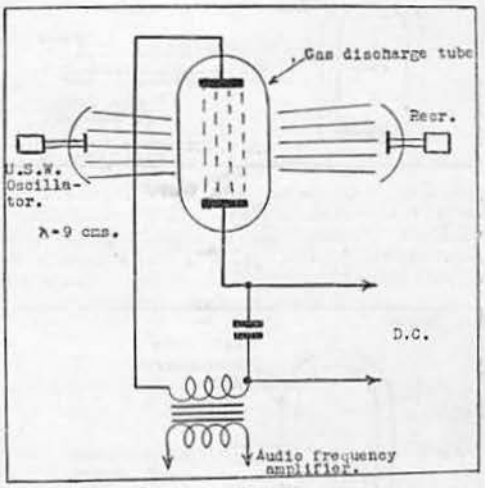
References.

Nature, June 10, 1933.
†*World-Radio*, January 26 and March 9, 1934.
‡*Philosophical Magazine*, August, 1934, page 369, and *Nature*, February 10, 1934.
††*Nature*, June 9, 1934.

Note by G5MG.

I am also indebted to Mr. K. Gabriunas (LY1AG) for an abstract of a recent paper by Meërovich in the Russian amateur radio journal *Radiofront* (October, 1934, page 9). The cross-modulation produced by the effect of the interfering station on the Kennelly-Heaviside layer may be compared with that produced in a radio-frequency amplifier when one of the applied signals is of sufficiently high voltage to exceed the limits of linearity of the valve. When the voltage applied to the Kennelly-Heaviside layer is small the velocity of a moving electron is proportional to the square of the applied voltage, but when the applied voltage is sufficiently high the simple square law no longer holds, i.e., the limit of linearity is reached.

Linder and Wolff (Proc. I.R.E., June, 1934) have demonstrated experimentally the modulating effect of an ionised region of varying intensity on a radio wave passing through it; the quality of modulation is claimed to be as good as that obtained by more direct methods.



The "Luxembourg Effect" is now becoming apparent on a number of stations, the latest offending station being Droitwich, according to a further article in *Radiofront*. So powerful is the background produced by the 500 kw. Moscow station that reception in Russia of some Western stations is rendered impossible; moreover, some stations are received with two backgrounds. In other words, the limit of high-power broadcasting has been reached.

According to Meërovich the effect is never observed in daylight.

It is improbable that a short-wave signal will be modulated by a long-wave broadcast station, but possible that high-powered short-wave broadcast stations might give rise to this effect. LY1AG reports reception of 14 mc. C.W. signals modulated by a background of Pontoise.

Ribbon Velocity Microphone.

The writer feels that some details of a ribbon microphone would be of interest as very little has been published about them.

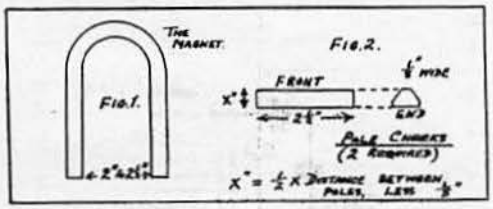
(1) *The Magnet.*—This can comprise any good U-shaped permanent magnet which approximates to the figures given (Fig. 1). Suitable types can be found in old loud-speakers and magnetos.

(2) *The Pole Cheeks or Pole Pieces.*—The measurements of these are given in the diagram (Fig. 2). The distance marked "X" is half the distance between the poles, less $\frac{1}{8}$ in. The cheeks may be constructed from soft iron or mild steel.

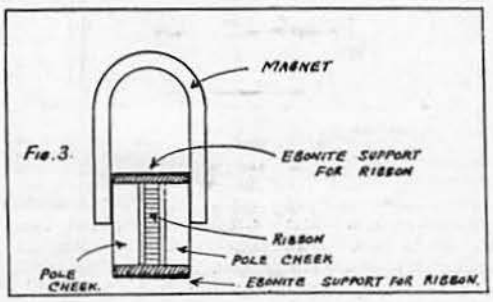
(3) *Drilling.*—It is necessary to drill the magnet and tap the pole pieces so that the whole can be assembled as shown in Fig. 3. It is also necessary to drill the pole pieces for the ebonite support to hold the ribbon.

(4) *The Ribbon.*—The foil from a paper condenser makes an excellent ribbon material. A strip is cut of a suitable width to go between the

pole cheeks, and is then corrugated by running it through a pair of gear wheels. The ribbon can be fixed by clamping it under two washers on bolts passing through the ebonite supports.



(5) *The Transformer.*—A suitable transformer can be made from an ordinary L.F. transformer in which the windings are separate, e.g.,the Telsen "Radiogrand." The primary is removed and replaced by about seven turns of heavy gauge wire,



such as 20 or 22 S.W.G. The transformer must be kept away from A.C. power packs and D.C. lines, owing to the pick up of hum.

(6) *Amplification.*—Three medium gain audio stages are required before the modulator valve. The first two stages are preferably battery-driven and kept at some distance from the third stage and the modulator. 2BPK.

Atmosphere and Propagation.

The following is a summary of the activities of Group 4c during the last few years, first under the leadership of G6GQ and later G5JH.

Studying the effect of sunspots, the group found that some spots had effects whilst others had none. It was further found that there was a definite lag of time between the appearance of a spot and its apparent effect on radio conditions, usually about three days; further, the effects were noticed for a similar period after the spot had disappeared. On occasions effects were noticed which could be attributed to sunspots, but no spots were visible. However, it was found that a spot would appear on the sun's next revolution, suggesting that the spot was in formation prior to its appearance.

Ribbon Velocity Microphone.

With regard to the effect of the moon, a certain amount of correlation was found between the moon's phases and "conditions" on 7 mc. and 14 mc. It was suggested that these improved towards full moon, deteriorating two days before full moon, improving slightly two or three days after full moon. Other groups are now investigating these phenomena further.

In collaboration with G6YL, a record of earthquakes was collected. It was found that "conditions" were good during an earthquake and better afterwards. This was often accompanied by a fall in barometric pressure in the British Isles. It is suggested that earthquakes may have some effect on the earth's magnetic field, which would react on radio conditions.

Some correlation was found between sunspots and tornadoes, but results connecting humidity with "conditions" were negative.

No reasons have been assigned to the various effects mentioned, and with this end in view, Group 4 is now investigating all these phenomena further. G2GD.

An All Band Aerial.

An aerial has been in use for some time at G5RX which is not only simple to erect, but gives exceptionally good DX results without the necessity of applying to the G.P.O. for special permission to use an undue length.

A 99-ft. top is used as standard and erected as high as possible. Height and length, indeed, are the primary considerations governing the efficient operation of any antenna. I consider that the free end should be at least 10 ft. higher than the "home" end for best results. It has been found that although a "flat" aerial gives good local radiation, it is not so good for distant work.

For 1.75 mc/s I use this 99-ft. aerial with a 99-ft. counterpoise suspended 9 ft. from the ground. Loose coupling is employed, and an average of .5 amp. aerial current is obtained with 10 watts input.

For 3.5 and 7 mc/s the same arrangement is used, the system functioning as a current-fed one. On 14 mc/s the aerial alone is used, acting as a Hertz. Parenthetically I might remark that it has been suggested that there is no such thing as a real Hertz, as the R.F. in a radiating system is bound to find its way to earth via the mains or the batteries of the transmitter—though what happens when one uses efficient R.F. chokes in both mains leads I should not like to say. The current could hardly get to earth then.

Using this system as described, I get good coverage of all Great Britain on 1.75 mc/s at high signal strength, while on the higher frequencies I have W.B.E. and W.A.C. with only 10 watts.

The aerial, points E. and W., with the free end E.

G5RX

Push-Pull Detectors in Practice.

Although the proverb runs "Two heads are better than one," it does not follow, as a radio corollary, that two valves are better than one. However, as a result of a number of experiments, it has been found that, in the detector stage, two valves connected in push-pull have definite advantages over the more conventional system.

In assembling the experimental receiver, strict attention had to be paid to the symmetry of the

circuit, both electrically and mechanically. Each side of the grid circuit had to be a duplication of the grid circuit of a normal detector. This feature was later modified to comprise a grid coil, across which was connected a tuning condenser, and the usual grid condensers and resistances. Many different values of grid leak and grid condenser were tried ; it was found possible to eliminate the grid condenser entirely and to employ a high value of grid leak without any loss of high notes.

In actual construction the symmetry of the grid circuit may easily be attained. The anode circuit, however, presents a far more difficult problem. The winding of the grid coil about a former proved a simple matter. In the anode circuit, however, the reaction coil had to be wound so that its electrical centre coincided with its mechanical centre. In addition, some sort of symmetry had to be obtained relative to the grid coil. At first, this was achieved by winding the reaction coil on a separate former, which could be rotated inside the former on which the grid coil was wound. This variometer method suffered from the defects of noise and backlash, and was subsequently abandoned. The next system to

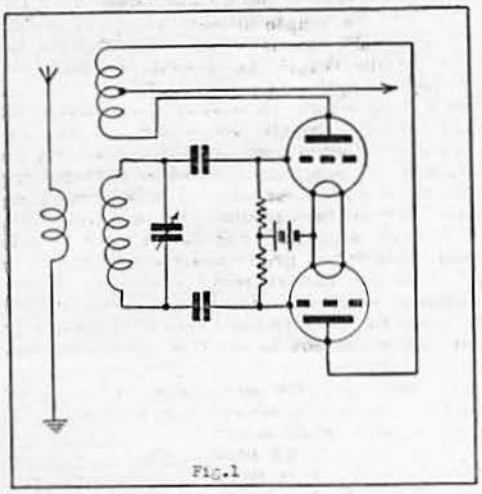


Fig.1

be tried was a centre-tapped reaction coil. Here the amount of reaction was controlled by a variable resistance in the H.F. lead, as in Fig. 1. This proved much better, but suffered from the defect that the amount controlled varied disproportionately as the resistance. To eliminate this defect, a reaction condenser was connected across the two ends of the coil. This gave the necessary smoothness and ease of control required in such a receiver (see Fig. 2).

The reconstructed receiver, which was assembled following these experiments, incorporated both these modifications. The results obtained on this receiver proved, beyond all doubt, that the push-pull stage as a detector was far better than a single valve. The usual H.F. chokes were found to be superfluous. This arose from the fact that the R.F. currents in the two anode circuits flow in opposite directions, and as far as the external anode circuit is concerned, they cancel each other, and cannot possibly pass on to the next L.F. stage.

After exhaustive tests, however, it was found that some slight leakage occurred, imposing a certain amount of damping on the tuned input circuit. The coils were stripped down and rebuilt. In

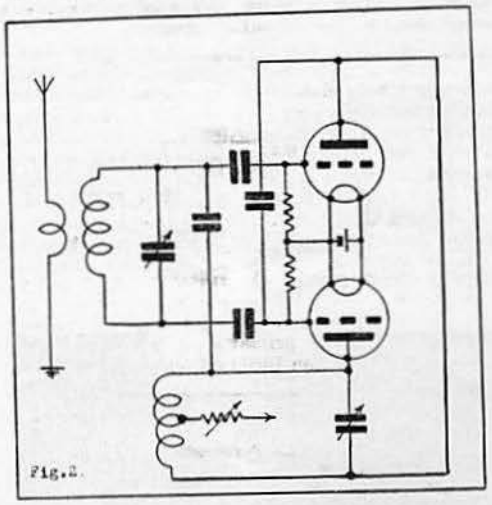


Fig.2.

previous experiments the grid coil had been wound between the reaction and the aerial coil. Splitting the reaction coil reduced the trouble considerably, but some slight damping still existed. Eventually comparative tests with different windings were made on 28 Mc/s. The final version of the coil assembly for this frequency was found to be as near perfection as was possible in the circumstances, having in mind the limited means of quantitative analysis available.

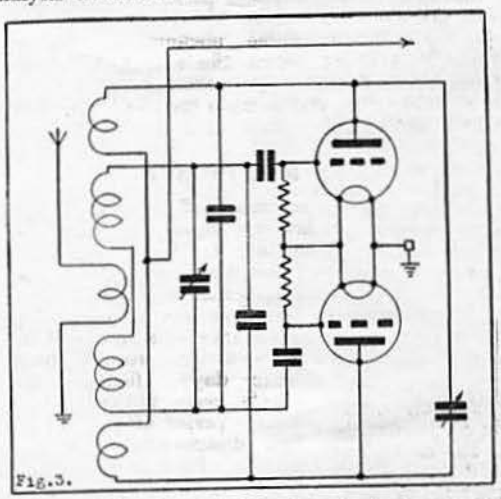


Fig.3.

The aerial coil consisted of a single turn ; the grid coil consisted of four turns, and was wound two turns above and two turns below the aerial coil ; while the reaction coil, consisting of two turns, was wound one turn above and one turn below the grid coil, and a tapping was taken from the exact electrical and mechanical centre of the reaction.

Compared with the usual single-valve detector

(*Continued on page* 42.)

THAMES VALLEY FIELD DAY.

By J. N. Roe (G2VV).

May 26, 1935, will remain a memorable day in the minds of members of the Thames Valley Amateur Radio and Television Society, for on that day our first Field Day Contest took place. Arrangements were in the hands of G6GB, and thanks to his efforts every detail was worked out well before the great day arrived. Three stations co-operated in the activities, G6GB (Station No. 1), G5LC (Station No. 2), and G2VV (Station No. 3). The following are the names of members at each station, together with its location. G6GB at Box Hill, Dorking, Surrey. Staff, G6GB, 5VB, 2ALF, 2ASQ and Mr.

Thames Valley Field Day.
Station G5LC at St. George's Hill, Weybridge. From left to right: G2NN, 6OC, 2YK, 2GK, 6BI and 5LC (seated).

Budd. G5LC at St. George's Hill, Weybridge, Surrey. Staff, G2NN (President of T.V.A.R.T.S.), 5LC, 6OC, 2YK, 2GK, 6BI, 6RS and Mr. Willis. G2VV at The Hog's Back, near Guildford, Surrey. Staff, G2VV, 2LA, 2KI, and Messrs. Clark and Campbell.

Each station was responsible for its own gear, transportation and erection of aerials, etc. G6GB used a COPA rig constructed by himself, employing 6-volt valves and 250 volts wet HT. G5LC used a locked TPTG which he constructed, together with 6-volt valves and 250 volts supplied from dry batteries. G2VV used COPA built for the occasion by G2KI, 2LA and himself, employing 6-volt valves and 250 volts H.T. from dry batteries. Two battery-driven O-V-1 receivers were used at each station, and A.O.G. aerial systems were used on all transmitters.

