T. & R. Bulletin

Incorporating

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(BRITISH EMPIRE RADIO UNION)

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(See also our Advts. Pages 175 & 182)

T&R BULLETIN.

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EDITORIAL.

The Coming Tests.

ALL is now set for the 28 M.C. tests next month. It is our earnest hope that these tests will be a thorough success in every respect. Similar tests last year, covering a shorter period, were a disappointment due to the absence of results on account of the bad conditions prevailing at the time. Even that, however, did not deter many members spending all their time searching over an empty band. They showed themselves true experimenters, and we hope that many more will emulate their example this year.

One of the chief aims in these tests is an attempt to investigate the conditions prevailing during periods of the day at present regarded as useless for communication on this frequency. This means many hours of possible fruitless sending and listening for many of our members, but we are confident that Contact Bureau will not be let down in this respect. Members of Contact Bureau through their united efforts, not to mention the indefatigable work of the Organiser, have done much in the past to place the British Amateur well to the fore in the exploration of new frequency bands and similar work. This Society looks to Contact Bureau Members especially to carry on this excellent work with renewed vigour during the coming year.

As an additional incentive to participate whole-heartedly in these tests, Contact Bureau has the unenviable task of awarding two Challenge Trophies, kindly given by Messrs. Powditch and Somerset, one for the transmission side and the other for the reception. With the thought of being a possible winner of one of these trophies there should be some very good work put in on 28 M.C. during March.

Conditions on 28 M.C. have, during the past two winter seasons, been very spasmodic. Reception conditions between stations comparatively close to each other vary tremendously. One American station may be heard for a short time for an hour or so at good strength, giving way at a later time to another station. Fading may be very pronounced in some parts of the country and absent in other parts. European stations may be heard one day and not the next. Even the steadiness of note of a distant station does not appear to be constant when a number of observers scattered throughout the country are listening to it. Each Sunday probably finds more stations in this country listening and transmitting on 28 M.C. Perhaps some of the newcomers during this winter season have been lucky in picking a good day for their *début* on this band; others may have been unlucky. The latter might justifiably have exclaimed that 28 M.C. is no good. The former might at first be excused for thinking that 28 M.C. was "Much Ado About Nothing," and that contacts were as easy and reliable as those on the lower frequency bands. If any are in that frame of mind, possibly they will change in a few weeks' time and realise that, of all the bands at present used to any extent for amateur work (we are not including the 56 M.C. band), the 28 M.C. band holds more surprises and disappointments than all the other bands put together.

We are not prepared to say here that this band will be of supreme use for amateur communication, though possibly the longer it takes to develop the greater value it will eventually have. We do say, however, that if it proves to be of some small use for amateurs, it will help to relieve the congestion at present only too painfully obvious on the lower frequency bands. The forthcoming tests are therefore planned by Contact Bureau in an attempt to probe some of the mysteries of this frequency, and the more observers and transmitters who can focus their attention on this band, the more assured of success the tests will be.

If we were asked to make any suggestions in regard to transmission on this frequency, we would unhesitatingly point out that the band extends from 28 M.C. to 30 M.C., and that only one-third of it is at present in use. The interference experienced by some workers in London from the spreading notes and badly adjusted transmitters of other workers a mile or so away is already becoming troublesome. A little more care in the adjustment of the transmitter, or the realisation that a reduction in the power by 50 per cent. would probably produce just as effective a signal, if not a more effective one, would do much to relieve the interference.

Forthcoming Events.

February 28.—At the I.E.E. Lecture by the General Electric Company on "Photo-electric Cells. Their Characteristics and Applications." Commence 6.15 p.m. Tea at 5.30 p.m.

February 28.—Society's talk from B.B.C., at 6.35 p.m.

March 28.—At the I.E.E. Lecture by Messrs. Ferranti, Ltd., on "Iron Cored Structures in Radio Receivers: Their Design and Use." Commence 6.15 p.m. Tea at 5.30 p.m.

April 1.—Hamfest at Pinoli's Restaurant at 7 p.m. For further announcements see elsewhere.

April 25.—At the I.E.E. Lecture by the Telegraph Condenser Company.

May 23.—At the I.E.E. Lecture by the Mullard Wireless Service Company, Ltd.

June 27.—At the I.E.E. Lecture by the Igranic Co., Ltd., on "Neutrosonic Short Wave Receivers." Commence 6.15 p.m. Tea at 5.30 p.m.

(*Continued from next page.*)

say that practically "any old aerial" will work on 1,770 k.c.—that's one of the charms of the band—and that if a non-radiating R.F. feeder is attached to the aerial it is but necessary to short-circuit the "neutralising wire" of this feeder, or to disconnect it entirely, to obtain good results on 1,770 k.c., but if the feeder is attached to the aerial at any point other than at the extreme end or in the middle, an insulator should be inserted, if only temporarily, at the point necessary to convert the aerial to a simple L-type. A fairly large counterpoise should certainly be used, as it greatly assists radiation both as indicated on the hot-wire ammeter and by reports from distant stations.

In conclusion, one apologises for the scrappy nature of these notes, but, nevertheless, one trusts that they will prove of assistance to those who are doubtful regarding the preparations that should be made for the forthcoming 1,770 k.c. tests.

Stray.

We should like to correct a misapprehension prevalent among members residing not a thousand miles from South London, that, although the 28 M.C. band is not so extensively used as some of the others, they should, nevertheless, take as much care with their notes as on any other band.

Preparing for the 1,770 K.C. Tests.

By J. Hum (G5UM).

IN view of the fact that, as reported in last month's C.B. Notes, next April will see a burst of activity on the 1,770 k.c. band, it is thought that a few notes on operating conditions on the band would be of interest to those amateurs who contemplate participating in the tests, but more especially to those who have not used the band before.

Dealing first with the receiving side of the question ; a conventional 0-V-1 set is most satisfactory, but naturally a screened-grid H.F. stage would add materially to the efficiency of the receiver from a DX point of view, while allowing an ample reserve of power which would be useful when conditions were poor. One does not propose to deal further with S.G. valves on account of the excellent article on the subject which appeared from the pen of FO3SRB in the October Bulletin. If it is found impossible to use an S.G. stage a satisfactory margin of signal strength should be allowed for by the provision of a second L.F. stage—preferably transformer coupled—or, alternatively, a pentode valve could be used. In regard to the H.F. part of the receiver, it is, of course, impossible to give any details of the type of aerial coupling that is best, and the size of coil to use for the 160-metre band, as these will vary with the individual, but it is generally found that approximately 30 turns on a 2- or 3-inch former will about cover the range of 152 to 172 metres with a fairly large tuning condenser.

So much for the receiver—now for