The contest commenced at 12 noon and closed at 6 p.m. Points were alloted for each contact on the lines of the B.E.R.U. points, the better the DX the higher the number of points. All stations worked only in the 7 mc. band with a maximum input of 8 watts. Actually the highest input employed at any station was 7.5 watts.

G6GB's station worked the best DX of the day, making their first contact with OK. Later in the day they worked OZ, D, F and numerous G stations. They scored the highest number of points, whilst G2VV came second with six points less, having contacted D, F, and several G stations. G5LC with 10 points less than G2VV finished third, they also having worked D, F, and a number of G's.

One point which pleased us was the fact that all stations contacted each other during the day; thus we were able to compare results. Since the contest we have received many reports from BRS, and we take this opportunity of thanking them. All reports will be acknowledged as soon as possible, and all stations worked will receive QSL confirmation. Some BRS logged the three portable stations. It is interesting to note that each station was received well in Scotland.

Following the contest many of the members were entertained by G2GK and YF at Walton-on-Thames, where we had a long wished for wash and brush up, followed by an excellent feed!

All entries were submitted to the Committee after careful checking by G6GB (Field Day Manager), and at the general meeting at Hampton on June 5 prizes were distributed. Thanks to the very kind co-operation of the R.S.G.B. who added another three prizes to our original three, we were able to give two prizes to each station. One prize went to the fully-licensed amateurs at each station and the other to the non-transmitting members, thus giving each a fair chance.

Summing up the results of the Contest we find that QRP communication with a temporary aerial about 15 to 20 ft. high is still possible and enjoyable in these modern days of QRM! 2LA says he got as much punch out of working a D4 in the contest as he does when working a W on 20 meters, and we all agreed!

Before closing this report on our activities, I would like to add a personal vote of thanks to Mr. John Clarricoats and the R.S.G.B. for their interest and assistance in the T.V.A.R.T.S. movement.

Our next Field Day will probably take place in July, when the event of the day will be 100 per cent. 56 mc. work. Some members are working with D.F. gear, and it is our hope that we shall be able to arrange a D.F. Field Day before the end of the year.

We have a membership of close on 50, and over 30 per cent. of this total are active transmitters.

A group at station G2VV at the Hog's Back. From right to left: G2VV, 2LA, 2KI.

The 28 mc.s Band

The improved conditions mentioned last month have been maintained, and in addition real DX has been coming through.

LU1EP was heard on June 9, 13, 16, 22 and 30, and LU9BV on the 16th. The best day was the 16th, when LU1EP was consistently audible from 18.30 until 22.15 B.S.T. These stations, together with LU8DAJ, have also been heard in Ireland.

LU1EP's first European contact was with ON4AU between 21.05 and 21.52 B.S.T. on June 9, when each station was QSA 5 R6/7 T9. LU1EP was using 75 watts and ON4AU 700 watts, although this was later reduced.

Among the stations known to have worked South America are G5LA (first G QSO), G5WP, EI8B, F8OQ, PA0QQ, ON4SD and FA8IH.

On June 16, EI8B worked W1AVV, whilst FA8BG reports hearing American stations on this day, but was unable to make contact.

G6LK heard a K6 one morning. VK3EG heard ON4AU's signals on June 22 at R5. ON4AU heard a harmonic of VKL.

ZB1I is working regularly on 28 mc. between 18.00 and 19.00 G.M.T., and has been heard in G and EI as well as other European countries. He will be glad to arrange schedules with G stations. BERS201 heard G2OT calling test with a QRK of R5/3.

VU2BL is very active and is on daily between 12.00 and 13.00 G.M.T. and between 05.30 and 06.30 G.M.T. on Thursdays and Sundays. Each transmission is for ten minutes, followed by ten minutes listening. He emphasises that these skeds are genuine and desires full support. He has already been heard by D4CAF.

FF8MQ is active and reports QSO's with G5OJ, 2YL, 2HG, 5SO and 5LA and has heard 6HM, 6NF, 6YL and 5VB.

VS6AH will transmit daily at 00.80 G.M.T. So far he has heard no G stations on the band, but has heard commercial harmonics.

X1AY is another station anxious to fix skeds with G.

G5GQ states that if any 28 mc. station in London cares to keep in touch with him by telephone he will be pleased to maintain contact with any DX station on 14 mc. He will thus be able to arrange skeds and details of any tests to be conducted, and we shall know that the two stations are definitely on the air, both transmitting and listening. His telephone number is Pollards 2783.

G6YL has received confirmation of her reception of ZT6K, which was reported last month. Miss Dunn uses an O-v-1 for reception. ZT6K calls test most days at 16.00 G.M.T.

To return to more local work, conditions have been excellent for European and North African working, although communication with most countries is inconsistent from day to day, with the notable exception of the Algerian stations. Skip distance has become much shorter than last month and stations in the North of England and in Ireland are audible in the South.

Finally, are any SU stations working on ten? Harmonics of amateur stations from Egypt are audible, together with harmonics of SUC and SUW. What about some schedules, OM's? E. H. S.

The Brussels Exhibition

Members passing through Brussels will doubtless take the opportunity of visiting the Exhibition. The organised party which is to accompany G5UK in August will be well taken care of, but those visiting the Exhibition alone may find some difficulty in locating the Reseau Belge station.

It is located in the television exhibit, but there is no sign outside to indicate its presence. It is situated near the Marathon gate, which can be reached from the Nord Station by tramcar. The Exhibition itself is open during the morning, but the television section is not open to the public until 2.30 p.m. If one wishes to meet ON4VC it is necessary to ask one of the attendants to arrange it, as the whole of the exhibit, artistes, television, studio, transmitter and receiver, and also the short-wave station, are behind plate-glass windows, and visitors are conveyed past the exhibit on a moving pathway!

The apparatus at present in use is the personal gear of ON4VC and is beautifully constructed on shining aluminium panels and took over two years to complete. It will soon be replaced, however, by the official station ON4WS, which is already on show and will afterwards become the permanent station of the Reseau Belge.

The transmitter is not worked during the hours that the television exhibit is open to the public, but when some technical difficulties have been overcome, it will doubtless be in constant operation.

Apart from the short-wave and television exhibits there is much to interest the visitor. The Exhibition is so large that it is quite impossible to cover the whole of it in a single day. One should on no account miss the "Albertum," a hall of science, one room of which contains numerous working exhibits of cathode ray tube application. Another room in the same building contains some of the original apparatus used by Marconi and valves from the Fleming two-electrode valve onwards. There is also much modern apparatus, including the latest Telefunken direction finders, depth-sounding apparatus and various transmitters. Although not connected with radio, the "Planetarium" is one of the most interesting exhibits, to say nothing of the Nudist colony—but that is another story!

G6ZU.

Empire Calls Heard.

By BERS265 (Hong Kong), June 13-19 :—

7 mc.: g2cl (4.5), 5md (4.5), 2qo (4.6), ve4lk (5.7).

14 mc.: g6ag (4.6), 2ao (4.6), 2as (4.6), 6ba (3.5), 5bj (4.6), 6ku (4.5), 5ml (2.3), 2nm (3.5), 2ol (3.5), 6oy (3.4), 6py (4.5), 2qo (4.6), 6tt (5.7), 6uf (5.8), 2ul (3.4), 6vp (4.6), 6wy (4.5), 2yd (3.4), su1sg (2.3), zd1d (4.6).

By J. R. Cragg, P.O. Box 391, Hongkong :—

7 mc.: vk2ed (3.4.9.), vk3mr (3.4.9).

14 mc.: g2kz (3.3.9), 2nm (4.5.9), 2os (4.6.9), 2sx (3.4.9), 2ul (3.4.9), 2yl (5.6/7.9), 5bj (5.8.9), 5cy (5.6.9), 5vm (4.5.9), 5wp (5.6.9), 6ag (3.4/5.9), 6bq (4.5.9), 6cj (4.5.9), 6gf (3.3/4.9), 6ir (3.3.9), 6jq (5.6.9), 6ku (3.4.9), 6kt (3.4.9), 6ox (5.5.9), 6rs (5.6.9), 6tm (5.5.9), 6tt (4.4.9), 6uf (5.7.9), 6vp (4.5/7.9), 6yl (4.6.9), 6yw (4.4.9), ve5io (4.4.9), vk2el (5.3/5.9), vk5wk (4.5.9), vk7rc (5.6.9), vs1aj (5.7.9), vu2eb (3.3.9), vu2lj (5.7.9), vu2re (3.3.9), zt6k (4.5.9).

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. All correspondence must be accompanied by the writer's name and address, though not necessarily for publication.

A SOLUTION WANTED

To the Editor, T. & R. BULLETIN.

DEAR SIR,—We think members may be interested in the following experience which recently happened to us. We were adjusting a 7 mc. Windom aerial to a 10-watt transmitter, consisting of C.O. and P.A., when the H.T. to the P.A. was switched off, and the aerial clipped on to the P.A. coil, a shunt placed across the centre of the aerial was observed to glow. Upon investigating this, we found the feeder to be earthed. Upon removing the feeder from earth, the lamp went out. We again confirmed that the H.T. to the P.A. was off. In order to duplicate the result, one of us caught hold of the feeder, intending to earth it, and received a severe shock. We have so far failed to ascertain the cause of this. The following facts may assist in forming a possible solution. The P.A. is supplied by a separate power pack giving 350 volts at 90 mills The C.O. runs at 5 watts. The key breaks the H.T.+ lead to the P.A. The mains to the shack are run in by underground cable.

Yours faithfully,
"SHOCKED."

B.R.S. AND A.A. MEMBERS—ATTENTION!

To the Editor, T. & R. BULLETIN.

DEAR SIR,—I should like, if I may, to address a few words to our large A.A. and B.R.S. membership. It may be thought a little late to write in this vein now that the contest season is closed, but I feel that I must appeal to all our non-transmitting members.

Contests are advantageous to our receiving members in many ways. Firstly, the very act of entering a contest is an indirect expression of thanks to those members of the H.Q. staff who take the trouble to organise it. Then again, it shows the membership at large (the BULL goes all over the world) that you are an active member, taking a personal interest in the welfare of the Society.

Furthermore, it keeps alive the spirit that encourages a man to beat his rival. This also aids the less enlightened member to use his humble equipment so as to obtain the best possible results. If you will excuse my being personal, I should like to say that I have entered every 1.7, 3.5 mc. and B.E.R.U. contest, with two exceptions, since I joined the Society in 1930; not with the sole object of gaining a trophy, but to express my gratitude to the organisers.

The real reason, however, why I am writing is this. These contests are in danger of being discontinued, and on behalf of those of us who have entered for them consistently year after year, I appeal for more support in the future. By means of these contests receiving members feel themselves of some account—so join in and show H.Q. that their efforts have not been wasted.

The above is not the only way to justify your membership; there are many others. Unfortunately there is an idea amongst the more serious members that we, as a whole, are useless to the Society except from the financial standpoint. We are considered "foto for foto" and QSL hounds. Those notions must be dispelled, and it is up to you, OM's, to prove them wrong.

There are several R.E.S. groups to which you can attach yourselves, also the Band Occupancy Group. All of us cannot join R.E.S., but look through your BULL, where requests for reports of tests will nearly always be found. Then there are Morse Tests. Some serious transmitting members spend much of their leisure in transmitting tests for those who are in need of them. How many of those transmitters have been thanked?

Therefore, OM's, please let these friends of ours know that their labour has not been in vain. My last appeal is: Get down to it in one way or another, and don't be passengers. Just ask yourselves, "With what object in view did I join the Society?"
—Yours faithfully,

P. SEYMOUR (2AZX).

Gosport, Hants.

WE INVITE OPINIONS.

To the Editor, T. & R. BULLETIN.

DEAR SIR,—Wherever the subject of short-wave receivers is raised, whether in amateur magazines or in conversation, it appears inevitable that comparisons shall be made between the straight and superheterodyne receiver.

As many of our members have had considerable experience with both types of receiver, may I suggest that some of their opinions regarding their respective merits and disadvantages would be of general interest. The opinions of those who have not used both would be of little value.

While not wishing to express any view myself, I have yet to hear of an amateur who, having used a single signal superheterodyne, has reverted to a straight receiver, and although wonderful performance has been claimed for single-valve receivers, I have yet to see one in constant use at an amateur station, although I understand one of our leading humorists will use no other.—Yours faithfully,

R. H. JACKSON (G6ZU).

Empire Calls Heard

BRS1173 (Heathfield), March and April :—

3.5 mc.: zl2bc.

7 mc.: velfy, vk2er, pt, px, zllby, hy, 2ab, bl, bn, bz, cy, ki, ko, 1b, 1n, 1q, mo, mm, 3ab, bv, bj, cz, dj, fg, jn, 4bq, fk, ft.

14 mc.: sulaq, fs, ro, velaq, bh, bv, ci, dg, do, dr, ea, ee, et, ge, gh, hg, 2aa, ab, ax, bb, bd, ca, ch, dm, dv, ee, fq, sf, 3hf, 1j, nh, or, ji, ug, 4du, ku, jv, vk2eo, 3es, voll, p, vp2at, bx, by, cd, 4ta, 5ab, pz, 6mo, yb, 9r, vq4crj, crl, crp, vslaj, 6aq, vu2eb, zeljb, zble, c, h, zc6ff, zslh, zu6e.

Stray.

Mr. J. C. Elmer (G2GD) informs us The British Ebonite Co., Ltd., recommend that when an ebonite panel is scratched the best method of restoring the surface is to matt it down with a very fine emery and polish with Bluebell applied with a cloth mop. Swansdown should be used finally to bring up the polish.

NEWS AND VIEWS FROM 53.

Society Trophies

Council have much pleasure in announcing that Challenge Trophies have been awarded to the following members for the year 1935-6.

Rotab.—To Mr. H. A. M. Whyte (G6WY), in recognition of outstanding work in connection with the E.L.S. network.

Wortley-Talbot.—To Mr. G. McLean Wilford (G2WD), in recognition of his technical contributions to the T. & R. BULLETIN.

Courteney Price.—To Mr. F. Charman (G6CJ), in recognition of his numerous contributions to the Society's Research and Experimental Section.

1930 *Committee.*—To Mr. R. A. Bartlett (G6RB), winner of the 3.5 mc. Transmitting Contest.

Somerset.—To Mr. H. B. Old (G2VQ), winner of the 1.7 mc. Transmitting Contest.

No award has been made in connection with the Somerset Goblet or the Powditch Transmitting and Receiving Trophies. It is anticipated that the Powditch 28mc. Transmitting Trophy will be awarded to the leading British station in the International 28 mc. Contest.

Stand 202—Olympia

The Society have been fortunate in securing the same stand at Olympia as that allocated last year.

Members who are willing to offer their services for stand duty at any time during the Exhibition period are requested to notify the Secretary as early as possible. The duty periods will be from 10.45 a.m. to 2 p.m., 2 p.m. to 6 p.m., 6 p.m. to 10 p.m.

Provincial members who wish to pay subscriptions or order Society publications, etc., are requested to do so at Olympia or at Headquarters and not during Convention.

The Secretary will be in attendance at the stand most evenings and at certain hours each day, except August 23 and 24.

Overseas members who intend to visit Olympia on one or more occasions are invited to advise Headquarters of the day and time they will be present, in order that a list may be prepared in advance. This will enable other members to arrange meetings if desired.

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

The visitors' book should be signed by all attending. One corner of the stand will be devoted to a display of members' QSL cards. On arrival please hand your card in and ask for it to be pinned up to show you have been a visitor.

Convention Dinner

Members only are permitted to attend this function, except in special cases, when the name of the intending visitor must be communicated to the Secretary not later than August 21.

R.M.A. Exhibition.

Council regret that they are unable to supply complimentary tickets for this year's London exhibition.

We have been advised by the R.M.A. that the price for such tickets has been increased to 15s. per 20. At this price we do not feel justified in making a free distribution as has been the case in recent years.

Secretary's Vacation

Our Secretary expects to be on vacation from August 29 to September 16. Members are asked to keep correspondence down to a minimum during that period. Normal routine matters will, of course, be handled as usual.

Appreciations.

We wish to record our thanks to Capt. A. E. Dyson (G6NJ) for checking the leading B.E.R.U. Contest entries and also for preparing the Index to our last volume.

Recent Affiliations

We are pleased to announce that the Ottawa Amateur Radio Transmitting Association has been granted Honorary Affiliation with the B.E.R.U. Societies. Until such time as a Canadian National Society exists, it will be our pleasure to grant Honorary Affiliation to all local amateur radio Canadian Clubs and Associations.

The Kohat District Signals Amateur Radio Club of Kohat, India, have become affiliated to the R.S.G.B. This Club is unique in that its membership is limited to a total of 8 members and 6 honorary members. It is, of course, a Service Club.

A Society Tie

For some while a demand has existed for a distinctive Society tie, but for various reasons it has not been possible to meet it. We now have pleasure in announcing that, thanks to the co-operation of Mr. L. B. Fuller (G6LB), a special tie is available, the design for which has been approved by Council. Made of navy blue silk, the Society's badge has been worked into the pattern in gold, giving a most pleasing effect.

The retail price is 5s. 6d., post free, available from *Fullers (Menswear), Ltd.*, 85, High Street, Chelmsford, Essex, or from R.S.G.B. Headquarters.

Standard Frequency Transmissions.

Mr. L. Parfitt (G6PF) asks us to mention that the U.S.A. Bureau of Standards Station WWV is giving a standard frequency transmission every Tuesday and Friday on 15 mc. from noon to 1 p.m. E.S.T. This is followed by a 10 mc. transmission from 1.15 p.m. to 2.15 p.m. E.S.T., and a 5 mc. transmission from 2.30 p.m. to 3.30 p.m. E.S.T. The 15 mc. transmissions in particular are received in Great Britain at good strength, and are useful for checking frequency meters.

Scottish Executive Changes

For over 11 years the Society has been in the fortunate position of having as its honorary Scottish manager Mr. Jack Wyllie, G5YG, of Glasgow. During this long period Mr. Wyllie has succeeded in increasing the Scottish membership roll from a mere handful to nearly 200—an achievement which speaks for itself.

Mr. Wyllie has been able to build up a local organisation second to none, therefore the news of his impending resignation from the post of honorary Scottish manager came as a blow to those who are best able to judge the magnitude of his self-imposed task. Mr. Wyllie's resignation has been brought about through poor health but we are pleased to be able to announce that he has offered to continue to give his advice to the Scottish membership and to Council, in his capacity as Resident Vice-President.

On Mr. Wyllie's recommendation the organisation of Scottish affairs will pass into the capable hands of Mr. James Humber, G6ZV, who will be known as the Scottish Records Officer.

We cannot adequately express in words our deep gratitude to Mr. Wyllie for all he has done in the past but we feel sure that he will accept our assurance that his efforts have gone a very long way towards placing the Society, and Scotland in particular, upon the amateur radio map.

28 Mc. Calls Heard.

We have been inundated with lists of calls heard on 28 mcs., but in view of the fact that the vast majority are Europeans or North Africans we do not consider publication is warranted.

Most of these stations have already been worked by British stations and, furthermore, the number of foreign amateurs who would be likely to see their calls published in this journal is very small.

Lists of DX stations heard will be considered for publication providing the stations in question have not been worked from Great Britain.

Miss Dunn, G6YL, informs us that several of the German stations working on this band altered their calls in June. This may cause some confusion with the scoring for the International Contest. Two examples are D4BAR, who is now D4ARR, and D4CAF who is now D4GWF.

All items of news for inclusion in the 28 mc. notes prepared by Mr. E. H. Swain, G2HG should reach him *direct* by the 25th of each month.

The 3·5 Mc. Band.

We wish to thank all who have expressed their appreciation to Council for having obtained better operating facilities on the 3.5 mc. band.

A Silent Key.

It is with very deep regret that we have to record the passing of Mr. H. Garfarth, G2BM. Although a non-member of the R.S.G.B., he was well known to a large number of amateurs in England and abroad. His station had a fine record of DX working.

QSL Section.

Manager: J. D. Chisholm, G2CX.

In a recent letter, Mr. Martin (GI5HV), QSL Manager, R.T.U., has asked us to bring to the attention of Northern Ireland members the fact that a great amount of trouble is caused to him by envelopes of very large size or of the usual commercial dimensions being sent for the collection of cards.

The R.S.G.B. QSL section has suffered considerably from this in the past and can appreciate GI5HV's difficulty. It may not seem very important to individual members, but when hundreds of envelopes are packed together the annoyance of trying to find envelopes of visiting card size amongst those of paper-bag type is understandable. (Regulation size, 6 ins. by 4½ ins.)

Mr. Martin states that some of his members are rather slack in collecting their cards and would be glad if his file of unclaimed cards could be reduced.

An interesting illustration of a point which is constantly being stressed in these columns has been afforded us by a recent letter from the Norwegian phone station, LA1G.

He complains bitterly of the trouble to which he is put by the great number of useless listeners' reports received, and quotes some figures to show how bad the nuisance has become. These are given for the benefit of those newer members who may not be aware of the reason for the apparent lack of courtesy on the part of transmitters who do not reply to report cards.

LA1G receives an average of 50 cards from listeners per week, and in a period of six months amassed the total of 400 *from U.S.A. alone!* He tells me that his stamp bill in reply to these listeners' cards came to the sum of £4. As a consequence of the expense and trouble involved, he will reply in future only to those who enclose International Reply Coupons.

This case is undoubtedly abnormal as LA1G is an extremely active station—nevertheless it will give some idea of the futility of reporting phone signals especially if of good strength. One would think it would be obvious that the only stations likely to need reports at all are those who are very weak or inconsistent, but it is only necessary to glance through any outgoing cards to U.S.A. to see that the majority of listeners have not yet realised this. The loudest W and the most reliable produces the biggest crop of reports.

Believe us, you will save yourself the trouble of writing wasted cards; ourselves the trouble of sorting them; and the transmitter the trouble of throwing them in the wastepaper basket, if you take this to heart.

R.S.G.B. Slow Morse Practices

A schedule of dates, times and frequencies of the stations sending slow Morse for the benefit of those members wishing to learn the code is given below. 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. More reports will be appreciated and are desired in order to ascertain range of transmission and number utilising the service. Stations willing

to assist on the 1.7 mc. band—particularly from those districts at present without a service—are invited to communicate with Mr. T. A. St. Johnston (G6UT), 28, Douglas Road, Chingford, E.4 (Telephone, Silverthorn 2285). Reports of reception of the 7 mc. transmissions, whether from learners or non-learners, are requested.

SCHEDULE OF SLOW MORSE TRANSMISSIONS.

Date, 1935.		B.S.T.	Kcs.	Stations.
July 14	Sunday	00.00	1761.5	... G2WO
,, 14	,,	09.30	1785	... G5BK
,, 14	,,	10.00	1850	... G6VD
,, 14	,,	10.15	173λ	... G5UH
,, 14	,,	10.30	1911	... G2JL
,, 14	,,	11.00	7104	... G6PI
,, 14	,,	11.30	1761.5	... G2WO
,, 14	,,	12.00	7102	... G5GC
,, 21	,,	00.00	1761.5	... G2WO
,, 21	,,	09.30	1785	... G5BK
,, 21	,,	10.00	1850	... G6VD
,, 21	,,	10.15	173λ	... G5JU
,, 21	,,	10.30	1911	... G2JL
,, 21	,,	11.00	7104	... G6PI
,, 21	,,	11.30	1761.5	... G2WO
,, 21	,,	12.00	7102	... G5GC
,, 28	,,	00.00	1761.5	... G2WO
,, 28	,,	09.30	1785	... G5BK
,, 28	,,	10.00	1850	... G6VD
,, 28	,,	10.15	173λ	... G5UH
,, 28	,,	10.30	1911	... G2JL
,, 28	,,	11.00	7104	... G6PI
,, 28	,,	11.30	1761.5	... G2WO
,, 28	,,	12.00	7102	... G5GC
Aug. 4	,,	00.00	1761.5	... G2WO
,, 4	,,	09.30	1785	... G5BK
,, 4	,,	10.00	1850	... G6VD
,, 4	,,	10.15	173λ	... G5JU
,, 4	,,	10.30	1911	... G2JL
,, 4	,,	11.00	7104	... G6PI
,, 4	,,	11.30	1761.5	... G2WO
,, 4	,,	12.00	7102	... G5GC
,, 11	,,	00.00	1761.5	... G2WO
,, 11	,,	09.30	1785	... G5BK
,, 11	,,	10.00	1850	... G6VD
,, 11	,,	10.15	173λ	... G5UH
,, 11	,,	10.30	1911	... G2JL
,, 11	,,	11.00	7104	... G6PI
,, 11	,,	11.30	1761.5	... G2WO
,, 11	,,	12.00	7102	... G5GC

NEW MEMBERS.

W. S. ELLIOTT (G6LX), 222, Eastfield Road, Peterborough.
J. MCINTOSH DAVIE (2BDI), 75, Beresford Road, Chingford, E.4.
A. H. COOPER (G5IN), "Appledore," Syke Ings, Iver, Bucks.
F. D. WOODCOCK (G5WK), Hun Wood Cottage, Apperley Lane, Apperley Bridge, near Bradford, Yorks.
H. DAVIES (BRS1872), "Bettws-y-Coed," 19, Uplands, Pontardawe, Swansea.
R. CHADBONE (BRS1873), "Hilderslea," Cryershill, Hugenden, near High Wycombe, Bucks.
C. DAVIES (BRS1874), 92, Muriel Road, Norwich.
R. J. BAKER (BRS1875), 28, Spear Road, Southampton, Hants.
R. A. PERRYMAN (BRS1876), 33, Catharine Street, Liverpool 8.
S. PLATT (BRS1877), 11, Springwood Avenue, Shaw Heath, Knutsford, Ches.
A. J. WEBB (BRS1878), 12, Mervyn Road, Bishopston, Bristol 7.
D. N. FORD (BRS1879), 15, Gandy Street, Exeter.
H. J. C. FIRTH (BRS1880), Akenside Villa, Jesmond, Newcastle-on-Tyne.
G. S. FOWLER (BRS1881), Ingleside, Goestling Hill, Hastings, Sussex.
P. E. HUXTABLE (BRS1882), 5, Thorney Hedge Road, W.4.
M. C. BUNTING (BRS1883), "Rhuaine," 40, Clarendon Square, Leamington Spa.
L. GODDARD (BRS1884), 31, Horsenden Crescent, Sudbury Hill, Greenford, Middlesex.
C. A. V. HEATHCOTE (BRS1885), Farthing Lane, Curdworth Birmingham.
C. FRANCIS (BRS1886), 46, Malvern Terrace, Swansea, Glam.
F. C. EDWARDS (BRS1887), 15, Noel Street, Forest Side, Nottingham.
J. B. BATTY (BRS1888), Blythe Cottage, Town Foot, Hawes, Yorkshire.

DOMINION AND FOREIGN.

C. M. BEARD (VQ8B), Eastern Telegraph Co., Ltd., Ascension Island.
J. PARKER (VU2AE), W.D. Signals, Dera Ismail Khan, North India.
R. M. HALL (VU2EM), Indian Police, District Superintendent Police, Akyab, Burma.
F. A. MARR (ZE1JC), Native Affairs, Gokwe, *via* Que Que, Southern Rhodesia.
A. S. ANDREWS (ZE1JU), P.O. Box 475, Bulawayo, Southern Rhodesia.
B. CHAPMAN, c/o Burns Philip (S.S.) Co., Ltd., Makambo, British Soloman Islands.
W. R. SHORE (BERS291), c/o Mombasa Municipal Board, Municipal Offices, P.O. Box 440, Mombasa, Kenya Protectorate.
J. COLERIDGE (BERS292), P.O. Box 6246, Johannesburg, South Africa.
B. T. T. POOK (BERS293), R.A.F. Station, Singapore, Straits Settlements.
H. E. CORNISH (BERS294), Dept. Posts & Telegraphs, Alor Star, Kedah, Malaya.

QRA Section.

Manager: M. WILLIAMS (G6PP).

NEW QRA's.

G2BY.—H. E. WHATLEY, 9, Teesdale Gardens, Busch Corner, Isleworth, Middx.
G2DK.—A. EBURNE, Bck/211, Walsgrave Road, Stoke, Coventry, Warwickshire.
G2MN.—M. NICHOLSON, 78, Wroxham Road, Sprowston, Norwich.
G2NH.—E. A. DEDMAN, 75, Woodlands Avenue, Coombe, New Malden, Surrey.
G2TU.—R. H. STEVENS, 9, Hillcrest Gardens, Dollis Hill, London, N.W.2.
G5AU.—E. J. ALWAY, 50, Canford Road, London, S.W.11.
G5IX.—W. A. DIX, 18, Harvey Lane, Norwich.
G5MY.—H. MEE, "Kirkfield," Cross Street, Long Eaton, Derbyshire.
G5PB.—N. L. H. PLATT, "Sandown," Chestnut Avenue, Barton-on-Sea, Hants.
G5VD.—J. DALE, 20, Bromley Road, Birkby, Huddersfield.
G5WO.—C. F. WOODWARD, "Greenways," York Avenue, Compton, Wolverhampton.
G6AB.—A. P. KERFORD-BYRNES, "Haywire," Preston Road, Holland-on-Sea, Essex.
G6HZ.—J. E. A. HUSCHMAN, c/o Mrs. DUGGAN, 102, Attleboro Road, Moston, Manchester, 10.
G6LL.—J. W. MATTHEWS, "Woodlands," Tolmers Road, Cuffley, Herts.
G6PP.—M. WILLIAMS, 7, Woodberry Down, Finsbury Park, London, N.4.
G6PQ.—K. PANTON, 92, Victoria Avenue, Hull, Yorks.
G6QP.—J. OXLEY, 17, Wellington Street, Edinburgh, Scotland.
G6SN.—E. SHACKLETON, 7, Borth Avenue, Mile End, Stockport, Cheshire, or 32, Bolling Road, Ben Rhydding, Ilkley, Yorks.
G6UB.—S. W. J. BUTTERS, 84, Guy Road, Beddington, Wallington, Surrey.
G6UX.—A. SIMMONS, 13, Gopsall Road, Hinckley, Leicestershire.
2ARI.—K. E. ARIS, 9, Oak Avenue, Hornsey, London, N.8.
2AXM.—F. A. MILNE, 38, Edgehill Road, Broomhill, Glasgow, W.1.
2AXX.—J. ALEXANDER, 63, Tennyson Road, Small Heath, Birmingham, 10.
2BAJ.—H. ODLE, 58, Avonmore Road, London, W.14.
2BGO.—F. H. GOLDSMITH, 237, Croftpark Avenue, Glasgow, S.4.
2BIK.—R. S. MEAKIN, "Birtle-Dene," Balcarres Road, Leyland, Lancashire.
2BMV.—D. F. WADDINGTON, 9, East Shrubbery, Redland, Bristol, 6.
2BNC.—E. W. G. SAINTY, 23, Albert Road, Witham, Essex.
2BVJ.—C. T. MALKIN, 5, White Hill Terrace, Dodworth Road, Barnsley, Yorks.
2BYF.—D. W. MILNE, Junr., 37, Harcourt Road, Aberdeen, Scotland.

The following are cancelled: 2AXU, 2BBR, 2BTP.

World Friendship Society of Radio Amateurs.

We are asked to mention that Mr. D. Magill, W9DQD, has instituted a society to be known as the World Friendship Society of Radio Amateurs. Interested members should communicate with the founder at 730N 6th Street, Grand Junction, Colo., U.S.A.

DX CHART No. 8

DX CONDITIONS: MAY 15 TO JUNE 15, 1935.

G.M.T.	14 mc.	7 mc.
0100		W1
0200		W2
0300		W1
0400	**W5.6.7**	**W1**
0500	**W5.6.7 ; K5 ; LU ; ZT ;** HC ; PY ; VK7	**W1.5 ; K5 ; X2**
0600	**W5.6.7 ; VE5 ;** K6 ; VE5	ZL
0700	W6.7 ; ZB ; LU	ZL
0800	**SU**	
0900		
1000		
1100	**K4**	
1200	YI	
1300	W5	
1400	**YI**	
1500	**W6 ; 7 ;** PK ; VS1	
1600	W6 ; VU	
1700	**VS1 ; SU ;** VU	
1800	**VQ8 ; ZC6 ; VS1**	
1900	**VU ; VQ8 ;** VQ4 ; PY ; ZB ; ZD ; VQ3	
2000	**VP2 ; PY ;** W6 ; YI ; TF ; ZB	
2100	**VP2.6 ;** CX ; K4 ; VE4 ; TI	
2200	**LU ; PY ; CX ;** VP2 ; HP ; W6	
2300	**W5 ;** VP6 ; LY1 ; K4.5 ; LU ; PY	
2400	LU ; PY ; K4	

W1.2.3.4.8.9. Normal on 14 mc. between 1400 and 2400 G.M.T.

Bold type indicates strong signals.

Ten Metre Calls Heard

From May 14 *to June* 26. *G6DH* (*Great Clacton, Essex*).

oe3wb*, 1fh*, 1er*, ok1aw*, 1aa, 2ak, 3va*, d4bar, 4bdf, 4cnf, 4bmj, 4cfa, 4aau*, 4arr, 4gwf*, 4pkj, ym4dsh*, 4zo*, fa8ih*, 8cr*, 8bg*, on4au, f8rq, 8ct*, 8np, 3ar*, 8kk*, 8wk, 8pk*, 8wq*,, 8ky, 8vi, pa0qq, ej8b*, 5f?, g6nf, 6rh, 5fv.

* Denotes QSO.

LA1G

The operator of the Norwegian station LA1G, of Oslo, is the latest to advise the amateur organisations of the world that unless international reply coupons are sent he cannot acknowledge QSL cards. Since August, 1934, he tells us that his postage bill for QSL replies has amounted to over £4. We hope our BRS members will note this paragraph.

G6LL.

Mr. and Mrs. J. W. Mathews wish to offer their thanks to all members who sent them good wishes on the occasion of their marriage last month. Their honeymoon was spent in Devon and Cornwall, when the opportunity was taken to visit G5SY, G5VL and other District 6 stations.

BOOK REVIEWS.

PHOTO-ELECTRIC AND SELENIUM CELLS. Their operation, construction and uses. By T. J. Fielding. 140 pages and 74 illustrations. Published by Chapman & Hall, Ltd., London. Price 6s. net.

The author sets himself the task of explaining the theory in such a manner as to be readily assimilated by the average practical man or student. His treatment of the subject is very practical throughout, and he keeps the amateur experimenter well in mind.

After a preliminary chapter on the photo-electric effect, an explanation with full practical detail is given of the home manufacture of selenium cells.

The use of amplifiers operating from batteries, AC or DC mains is described, and constructional details are given of a two-stage amplifier.

An interesting chapter is that dealing with the photo-electric response to different colours, and the relative emissions of sodium, rubidium, potassium and cæsium are shown for various light wavelengths. Another interesting section deals with the cuprous oxide photo-cell, which gives a much higher output than the more orthodox types and may be used to operate a relay without the use of an amplifier.

Many "home" experiments are described, by means of which the reader may become familiar with the operation of cells; these experiments are of an elementary nature and should present no difficulties.

The remainder of the book is descriptive, and deals with television, talking pictures, industrial applications, the photo-cell gramophone advertising and several ingenious applications of the photo-electric effect.

T. P. A.

COMING ALONG. 4d. Quarterly. Edited and published by Alex. J. Philip, "Lodgewood." Windmill Street, Gravesend, Kent.

The direct appeal of this periodical, which is excellently printed and produced, is to boys and girls between the ages of 7 and 17. To cater for one of the sexes alone between these very important years of a child's life is no easy task, but the difficulties in the way of making an appeal to both boys and girls would seem to be unsurmountable. The editor has, however, acquitted himself nobly of his task, and has produced an eminently interesting magazine. Its object is to induce a wider reading of books, and a bibliography appears after every article.

The subject matter embraces every phase of activity between flying and writing, but the aim of the publication is to encourage not so much the active participation in these subjects as the reading about them in books suggested by the bibliographies.

Although the current issue contains but the most fleeting of references to wireless, there can be no doubt that this magazine offers an excellent opportunity for initiating the younger generation into the pleasant avenue and byways of Amateur Radio.

We hesitate before criticising the first issue of a work which is deserving of great praise, but we should like to make just two suggestions. The first, that the colour of the cover be changed from its ungenerous yellow to a gentler hue; the second, that the text be relieved by more illustrations.

M. W.

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), Durham, and Northumberland (Middlesbrough is in this district.)
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.)
MR. H. B. OLD (G2VQ), 3, St. Judes Avenue, Mapperley, Nottingham.

DISTRICT 5 (Western).
(Hereford, Oxford, Wiltshire, Gloucester.)
MR. W. B. WEBER (G6QW), 2, Balmoral Road, St. Andrews, 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., Bucks., Cambs., Herts. and Hunts.)
MR. G. FEATHERBY (G5FB), 30 Lindsey Road, Bishops Stortford, Herts.

DISTRICT 9 (East Anglia).
(Norfolk and Suffolk.)
MR. H. W. SADLER (G2XS), Redways, Wootton Road, Gaywood, King's Lynn, Norfolk.

DISTRICT 10 (South Wales and Monmouth).
Capt. G. C. PRICE (G2OP), The Mount, Pembroke Dock.

DISTRICT 11 (North Wales).
(Anglesey, Carnarvon, Denbighshire, Flintshire, Merioneth, Montgomery, Radnorshire.)
Mr. T. Vaughan Williams (G6IW), "Malincourt," Grosvenor Ave. Rhyl, Flintshire.

DISTRICT 12 (London North).
Mr. S. BUCKINGHAM (G5QF), 9, 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 and Middlesex).
MR. H. V. WILKINS (G6WN), 81, Studland Road, Hanwell W.7.

DISTRICT 16 (South-Eastern).
(Kent and Sussex).
MR. A. O. MILNE (G2MI), "Southcot," Larkfield, Kent.

DISTRICT 17 (Mid-East).
(Lincolnshire and Rutland.)
MR. A. E. LIVESEY (G6LI), Stourton Hall, Horncastle, Lincs.

DISTRICT 18 (East Yorkshire).
(East Riding and part of North Riding.)
MR. T. WOODCOCK (G6OO), "Conakry," Cardigan Road, Bridlington.

SCOTLAND.
MR. JAMES HUNTER (G6ZV), Records Office, 51, Camphill Avenue Langside, Glasgow.

NORTHERN IRELAND.
MR. W. GRAHAM (GI5GV), 5 Ratcliffe Street, Donegal Pass, Belfast

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

DISTRICT 1 (North-Western)

AN attendance of 17 was recorded at the last Manchester meeting. The following stations report:—2AXH building battery S.S.S.; 6GV building QRO gear and working 56 mc.; 2DF building new TX using 59 tritet and still fighting neighbours; 2KY active on 14 and 7 mc.; BRS1549 applying for A.A. ticket; 5LR active on 14 and 7 mc.; 6TL, ex 2AYA, active on 1.7, 7 and 14 mc.; 5PX now joined RES group 1F, active 1.75, 7 and 3.5 mc.; 6ZU reports working his first W5 and 6 on 14 mc.; 2BJG building CO, FD, PA rig; BRS1643 building 56 super reg. receiver; 5YD wants skeds on 1.75 mc. with duplex fone stations, also skeds on 56 mc.; BRS1705, BRS1504 and 2ACP report active on reception; 2OI busy on 1.75 duplex, also good DX on 14 "break in" with W & VE, CX, LU, PY, receiving R8 reports from VE and W on fone. G6HZ welcomed fra bonny Scotland and hopes to be on the air soon.

We thank G2IN for collecting the following reports in his area; BRS1422 has been spending most of his time listening on 14 mc.; 1422 listens more than any other amateur in the North, being unfortunately "shut in," and carries out some very useful work; 2AIO working on tritets using 59 tunes; 6KY re-building and hopes to be on the air by the time this is in print; 2AMQ learning code and starting up on 56 mc. reception; 5ZR conducting microphone tests is active on 1.75 mc.; 5OP active on 1.75 mc. 2IN built complete new rack transmitter 50 watts on 20, 40, 80 and 10 watts on 1.75, putting some good fone out on the 1.75 mc. band, also had seven QSO's on fone with U.S.A. on 14 mc., receiving reports of R6-R9. This station is also very busy on 56 mc. and requires skeds both reception and two-way working. Will all interested please note and write G2IN, Southport; hoping to give details of a new speech amplifier soon. G5ZI, late of Bradford, is working in co-operation with 2IN in all tests and operations from 2IN's station, having taken up residence in Southport, BRS1579, 1801, 1614, 5IZ, 2BZX, 6AX, 6QA. 2KY, 5ZN, 5CH, 6VN all report active. 6ZS. 6QA, 6AX have all been bitten by the superhet. bug. 5OZ is still inactive, due to septic arm. 2WQ and 2DH both busy on 14 mc. when time permits.

All who attended the field day had a really fine time in spite of rain all day Sunday. Thanks are extended to those stalwarts who helped rig up the gear and carry the loads up the hill on the Friday and Saturday; also to those who helped to operate and subscribe to the day's activities. Members staying over the night were: 2OI, 6GV, 2GA, 2HM, 6ZU, 5RX, 2AXH, 2ACP, 1549, 2BJG, 1504, Visitors and other helpers included 2BVP, 1579, 1743, 2JC, 5YD, 5CH, 1236, 2BK, 1502, 2WQ, 6ZS, 6AX, 5VN, 2HL, 2DF, 5SO, 2AAF, 1774, 5TH; one or two forgot to put down their names.

An electrical storm occurred on the Sunday, starting at about 17.00, and it was impossible to listen from that time until the end of the contest, owing to electrically charged drops of rain falling on the tent and aerial sounding like motor ignition. Did any other district experience this effect?

The N.W. Provincial meeting will be held in Manchester at the Grand Hotel, Aytown Street, off Piccadilly. Members will meet at the hotel at 12.00, dinner 12.30, business meeting about 14.00, tea about 16.30; visit to Agrecroft Power Station or other places of interest afterwards.

NORTH-WESTERN PROVINCIAL MEETING

SUNDAY, JULY 21st, 1935

at

The Grand Hotel, MANCHESTER

Assemble	12 noon.
Lunch	12.30 p.m.
Meeting	2.0 p.m.
Tea	4.30 p.m.
Station Visits	5.15 p.m.

Inclusive Charge 5/-

Reservations to G2OI, not later than July 17th.

Will all those able to attend please drop a line either to G6TW or G2OI? Don't forget this is your own meeting and we would like to show HQ's that this district is very much alive.

Tickets for above, including dinner and tea, 5s. Please make an effort to attend. Members from any other district are invited to join us on this day, and a big welcome is again offered to our Yorkshire friends, and the men from North Wales. Please write as early as possible so that the C.R. can arrange for the catering and station visits.

G5YD would welcome assistance from anyone who can arrange transmitting skeds on 56 mc. to form a group on this frequency.

Twenty-one members attended the Liverpool meeting in June, which was an excellent attendance considering the weather, all those present having braved a small cloudburst to attend.

Most of the local stations are active in different directions and it is not proposed to give details of individual activities this month owing to the amount of space taken up by the Manchester notes!

DISTRICT 2 (North-Eastern).

Reports from the northerly areas of the district show that the stations there are actively interested in amateur radio. A portable station was operated during N.F.D. in the Stockton and Middlesbrough district under the call G2FO. The 7 mc. band alone was used and most of Europe was worked and also W1 and W3. The H.T. supply was obtained from a generator driven by G2FO's bicycle, and the necessary pedalling was so arduous that the contacts were obliged to be limited to two minutes! A new super T.X. has been built by G5XT; congratulations are offered to him and Mrs. XT on the arrival of a junior op. A Windom is being tried out by G6ZT; G2HZ is still at Cambridge; 2BQO is testing CO PA circuits; and G2FO trying tri-tets. The new receiver recently built by 2ARB has been found to be a great improvement.

Members are invited to the visit to Cullercoats Radio Station on July 21 at 6.30 p.m., which will be made instead of holding the usual meeting. Many good DX contacts are reported by G5QY, who has been very active on 7 and 14 mc. A matched impedance, twisted feeder, antenna, has been used by G6IR, and battery H.T. and an end on Hertz by G2YV, who both report satisfactory operation.

An E.C. oscillator has been added to the T.X. of G2LD, who finds the note much improved. The N.F.D. was voted a success by the operating section, and a fairly good score was made, and all members who contributed to its working are warmly thanked. A call by the military authorities, to take part in some manœuvres, prevented G2LD from attending the Conventionette, and his apologies are tendered for being unable to represent his area there. Best wishes are sent to G6US and YF on the acquirement of a YL second op.

The meetings of the Darlington members are occupied by Morse practices and talks on general radio principles; G2HZ is to present one or two papers at future meetings. The enthusiasm here is very great and two of the A.A. members hope to be on the air shortly with full licences.

The chief items in the Leeds and Bradford areas during the month were N.F.D. and the Conventionette. The former went off according to plan, due to the work put in by a small group of enthusiastic workers. Contacts were generally not too easily secured, and the total of 50 QSO's was made by steadily making contacts of a low scoring value fairly regularly. The best DX was W1 and the 7 mc. band was used solely.

The Conventionette was held at Leeds on June 23, and 40 members attended. Reports of activities in the various areas were presented by the D.R. and area managers, and our Secretary kept us well informed of current affairs at H.Q. in connection with licences, policy, convention and amateur radio generally, in an address given in his inimitable style. During his week-end in Yorkshire, Mr. Clarricoats, in company with Messrs. Parry (G6PY) and Dyson (G6NJ) was given the opportunity of visiting the Hickleton Main Colliery near Rotherham. This visit was arranged by Mr. Butler, G2QF, and the party were taken below by Mr. Broomhead, the colliery manager. The pit visited is over 800 yards deep and is one of the most modern in the country. This opportunity is taken of thanking Messrs. Broomhead and Butler for their assistance.

The Bradford area welcomes G5WK as a new member, and reports on his signals on all bands will be welcomed with thanks.

Reports for District Notes from area managers should reach G6KU by the 20th of the month.

DISTRICT 4 (East Midlands).

The Nottingham group met recently to discuss the 1936 N.F.D. It was arranged that Notts and Derby members would prepare a " B " station in good time and retain the gear for other District field days. The gear required will be subscribed by members either in cash or in kind. A start will be made at a meeting to be held in September. All offers of help should be sent to G2IO or G2SD, the C.R.'s.

DISTRICT 5 (Western)

The Bristol Section held their usual monthly meeting during June, the main business being to receive a report from the newly-formed Social Field Day Committees.

A technical committee was also formed for the purpose of organising discussions and instructional talks.

A most successful Field Day held on June 16 was well supported both by the Bristol and Gloucester Sections, the hidden transmitter being finally located at Shepherds Patch.

A general " chew rag " and tea was held afterwards at Woodchester House and a further event has been arranged for July.

The Oxfordshire C.R. reports activity still well maintained in his county.

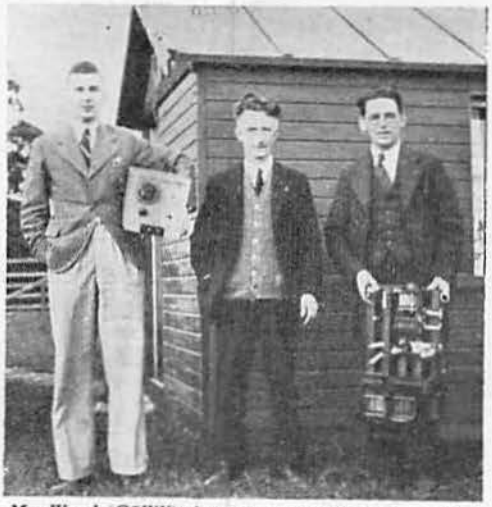
The Wiltshire Letter Budget, now No. 45, is up to its usual high standard and contains many most useful and instructive articles.

DISTRICT 6 (South-Western).

N.F.D. for 1935 is now a thing of the past, and we in the South-west have found that we have not done as well as we expected ! However, if this event is to be something more than a mere marathon we are bound to find some useful information, and from that point of view, if from no other, the event has been well worth while. There is one point that members in No. 6 would like cleared up, and that is how conditions were on the Saturday evening in other districts. We have the impression that we were unlucky during that period, as there was a particularly heavy sea fog over both stations then, which seemed to prevent us from making many contacts. Though the DX was audible, rather weakly, on the receivers, very few contacts were possible. Yet on the Sunday, when the weather was much clearer, we did very well indeed, and signal strength reports were excellent. Did other districts find conditions poor on the Saturday evening, or was it a purely local effect ?

The very handsome shield presented by Mr. H. Wright (2AQB), of Penryn, for Annual Competition in District 6

The D.R. would like to thank all who helped in any way to make the affair so enjoyable. Particularly he would like to draw attention to two cases of outstanding effort. One was the truly marvellous way in which the two Dawlish members, BRS1580 and BRS1581 took charge of all the catering arrangements, and saw to our comfort for practically the whole of the 27 hours. A great undertaking for two new members, and we thank them heartily for their services. The other is the



Mr. Wood (G5WY), in centre, with the personnel at District 6 " A " station during N.F.D.

achievement of G5WY, who, owing to the inability of Somerset to take on the A station, agreed at short notice to run it himself, and was on duty for twenty-five hours out of the twenty-seven. On behalf of the district, thank you, WY.

As regards individual activities, the coming of summer brings the usual lull, though some members still continue their work.

Erecting the mast at District 6 " B " station. G5QA in foreground and G6RP keeping it in the vertical.

The Somerset members are still working on 1.7 mc., G6II, 5AK, 2JM, 6LQ and 2HF all being interested. The same members are active on 56 mc. 2HF is also rebuilding his 7 and 14 mc. outfit.

6II is experimenting with a midget 56 mc. RX using Hivac Midget valves.

5WY is experimenting with T25D's as COs and FDs. 5QA is getting enthusiastic about 28 mc. and is arranging a sked with LU8EN, beginning some time in July.

5SY has carried out experiments on 28 mc. FD arrangements, and is at present testing out a DET1SW for that purpose. Is also carrying out tests with a Collins coupler, and with a 66 ft. centre fed, or what might be termed a " phased," Zepp. The two together seem to work very well on 14 mc.

Query: After reading the last BULLETIN, is it *really* true that the view from Teignmouth surpasses even the beauties of West Cornwall ?

FORTHCOMING EVENTS.

July 18.—District 13, 8.30 p.m., at Brotherhood Hall, W. Norwood.

July 23.—District 14 (East London Section), 8 p.m., at 2BDI 75, Beresford Road, Chingford, E.4.

July 25.—District 14 (Essex Section), 8 p.m., at BRS1447, St. Ives, Leicester Road, Laindon.

July 27 and 28.—District 13, Field Day on Westerham Hill, Kent.

July 21.—North-Western Provincial meeting at Manchester.

Aug. 14-24.—R.M.A. Exhibition at Olympia. R.S.G.B. Stand No. 202.

Aug. 22-24.—10th Annual Convention in London.

DISTRICT 7 (Southern.)

Mr. Dedman, our D.R., having taken the plunge into matrimony, requests me to supply the notes this month. To Mr. and Mrs. G2NH the District extends its heartiest felicitations, and every good wish for their future health and happiness.

Chief interest last month centred around N.F.D. Members spent considerable time preparing for this event, and there is no doubt that the District did well as a result.

Station " A," G6GZ, located at Farnham Park, Farnham, Surrey, had 75 contacts and scored 203 points, working all G portable stations on 3.5 mc., eight Swiss portables, and one Dutch portable. Ten G portable stations were worked on 1.7 mc. G5NF and G6GZ were the operators.

Station " B," G5LA, located at Jones Farm, Walton-on-the-Hill, Surrey, secured 64 contacts, 206 points. Best DX CM, W1 (2) W2, ZB, SU. At station " B " meals were once again provided by our good friend Miss N. Corry (G2YL), assisted by Mrs. Alliston. This annual " binge " no doubt explains why so many members look in on the Tadworth station ! The only company the ops. had at station " A " were COWS ! !

S.H.R.T.S. stands for The South Hants Radio Transmitting Society, a new society formed by the Southsea-Portsmouth group to cater for the southern half of the county. It is essentially a society for those interested in radio from a scientific point of view, and NOT DX or QSL hunting. The committee includes G6WS, 2AZX, 2BHD, and BRS1319. President: L. E. Newnham, Esq., B.Sc., A.M.I.R.E. (G6NZ).

Full particulars can be had from the Hon. Sec., E. J. Williams, Esq., B.Sc. (G2XC). (Best wishes with this effort, OM's.—G6GZ.)

Local news is as follows: G6NZ testing out new TX on 7 mc., and later on 14 mc. and 28 mc. G2XC now licensed for 28 mc. and 56 mc. G2VH active on 56 mc. G6WS active on 7 mc. 2BCM busy on TX, morse practice and listening regularly on all bands, particularly 1.7 mc. BRS1319 conducting some interesting experiments on receiving aerials for 56 mc.

Many Reading stations were on the air for N.F.D. G5AO worked twelve of the 7 mc. portable G's, G2YB worked half a dozen, also G5HN and 6WO, all getting excellent reports.

Very strong harmonics were heard from the 3.5 mc. stations, G6RB, 6GZ, 2XS and 6LG by 5AO and 6WO on 7 mc.

G2YB reports contacts with W1, 2, 4, 6, 8 and 9, VU2 and K6. He only wants South America for WAC.

G5HN has been working fone on 7 mc., getting good reports on speech quality and signal strength.

G6WO has worked his first W, and is very bucked about it. He was using a single oscillator with only 7 watts.

G2WK, 5RT and 2GG all active, but send no report. Calls logged on 28 mc. by 2BVF :— G2NM, 2MV, 2TM, 2WK, 2YB, 2YL, 5WP, GI5UR, FM8CR, 8BG, 8IH, OE1FH, OK2AK, D4BBN, YM4BSH, five commercials, and some " spitch " ! He doesn't know which are fundamental.

G5TB and 5J1 are active on 7 mc. 2AQU is on holiday and has taken a receiver with him. Welcome is extended to 2ACA of Bournemouth, who is temporarily staying in Reading. G2NM has not been heard on the air of late. Local groups hope shortly to be able to get out with portables for week-end field days.

The Radio Club will commence its winter programme in September. (Particulars of the meetings arranged from G5AO, Hon. Sec.)

From Bournemouth we learn that BRS Stone has sold entire gear and started again at new QRA with Eddystone Kilodyne RX.

BRS Coney sat and passed for 2nd class P.M.G. ticket. Has gone to Paris on business and threatens to throttle a few " spitch " merchants there ! ! Has purchased a " Pilot " superhet.

BRS Castle is learning morse. Has built a 56 mc. RX, and prays for signals to test same. He acts as " liaison officer " between the Bournemouth and the Portsmouth groups, being related to both.

BRS Taylor is now AA. At the moment QRT with business, but will start up when winter arrives.

BRS James is also AA and getting micro-wave minded for ship-shore purposes, being pilot of Poole Harbour.

G5PB has regular skeds with the North on 1.7 mc. He is shortly moving to new QRA, where he has designed a flat roof for directional arrays for 56 mc. work.

G5OH is busy working DX with a Hartley. Has

built some super public address gear, which will be utilised for fone on 1.7 mc.

G2NS has rebuilt at new QRA, using pentodes as oscillators and FDs, Collins coupling, and using new SW superhet with provision for Xtal gate, etc., designed by G5OH.

BRS Price is now AA and building a TPTG.

BRS Hamer is busy with R.N.V.W.R. routine.

New member, BRS Weston, welcomed to ranks.

Local S.W. Club being formed by R.S.G.B. members with weekly meetings at shop of G5OH.

G2ZU, BRS157 and 2BAU are carrying out extensive 56 mc. tests between Winchester and a site 14 miles N.E. of same. They are at present investigating a peculiar " blind spot " area between these two sites, and hope to collect much dope during the next few weeks, WX permitting.

There is only one report to hand from Surrey, but activity prevails. BRS1847 is using a Midwest 18-valve " Imperial " RX, and sends a really amazing log of DX fone on 14 mc. An offer is extended to any ham who would care for a demonstration of this receiver. He reports me that an error crept into last month's notes. It was BRS1847 who desired code practice, and not BRS1874 as stated.

May I remind all 56 mc. enthusiasts of the field day co-operation requested by G5FB, D.R. of No. 8 District, on July 21. Another field day to be supported is that of the Portsmouth folk on July 14, although I expect this notice will be too short for most.

The next monthly District meeting will be held at Weybridge, Hand and Spear Hotel, on September 1. At this meeting the winter programme will be drawn up, so, if any members have any suggestions, and will be unable to attend, will they please communicate with me before that date.

G6GZ.

DISTRICT 9 (East Anglia)

N.F.D. over once again, and an unqualified success we feel sure it was at both our " A " and " B " stations. Unfortunately we were too far away in the wilds to receive any of the interesting visitors some stations had, but all the same we were a very merry crowd, and especial thanks must be given to 5UF, 6TI, 5JL and 5UD, who between them had to travel 200 miles to *reach* their respective stations. We must not forget either to mention a Scoutmaster from Cromer, who made an excellent cook ; what didn't he say when he found he had to fry eight eggs in one very small pan !

The " B " station had the misfortune to lose one of its prime helpers, G2MN, through ill-health, and heroic efforts were made by the remaining staff—G6TI, 2UT, 6QZ, BRS1424.

Perhaps we shall not be heading the list with points, partly due to the fact that we were unaware that N.F.D. stations could be worked on 1.7, as well as on 3.5 mc., counting points for each, and also owing to the fact that the power supply at our " A " station gave us little over 12 watts, dropping to 4 watts eventually. Still, we must remember that No. 9 District could only man one station last year—so we are going ahead.

As regards local news, we are very glad to welcome G6BT to East Dereham, Norfolk, and hope he will soon be active from there. Congrats. to 2BSO, who becomes G5IX.

Several members, including G5UD and G6QZ, are using the Collins coupler aerial system with good DX results.

G6TI reports activity of Suffolk members, and he hopes to be using 3.5 mc. in the near future.

Finally, we wish to join in what we feel sure will be a general vote of thanks for the hard work that must have been necessary at H.Q. before the restrictions were removed from 3.5 mc.

DISTRICT 10 (South Wales & Monmouthshire)

In making my first report as the new D.R. I should like to express my warm thanks to the C.R.'s and others who have sent me letters expressing their help, co-operation and support in what must be a difficult task owing to my geographical situation.

I am glad to report that the late D.R., Mr. Low, is making good progress, and I feel sure that everyone in the District and his many friends outside it will join me in wishing him a speedy recovery, so that he may very soon continue the most excellent work which he was doing.

The event of the month, of course, was N.F.D., at which everybody had a most enjoyable time, and the District seems to have done reasonably well considering all things. Station " A," near Swansea, are to be congratulated upon the excellent all-round organisation. I was unable to visit station " B," near Newport, but they, too, must have had the same efficiency, by results, especially as they had a couple of spots of bother by " friendly " animals bringing down their masts and antennas ! !

I congratulate G2UL on getting his W.B.E. G6YJ is now back on the air. We extend our sympathy to G5KK on the loss of his father. The Blackwood Radio Club hopes to get a call sign shortly. G2JL asks members who use his morse practices to drop him a line ; if the exercises are not being used he proposes discontinuing them. G2UL has been mostly QRT during the month owing to a complete rebuild. G2OP is doing the same.

I appreciate that the summer months are slack, except possibly for 56 mc. activities, and here I am glad to note that this District is very interested. I should be glad if all members in No. 10 will send a report every month either to me direct, or through their C.R., as I am particularly anxious to know what everybody is doing, and, if possible, to help everybody in any way I can. If anyone from this or any other District should come to Tenby this summer please let me know, as I am but 12 miles from there, and should be delighted to welcome any of our members.

G2OP.

DISTRICT 12 (London North).

The June district meeting was held at the Wander Inn, Finchley, and was attended by 16 members. The evening was occupied chiefly in an informal discussion on the proposed 56 mc. field day to be held on July 21 ; this date was inadvertently given as July 27 in BULLETIN notes for June. At the conclusion of our last meeting a Yale type key was found ; will anyone claiming it please write to the D.R. ?

The exact QRA for the 56 mc. field day has not been fixed yet, but we hope to obtain one around the Mill Hill district. Any offer of the loan of gear

or transport will be welcome and should be made direct to the D.R.

During the Whitsun holiday G5WW reports on experiments carried out with a portable transmitter at Elstree, Herts. Successful contacts were made over a distance of 10 miles using an input of 2 watts on 1.7 mc.

G5XA reports on experiments with 'phone on 14 mc. using a ribbon microphone.

G5QF made his first W7 contact on 14 mc. using 36 watts.

The next district meeting will be held at the Wander Inn on September 10.

Mr. Slough (G5SL) has recently returned from a vacation at Folkestone. He is loud in his praises of the activities of the local group, who are so ably led by Mr. Tony Chapman (G2IC), the Kent C.R. (We at H.Q. are also appreciative of the work carried out by G2IC.—J. C.)

DISTRICT 13 (London South).

The June monthly District meeting was held as usual at the Brotherhood Hall, and was well supported. It was suggested that South London should run a District 13 Field Day in July. The idea was welcomed by all and the date was fixed for the week-end July 27 and 28. The site will be the same as that used by the " B " station on N.F.D., namely, the ground adjoining Westerham Heights Guest House at the top of Westerham Hill.

There is a considerable drop in the number of individual reports received this month, but this is probably due to the summer weather. G6FU reports having been in contact with W1, 3 and 9 with an input of six watts. He is turning his attention now to 56 mc.'s. G2SH is another newcomer to this band and enquires whether anyone knows who puts out the heavily modulated carrier just below the 56 mc. band. It is often there, but there is no signature, just a 50-cycle hum. The new receiver at G2LW is now completed and the 56 mc. outfit has been started. G2AI is still inactive. 2BUO is now getting very good results from his new gear. We regret that his call was erroneously given in last month's notes as 2BVO. G6CB has changed his area and is therefore very busy re-erecting gear. BRS1747 has now obtained his radiating licence and the call G6LR. Congratulations and the very best of luck, OM. 2BKT has spent considerable time building a monitor and has now completed a CO, FD, PA. G2YG reports no activity this month owing to absence from home on business.

Several members have written asking for information as to the whereabouts of the two Letter Budgets. The reason for the considerable delay which has occurred is that certain members kept the Budgets for several days. In one case a Budget was apparently kept for two weeks. In order that this shall not happen in future, will everyone please make a point of re-posting the Budget within 48 hours of its receipt.

The next District meeting will be held on July 18, when final arrangements for the South London Field Day will be discussed.

DISTRICT 14 (Eastern).

There was only a small attendance at the June meeting of the East London section held at 2AYB, Walthamstow. It was decided to continue the Morse classes held at 2AYB, 16, Station Road, St. James Street, Walthamstow, at 8 p.m. on the following dates: July 24, 29, August 7, 12. G6JI, G5DY, and 2BDI will instruct. G6FY is experimenting with a single crystal which will control at any frequency required. Mr. Davie has been allotted the sign of 2BDI, and is busy building. At the Essex section meeting held at 2BWP, Leigh-on-Sea, the attendance was 15. In addition to the " locals," G2WG, G2KT, BRS1447, and the D.R. were in attendance. BRS1209, of Colchester, is now 2ADP, and is a keen R.N.W.A.R. enthusiast. Will all members of the District interested in 56 mc. work stand by for the District 8 Field Day on July 21? The Brussels visit at the August Bank Holiday period, organised by G5UK, is being well patronised. The scores of the District on N.F.D. were: Station A, G6UTP, 126 points; Station B, G6CTP, 161 points. Total points for District, 287 points. These figures are subject to confirmation by Awards Committee. The London and Home Counties Summer Outing at Ongar Radio Station was well supported.

DISTRICT 15 (London West and Middlesex).

Everyone who took part in N.F.D. had a thoroughly good time. It was a pity it rained during the night and so made it a bit uncomfortable for travel between the sleeping and operating tents. The D.R. thanks all who sent subscriptions and helped in any way to make the affair such a success.

Will members please let the D.R. have their crystal frequencies, in order to get the register going as soon as possible?

Only one report has reached the D.R. this month; he had great hopes last month of an increase, but it almost seems as if it is a waste of time to ask for them.

G5LI has changed from a Hartley to CO.FD.PA. Is getting very good reports from the American continent on 14 mc. Worked W5 and K5. G6WN has been on 28 mc. mostly working FA8 and OK,; also heard several other European countries. 2BAI finds conditions poor and having trouble with hum in receiver; visited by 2AKA, of Leigh-on-Sea.

DISTRICT 16 (South Eastern)

Splendid support was forthcoming from the Medway Group at N.F.D. I think everyone will agree that a special vote of thanks is due to 2IG, 5FN, 5JT and 6VV for the loan of gear, and to BRS745 and 5XB for transport at the " B " station. A large number of visitors were welcomed during the day. The " A " station at Ashford was also well supported, and put up a good show. 2IG has joined the B.B.C. technical staff, and I know that all members in the District will wish him every success in his new sphere of activity. We are all familiar with his technical ability, and we hope that he will still find plenty of time for " ham " radio.

The Medway Group report 100 per cent. active. 6NO is building a 56-mc. portable rig. 6VV has finished his rebuild, and is concentrating on 14 mc. 5FN is building a special 56-mc. transmitter. Special transmissions will take place from 11.00 to 12.30 B.S.T. on July 21. The station will be located on a point about 700 ft. above sea level. Reports are welcomed. 2CM has built his transmitter so that it is easily adaptable for all bands. 6QC is active on 14 mc., and is trying for Eastern D.X. 2VA is active on 56 mc. 2CS is testing tritets. 6RQ is testing a new outfit. BRS745 is co-operating with

5FN. 2MI is building an auto-sender and switching gear, and has not been on the air as much as usual.

2IZ reports active, and is still grinding crystals, and hoping for some DX.

2GB is at present having QSO's via the " ocean waves " at Newquay, so that no proper report comes to hand from the North-West Frontier this month. 2AZM, however, states that he attended the meeting which was held at 2AW, the 56-mc. King of Keston, but as the latter produced a barrel of beer to start the evening, AZM's report of the proceedings must be taken as unreliable. We hear, however, that 6WY, better known as " Ham " Whyte, has been awarded the ROTAB cup this year in recognition of his E.L.S. work, and offer him our sincere congratulations. He has certainly done some very good work, and deserves the honour.

5OQ reports that all in Tunbridge Wells are active, and 2AXQ has applied for his full ticket. 5OQ has worked GI on 7 mc. without an aerial.

No report comes to hand from Ashford, but they are no doubt resting after N.F.D.

In Folkestone duplex loud-speaker QSO's are the order of the day on 56 mc., and good progress is being made. Dipoles are springing up like mushrooms, and 2GD has a first-class straight line inductance outfit going that looks like a cross between a xylophone and an organ. 2IC has also worked locals in Europe on 80 metres with a one-watt COPA. 6NC came over to discuss 56 mc. recently, and 5SL is now on holiday in the town, and attended the last meeting. 2BZZ is a welcome newcomer to Folkestone. He is very keen, and is actively co-operating with 6XB on 56 mc. Any one who can give any information regarding our missing Sussex members is requested to communicate with the D.R. or any radio station, for it is believed they may be suffering from loss of memory. That concludes the News summary !

DISTRICT 17 (Mid-East).

No one can say that the conditions for National Field Day were bad this year from a radio point of view.

Very few of us at the " B " station will forget the W's on 20 metres at the break of day—something hitherto unheard of, and also what seems to have been a purely local effect. Letters have since arrived to G5BD, telling him that G5BDP was the only British station heard throughout the full length of the evening over there.

The attention of members is drawn to the efficacy of the vertical aerial, as shown by our results. Those interested in long-wave features cannot fail also to see the good result of a long length of wire such as that used by G2LRP. Both portables used masts of the full height, but the " B " station aerial top was only 40 ft. from the ground, whilst the mast top was actually higher by another 5 ft. or more. The erection of a super lightweight bamboo mast has now been fully demonstrated, and its demolition could not have taken more than 18 minutes—carried out without a hitch.

Another feature which must have appealed to all members was the fact that both of our stations were truly portable in every sense of the word.

At the " B " station the attendance was as much as could be accommodated. In future events, it is thought that not more than four members should be appointed to operate the transmitter, and that the rest should only help them out for short periods. By this means, the skilled operators are given the chance of making good scores for the District, and using the least amount of time on the air.

The D.R. would like to ask for better distribution of loaned parts and materials in future years. One

Some of the operators at District 17 B Station during N.F.D. G6LI (seated second from left).

or two members only seem to have been responsible for the bulk of the stuff. This may have been very willingly granted, but at the same time there were some who brought nothing with them but their food and bedding. Occasionally the willing horses fail—and what then ? G6GH has produced a fine home-made receiver which he will demonstrate to members desiring a more intimate knowledge of the use of H.F. stages. G6LH proposes to move his station with him when on a country holiday shortly. BRS1487, in Grimsby, is now 2BFC ; and also 2BJS in Grantham has obtained the call G5FY. Congratulations, O.M.

G6LI will send copies of the Field Day photos. to members shortly, and those who wish to keep them are asked to return a small amount to cover the printing costs.

DISTRICT 18 (East Yorkshire).

The Scarborough Short-Wave Club has been granted the call-sign 2BXX, in the name of Mr. F. Briscombe (ex BRS1321). Morse practise is still being indulged in by BRS1386, 1420 and 1480. 2AJZ is building a CO.PA, 5AX active on 14 mc., 5GI on 7 mc. and 14 mc. ; whilst 2AUN and 2AMM are rebuilding. All the above-mentioned members enjoyed a cold but successful N.F.D. week-end, and now look forward to a series of Sunday Field Days on 56 mc., which will be arranged by the D.R. 5VO has left for a holiday in Holland, with 2APU. 6UJ is active on 14 mc., but intends making full use of the 3.5 mc. band again, now that the facilities have been granted for all months, with the exception of September, to all members licensed for this band.

5FV reports active following the usual N.F.D. week-end rush, and says the Hull members had a good time with our " B " station, which scored 177 points, which added to our " A " station score of 142 points made our combined total 319. The entire district now seems ready to support a general gathering, so this is being arranged to take place at Bridlington, in the very near future.

Northern Ireland

Our N.F.D. score totalled 344 and was made up of 126 points scored by station A and 218 by B. The B station contacted 79 stations, of which fifteen were British portables, the latter contacts being on 7 mc., with VE3KF and ZB1C as DX. The following U.S.A. districts were worked, the figures in brackets indicating the number of contacts:—W1 (6), W2 (6), W3 (5), W8 (5), W9 (4); of the score 112 points were made on 7 mc. and 114 on 14 mc. The transmitter, constructed by G12CN, 5SQ and 6XS, was a pentode C.O. using a Tungsram PP4101 driving a LS5B as BA/FD, the output stage being a DET1 with 650 volts on the anode. Station A contacted every N.F.D. G portable on 3.5 mc. and five XHB's, the latter proving to be the DX. Forty-eight contacts were made, of which 41 were on 3.5 mc. and seven on 1.75 mc., two only of the latter being G portables. The A staff was disappointed at these results on 160, numerous attempts being made to work the band, but signals were mainly conspicuous by their absence. The 80 metre band, on the other hand, appeared to provide our cross-channel friends with plenty of European contacts, for which we waited in vain—we could not even hear the stations they were working. We do not wish to grumble, but Scotland and Northern Ireland must be at a great disadvantage when QSO's with Europe are so easily made by the more southerly placed stations. The A transmitter was constructed by GI5GV, the CO again being a PP4101 driving a PX25, the latter with 800 volts on the anode—400 volts for 1.75—and biased to 240 volts negative. The D.R. made the best contact of the week-end when he "got across" the 800 volts of batteries (which had lost their right to the title "dry" as the result of a small lake appearing in the operating tent) during salvage operations. The tent, by the way, was erected in what had once been the living room of a farmhouse, the idea being to prevent bovine creatures from straying into our domain during the long, long night. The personnel was:—A.: 5GV, 6YW, 2CY, 5HV, 5DU, 5AJ, 5UR, 5MC and 2BNL. B.: 2CN, 5SQ, 2KR, 6XS, 6TB, 2SP, 6WG and BRS1612.

The D.R. desires to thank G12CN for taking charge of the B station, 6XS, who solved the problem of heavy transport, and 5SQ, who rendered signal service in many ways, and all those who assisted to make N.F.D. such a pleasant affair.

And now to ordinary business: GI5AJ is experimenting with grid modulation and is waiting for a QSL from CP3W in order to apply for WAC. 5JN reports active on 7 mc., his best DX on 14 mc. being VE9. 2SP is trying out a Pentode CO-PA on 7 mc., using the second harmonic to drive the PA on 14 mc. 5UR is also active and reports the following new contacts: K4, VQ8, ZD2, U9, W6 and VR5. Does anyone know who the last-named is?

Apropos G6RV'S claim appearing in the June BULLETIN, for the British record for the largest number of VE5 stations contacted in one morning, the fine performance of 6YW is deserving of special mention; he contacted six W6's and two W7's on eight consecutive test calls, 100 per cent. west coast replies! His other DX included XU, J, LU, and OZ7ESK.

Belgium

By ON4AU.

ON4AU, 4SD and 4JB have been very active on 28 mc., and have had some good contacts. On June 9, 4AU effected the first 28 mc. QSO between Belgium and South America, when he worked LU1EP. 4SD also worked the same station when using 30 watts on June 12. On the 25th, 4AU and 4JB both worked ON4CJJ (Belgian Congo) at about 20.00 G.M.T.

ON4UU, 4RX and 4DX have been active on 14 mc. QRK has been poor, but VP and VS stations have been received at R6/7. There is nothing of note to report concerning the other bands.

Members of the R.S.G.B. who attend the meeting at Brussels are invited to pay a visit to the beam station at Ruysselde. The reflectors and pylons (over 900 feet high) are of particular interest to amateurs. We hope to have the pleasure of meeting many members of the R.S.G.B.

Since the last full moon, propagation has been poor on 28 mc. Several commercial harmonics have been heard, PPW, LQE, JNJ and SUC, but attempts to keep daily skeds with J2HJ and ZL2BN have been in vain. VLK was heard on June 21 at 21.08 G.M.T.

ZL2BN is working on 29500 kc. every day and definitely from 21.00 G.M.T. Saturdays, calling every half-hour till about 02.30 G.M.T. Sundays. He requires definite skeds for week-ends. QSO's with ZL should be quite possible; the DX harmonics prove that.

Holland

At the recent annual general meeting of the N.V.I.R., the following officers were elected for the ensuing year: President, T. T. Winkler (PAOAX); Vice-President, Dr. H. van Breen (PAOFX); Secretary, C. M. Zoetmulder (PAOZM); Treasurer, J. Stufkens (PAOJK); Traffic Manager, M. Smit (PAOLR); Council: L. Alons (PAOOF), A. N. Dekker (PAODA), E. Kerker (PAOXF), G. van Rhijn (PAOVR).

On the same occasion, Mr. M. Letitre (PAORO was presented with an inscribed "bug-key" and elected to Honorary Membership of the Society, on relinquishing the office of Secretary-Treasurer after seven years' service on the Council of the N.V.I.R.

A number of amateurs in Rotterdam and elsewhere went "portable" during N.F.D. week-end, and are looking forward to seeing how their scores compare with those of G stations. Another item of co-operation with British amateurs may be mentioned. The Traffic Department of the N.V.I.R. is organising an excursion to Brussels to coincide with that arranged by G5UK in connection with the Belgian International Meeting in August. It is hoped that this will provide still another opportunity for personal contact between Dutch and British amateurs.

Work on the ultra-high frequencies of 112 and 224 mcs. is claiming considerable attention, and many stations in Holland are now regularly using these frequencies.

Dr. R. A. Fereday (G6FY, PAOFY) has returned to England. Station PAOFY, however, remains in action under the former second operator, Mr. F. C. G. van Baerle, G6FY retaining an official licence as second operator.

Empire B.E.R.U. News.

B.E.R.U. REPRESENTATIVES.

Australia.—I. V. Miller (VK3EG), P.O. Box 41, Tallangatta, Victoria. *Sub. Representatives.*—J. B. Corbin (VK2YC), 15, Yanderra Flats, East Crescent Street, McMahon's Point, Sydney, N.S.W.; R. Ohrbom (VK3OC), 22, Gordon Street, Coburg, N.13, Vict.; A. H. Mackenzie (VK4GK), Fire Station, Wynnum, Brisbane; G. Ragless (VK5GR) South Road, P.O., St. Mary's, S.A.; N. F. Ollivier (VK6FO), 26, Merriwa Street, Hollywood, W.A.

Bahamas, Bermuda and the Eastern Part of the West Indies.—P. H. B. Trasler, (VP4TA) No. 2 Mess, Pointe à Pierre, Trinidad, B.W.I.

Burma.—W. G. F. Wedderspoon (VU2JB), Government High School, Akyab, Burma.

Canada.—C. S. Taylor (VE1BV), Stewiacke, Nova Scotia; Earle H. Turner (VE2CA), 267, Notre Dame Street, St. Lambert, P.Q.; W. P. Andrew (VE3WA), 1337 Dougall Avenue, Windsor, Ont.; A. E. Howard (VE4CJ), 2401, 25th St. West, Calgary, Alberta.

Ceylon.—A. T. Kingston (BERS. 196), P.O. Box 100, Colombo, Ceylon.

Channel Islands.—Capt. A. M. Houston Fergus (G2ZC), La Cotte, La Moye, St. Brelades, Jersey.

Egypt, Sudan and Transjordania.—F. H. Pettitt (SU1SG), Catholic Club, Mustapha Barracks, Alexandria.

Hong Kong.—C. Emary (VS6AX), P.O. Box 391, Hong Kong.

Irish Free State.—Col. M. J. C. Dennis (E12B) Fortgranite, Baltinglass, Co. Wicklow.

Jamaica, British Honduras, Turks Island and Cayman Island.

Kenya, Uganda and Tanganyika.—W. E. Lane, (VQ4CRH), P.O. Box 570, Nairobi.

Malaya and Borneo.—R. J. Bee (VS2AG), P.W.D., Kuala Kangsar, Perak.

Malta.—L. Grech (ZB1C), 44, Sda San Benedetto Chircop, Malta.

Newfoundland.—E. S. Holden (VO1H), Box 650, St. John's, Newfoundland.

New Zealand.—C. W. Parton (ZL3CP), 69, Hackthorne Road, Cashmere Hills, Christchurch.

North and South Rhodesia.—R. A. Hill (ZE1JB) P.O. Box 484, Bulawayo, S. Rhodesia.

North India.—J. G. McIntosh (VU2LJ) Baghjan T. E. Doom Dooma P.O. Assam.

South Africa.—W. H. Heathcote (ZT6X), 3, North Avenue, Bezuidenhout Valley, Johannesburg.

South India.—J. Shepherd Nicholson (VU2JP), c/o Kanan Devan Hills Produce Co., Ltd., Munnar, Travancore.

Egypt and Sudan.

By SU1SG *via* SU1AQ and G6KP.

The most important event during the past month was of course N.F.D.

Conditions in SU were decidedly bad and very few QSO's with G portables were effected, but both SU1A (Alexandria) and SU1C (Cairo) thoroughly enjoyed the event.

SU1PS (Port Said) was unable to co-operate, owing to being let down at the last moment by the non-arrival of expected power supply.

It is thought that several Europeans are pirating the SU prefix, because many cards from all over the world are being received for stations totally unknown in Egypt. It is quite certain that if these calls had been used in SU some of us would most surely have heard them. More than 200 cards have been returned as unknown during the past month.

The following stations are known to be active :—SU1AQ, 1CH, 1FS, 1GP, 1KG, 1RO, 1SG, 1TM, 1RK, 2GA, 8MA and ST2WF, and any other calls heard should be treated with distrust.

SU1AQ has rebuilt and is now using two 45's in P.P. as P.A. This station has taken over E.L.S. duties from SU1SG, which station is off the air rebuilding, but hopes to be active again by mid-August, using 200 watts CW and 100 watts class B modulated fone. This station hopes with the increased power to be able to establish a more reliable link with South Africa, but if unsuccessful, the effect of a directional antenna will be tried.

During a recent sandstorm ST2WF lost both shack and antenna, but by dint of hard work managed to excavate sufficient gear, and is now active again.

SU1RO has completed his S.S. Super and is most satisfied with results.

SU1RK is devoting most of his time to 56 mc., but is also busy trying to locate bad local QRM.

SU1KG has fixed some interesting schedules with G amateurs in his home town, gets R8 from W, and has worked VE for W.B.E.

In reply to a letter to the Palestine Government, the Postmaster-General informs us that experimental licences are not issued to amateurs in that country. On the other hand, the Sudan authorities not only issue the licence gratis, but encourage amateur activities and allow such persons to purchase suitable short-wave gear from their stores.

Help to make these Notes Interesting.

Strangely enough, only one amateur has taken advantage of these very favourable conditions, which are the envy of every amateur in SU, where our position is still most unsatisfactory.

The first DX chart prepared by SU1AQ and SU1WEM was circulated this month, and it is hoped that in future all members will contribute calls heard.

Irish Free State

By EI9D.

The most important event of the month was, of course, N.F.D., in which I.R.T.S. co-operated. It was an unqualified success in every way. Both stations put up a very creditable show with a combined score of, approximately, 250 points. The event attracted much attention, and was well reported by the leading newspapers. Perhaps the most enjoyable QSO at "A" station was the one with GPK, who called us on 1.7 mc. Some there are who felt that only the addition of bonus marks for this contact would do justice to the occasion!

Our very special thanks are due to Dr. and Mrs. O'Farrell who, at Station EI6F, did so much for us. Their kindness in providing for our inner needs, lending us camping equipment, and generally allowing us to overrun their QRA, at all hours during the week-end, merits our keenest appreciation. To Mrs. Reilly, who had the labour of refreshment at Station EI2G, our very best thanks are also due. To all we say: Thank you, indeed. And so say all of us.

Activity increases on 28 mc. where EI5F has had good European contacts and one with FA8BG. EI8B are also doing good work up there working LU1EP and W1. EI5B, 6F, and 8G are co-operating on 56 mc. fone, and we hope to have dope next month. Who knows? Perhaps 5B may send us a report! EI2B visited H.Q. whilst on vacation. BERS246 working on a hot stuff RX sends an interesting log. We welcome Mr. Taheny, of Sligo, who is awaiting election as a new member.

Hong Kong.

By VS6AX *via* VS6AQ and G6CJ.

Conditions on 7 mc. have been poor, but very good on 14 mc. European DX is being worked from 18.00 G.M.T. During the month BERS265 left for England, thus further depleting the local group. BERS273 has been away on holiday and does not forward a report. We had a visit from G5NS, who is radio operator on the "Rajputan." We now have a new amateur in VS6AZ, who has forwarded his B.E.R.U. application to H.Q. VS6AZ, who is only 17 years old, is on 7 mc. with a power of 10 watts. Local stations are sending slow Morse practice on 7 mc. from 13.00 G.M.T. for the benefit of local listeners. DX reports would be appreciated. VS6AH is testing on 28 mc. Active stations are VS6AH, VS6AQ, VS6AZ.

Kenya, Uganda and Tanganyika

By VQ4CRH

Conditions during May and June have been fairly good, the 14 mc. band being the better for DX.

VQ entered a station in the N.F.D., but unfortunately the week-end conditions were bad.

VQ4CRP has left for Lourenco Marques in Portuguese East on business for an indefinite period.

VQ4SNA is now in England on a short visit and his QRA is Stone Lodge, Ipswich. He would like to meet members in that district.

VQ4CRM is again on the air and would be glad to receive reports on his signals from G.

A little ray of sunshine entered the hearts of all wireless enthusiasts in Kenya in June, when the P.M.G. announced that the cost of receiving licences will be reduced from 50s. to 30s. per annum as from July 1 this year.

Members active are: VQ4CRL, VQ4CRM, VQ4CRH and BERS191, with VQ4CRO and VQ4CRR building.

Malaya and Borneo.

By VS2AG *via* VS1AJ and G5VB.

The long-awaited amendments to the F.M.S. wireless regulations have been gazetted. Briefly, they consist of a reduction of the licence fee to 10 dollars for power input up to 100 watts, and make definite provision for keeping the amateur bands for the amateurs. Thanks of the Malayan B.E.R.U. group is due to VS2AF, who has had most of the hard work in getting them through.

Mr. M. J. Thorpe (VS1AC) is to be congratulated upon the receipt of the King's Jubilee medal.

Conditions during the early part of the month were good for DX. VS1AJ had a fine QSO with HC1FG, which gives him WAC.

VE4, VE5 and VR2 were logged at good strength, but contact was not made. Early evening static still continues.

VS1AB, 1AC, 1AD, 1AJ, 2AG and 3AE are active. VS1AC is working on 7 mc. apparatus. 1AD and 2AG are testing new 100-watt set with encouraging results.

2AG and BERS179, using a low-power portable, are working on 3.5 mc. over distances of 100 miles with 1¼ watts, both phone and code.

We are very pleased to welcome this month Mr. A. R. Gilding, the third operator of VS1AJ. This station is now all B.E.R.U.

[This message was also copied in part by G6HM and G6UF.—Ed.]

Malta.

By ZB1C *via* ZB1E and G5LV.

Summer conditions have set in with the result that the seaside has become a serious rival to amateur radio.

ZB1B is away with the Fleet for the Review. ZB1C is busy building his power generating plant. ZB1E has constructed a crystal holder designed to reduce frequency creep to a minimum with good results.

ZB1H is rebuilding transmitter. ZB1I is active. BERS201 is thinking of taking out a licence.

The ZB1 group have approached the authorities for permission to use the 28 mc. band and are hoping for a favourable reply.

Northern India.

By VU2LJ *via* VS6AQ and G6CJ.

During May conditions were bad, QRN being at so high a level as to make working impossible on both 7 and 14 mc. VU2FP has been transferred back to Dacca and the long-expected visit to VU2LJ has been cancelled definitely. He will be on the air shortly with the regular transmitter and hopes to resume all his schedules. No facts have

been received from the Quetta group about the earthquake.

Northern and Southern Rhodesia.

By ZE1JE.

The recent upheaval in connection with the 7 mc. embargo has now subsided and the position is again normal.

The proposed Radio Advisory Committee suggested by our Postmaster-General, mention of which was made in last month's notes, is now well under way, and it is anticipated that the first meeting will take place on an early date. The personnel of this Committee will include one, probably two, members of the local B.E.R.U. Group.

The dreaded " wipe out," a phenomenon peculiar to Southern Africa during the winter months, May/July, has been experienced again this year, but, from local observations, has not been so severe. All signals are affected between 16.00 and 18.00 G.M.T.

F. C. Whitmore, ZE1JJ, is leaving Bulawayo in July for a six month's caravan tour of the Union of South Africa. He is taking with him a portable transmitter and hopes to be able to contact some overseas stations whilst on the tour. His portable call-sign had not been allotted at the time of writing.

G. E. King, ZE1JF, is also going on six months' leave and will be off the air from July till December.

ZE1JN reports DX on 14 mc. falling off, but European stations still come through at reasonable strength from 18.00 till 20.00 G.M.T., after which time the band is quiet. Several G's have been heard and called on 7 mc. after 20.00 G.M.T., but no contacts made.

South Africa

By ZT6X.

ZT6K has received a report from G6YL that his 28 mc. signals have been heard in England. A number of local amateurs have been on 28 mc. during the past few months, but apart from local QSO's no DX has been worked. ZT6Y heard a VU calling him but could not get his call clearly. DX on 7 mc. has been very patchy, but an improvement was noticed during the recent cold weather. The sun spots may have something to do with the improved conditions just now, for as in years past the period May to August and even to October has been a " close season " for us as far as DX is concerned, and 3.5 mc. has to be used at times for inter-divisional QSO's. Things are usually quiet on the air during the winter months —and outside shacks are rather cold.

Winchester Amateur Society.

Mr. A. Howard, 6, Romsey Road, Winchester, informs us that a Winchester Amateur Radio and Cinematography Society has been formed. Enquiries from those interested should be addressed to Mr. Howard, who has been elected Secretary.

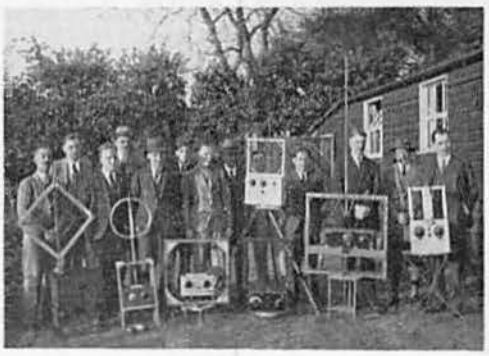
STRAY

G5KG requires reports on his 28160 kcs. transmissions. This station worked FM8BG on telephony on the 1.7 mc. band during April. Is this the first G-FM phone contact on 1.7 mc. ?

Golders Green Society Activities.

The 14th annual open direction-finding competition organised by the Golders Green and Hendon Radio Scientific Societies was recently held in the country about Wendover-Hatfield-Hendon-Maidenhead.

The scheme was under the direction of Lieut.-Col. H. Ashley Scarlett, D.S.O. Over sixty amateurs attended, and amongst the radio societies sending groups were Southall, Northwood, Pye, Belsize and Southgate. The objectives were, in the first part of the scheme, to locate the direction of a transmitting station, and in the second part to locate its position.



A field mobile transmitter designed and controlled by Mr. Corfield (G5CD) operated in an area of 30 square miles, which for the first part was placed out of bounds to the receiving groups. The wave-length used this year was reduced to 84 metres ; in the past it had been 160 metres.

The positions selected for G5CD were purposely varied in character. It was noticed that the full strength received was influenced to a greater degree by the intervening type of country at the increased frequency used.

A fixed transmitting station for reference purposes was operated near Harrow by G2JU.

The returns handed in by the groups were of a very high order of accuracy. At a distance of 15 miles an error of only 1° was made. The sets used, which were designed and constructed by amateurs, varied in size and type, but all produced excellent results, and showed great skill in workmanship.

The winning groups were Messrs Lee, Stephens, Rayner, Rapsey, Dean, Philpots, Child, Griffiths, Bremner, Sen., Bremner, Junr. The Southall Radio Society took first and second places, the Golders Green and Hendon Radio Societies taking third place. The judges were Squadron Leader Struan Marshall, H. B. Dent, and E. J. Hubbard, A.M.I.E.E.

Harmonics and Overtones.

G6PF informs us that it is an easy matter to distinguish between overtones and fundamentals or harmonics providing a grid-leak detector is used. When receiving a fundamental or harmonic the signal is louder when *just* oscillating, but overtones (or sub-multiple frequencies) are loudest when the detector is oscillating strongly.

EDITORIAL—(*Continued. from page.* 2).

throughout our ten years of existence, by the radio trade, demands that we should record our grateful thanks to all who have booked space from time to time.

Finally, the Editor desires to acknowledge the work of our Secretary upon whose willing shoulders he has been able to thrust practically the whole of the detail work in preparing the matter for press. This he undertakes in addition to his many other duties. So we start off yet one more volume of the T. & R. BULLETIN confident that it will complete another ten years of existence.

H. B. S.

"CALLING BEN LOMOND"—
(*Continued from page* 10).

increased the strength a handful of decibels to about R8.

Now it should be noted that it is doubtful if this point is visible from G6ZX. The writer, who knows the Ben well, thinks that it is not. He would also comment that it is a mercy that the transmission did not consist of television, as by this time ladies had joined the party on the Ben, and he knows what ZX looked like that Sunday a.m.!

The climbing party, having had their radio appetites whetted by this success, it was now a case of Tennyson's young man with the excelsior slogan until the summit was reached, and once again off-packs. (Tough 500 ft. those, *mes enfants!*). G6ZX was now found to be coming in R9 plus, with the aerial on function and R9 without. Speech was audible and readable some 30 ft. from the phones. No appreciable change was noted when the input at the transmitter was changed from 8 to 10 watts, nor when a switch-over was made by ZX from beam aerial to half-wave vertical.

The experiment was really most encouraging, and a further series are planned.

R.E.S. NOTES—(*Continued from page* 21).

stage, the receiver was now at once more selective and sensitive.

Final tests revealed that more complete ease of control could be obtained by the use of neutralising condensers. These are connected between the anode of each valve and the grid of the opposite valve (as in Fig. 3). As a further refinement, the grid condensers were reintroduced, this time being of very low values, smoothing out any irregularity which might arise in the tuned input circuit. This also is shown in Fig. 3.

The above receiver was designed for use on the 7, 14 and 28 Mc/s. bands, and while the results obtained on these bands were highly satisfactory, the performance of the receiver on 56 Mc/s. is a matter for conjecture but experiments are being continued with slight alterations in the circuit to compensate for the frequency drift of transmitters on these bands.

In conclusion, acknowledgments are due to G2NK for the fundamental circuit used in these experiments, and to BRS865 and BRS1006 for their suggestions and help.

BRS981,

THE STORY OF A RAT.

Believe it or not, the following incident occurred in a certain Empire amateur station located less than 2,500 miles from London. The transmitter at this station, a rack and panel arrangement, has three shelves, the top containing the R.F. portion, and the middle shelf the power supply.

For some weeks certain unmistakable signs had pointed to the not infrequent nightly visits of a rat to the top shelf, with a particularly strong concentration of the above-mentioned signs around an open type crystal holder. Now it is an odd thing that this crystal, which hitherto had led a blameless life, very shortly after the rat's first visits, commenced "perking" on a frequency some 25 kcs. higher than previously, the inference being that the rat was prowling around with approximately 25 kcs. worth of quartz in his digestional system. There is a prologue to this.

One evening about 20,00 G.M.T. filaments and heaters were turned on preparatory to a call, allowed to warm up, and the H.T. applied.

The click of the H.T. switch going in was accompanied by a crack like a whip, a large flash, a squeak like a deflating bagpipe, and a hurtling mass of rat type colour being ejected at considerable speed by some unseen force from the second shelf. On inspection, the rat, as such it proved to be, staggered unsteadily to beneath a neighbouring cupboard, there to pant and gasp in his efforts at self-resuscitation. His decease was completed quickly with a mashie niblick. He had used the top and terminals of an H.T. filter condenser as a step to the top shelf.

It is proposed to bury him with the unconsumed portion of the crystal, and a small headstone to be erected with the following words thereon inscribed:

Ham Rat, used as a commencer,
A very large filter condenser;
In his search for the crystal,
A crack like a pistol
Changed his soul into a past tenser.

EMPIRE CALLS HEARD

By H. S. Brown (H.M.S. "Suffolk," c/o G.P.O., London) in Hong Kong during October, 1934:—

7 mc.: g6os, 6cj, 2dc, 2qo, 6tr, 2du, 6bq, vk2bk, 2xu, 2dr, 2zw, 5gw, 3mr, 3ox, 2bp, 2hf, 2hz, 2qn, 3zf, 2vq, 2my, 2ny, 6fo, 3vl, 5hn, 2qp, 2cs, zl4ck.

By 2ANT (Birmingham) during March.

3.5 mc.: fone ve1dy, 1ei.

14 mc.: fone, ve1dc, 1ea, 1fe, 2ca, 2dx, 2ee, 2hm, 2he, 3jv, vo1p, vp5a, 6yb.

Heard in Hong Kong during January and March, 1935, *by BERS265, H. S. Brown, H.M.S. Suffolk (China Station), c/o G.P.O., London:—*

7mc.: G2ai (36), 2bk (45), 5bp (35), 2db (45), 6dl (46), 2dv (45), 2fm (46), 6jc (33), 5kf (34), 2kt (46), 6ku (34), 6ll (46), 2mi (46), 6na (34), 6nc (36), 6nf (47), 6nj (36), 6os (47), 6py (45), 2rf (35), 6rj (46), 5rv (47), 5tp (36), 2tr (35), 6tr (46), 5ui (35), 6wy (46), 5xg (35), 2xs (46), 2yl (46), 2yy (33), ve5hc (36), vr2nb (45), vs7lp (34), vu2dx (36), 2fp (35), zt2b (34), 5g (47), 5r (35), zu6k (35), 5y (34).

14 mc.: vk2ba (36), 2eo (45), 2xk (34), vs8aj (45),

EXCHANGE AND MART.

RATES.

Private members' advertisements 1d. per word, minimum 1s. 6d. Trade advertisements 2d. per word, minimum 3s., cash with order. First line, if desired, will be printed in capitals. Copy to reach 53, Victoria Street, or the Advertising Manager, Parrs, 121, Kingsway, W.C.2. not later than the 1st of the month preceding date of publication.

"BERS 38," free September 5, seeks employment with reputable firm, 12 years' experience in radio communication ; excellent references. Would consider investing small sum.—24, Pyrmont Road, Chiswick, W.4.

G5YA.—SURPLUS GEAR. ALL IN FB CONDITION.—1 Rotary Converter 50-volt input 230-volt 80-watts smooth output A.C., £5. One 3-volt, Det 2 LF SW Receiver, 15 metres to 50 metres switched coil, with valves, £1 15s. 1 Baird Televisor, 30 line disc pattern with good Neon, £3. 1 Brunswick Panatrope Gram, only slight attention required, but all mains side definitely OK, £5. 60-volt Exide WH10 units in crates, in excellent condition, hardly used ; 17s. 6d. per 60 volts. Also a number of Receivers, Mains, and Battery, Gang Condensers, Var Condensers, Fixed Condensers, Loudspeakers, Transformers, Mains Units, etc. Prices on application. All gear can be seen at any time.—G5YA, The Dragon, Boreham Street, Sussex. 'Phone : Herstmonceux 105.

G6DS For neat and snappy QSL Cards, Log Books and Pads. Send for samples. QRA, "Inglenook," Orlando Drive, Carlton, Nottingham.

G6VP.—Phones, Transformers rewound. Brown's "A" a speciality ; any resistance ; 24-hour service ; lowest terms in the trade.

G6RL.—Semi-automatic Bug Type Keys. The finest job on the market, £2 12s. 6d. 5-meter gear in stock.—32-34, Earls Court Road, London, W.8.

HAMMARLUND Comet Pros ; write for details and current prices. Instruments always in stock. Supplied cash or on hire-purchase.—G2NO, 11 Lichfield Street, Wolverhampton.

I, MAURICE PILPEL (G6PP), of 7, Woodberry Down, London, N.4, hereby give notice to all whom it may concern, that by Deed Poll dated June 12, 1935, I have relinquished the surname of Pilpel and have adopted the surname of Williams, which name I shall use for all purposes as from the date mentioned.

LONDON'S Central Radio Stores, 23, Lisle Street. SPECIAL OFFER TO RADIO HAMS! Auto rotary selector switches made by G.E.C., operate on 12 volts, ¼ amp. ; over 100 uses, remote control, auto-tuning, shunting metres ; as being sold at other stores at 10/- to 15/- each ; all brand new, 8 travelling contacts, making contact one at a time with 25 other rows of 8 ; send for photo.

We carry large stocks of second hand, clearance and surplus components, including Phillips Condensers, 1mfd., 6,000 w.v., 6/- each (only a few of these left), Metal Rectifiers by Westinghouse. Meters, Speech Transformers and Condensers by Ferranti, Condensers by T.C.C., etc., etc. All goods guaranteed and post free. Write for prices and list "T.R.," 23, Lisle Street, Leicester Square, London, W.C.2. Phone : GERrard 2969.

QSL'S AND LOG BOOKS.—You want the best—then write.—G6MN, Worksop, for samples and prices.

WANTED, EDDYSTONE HAM-BAND RECEIVER, or similar, of 2, 3 or 4 valves.—BRS1865, "Lynhurst," Blackwell Avenue, Walker, Newcastle, 6.

Patents and Trade Marks.

GEE & CO., Patents and Trade Marks throughout the World.—H. T. P. GEE, Mem. R.S.G.B., A.M.I.R.E., etc., 51-52, Chancery Lane, London, W.C.2. (Two doors from Government Patent Office). 'Phone : Holborn 1525. Handbook free.

Printed for the Inc. Radio Society of Great Britain, 53, Victoria Street, London, S.W.1, by Loxley Brothers Ltd., 50, Southwark Bridge Road, London, S.E.1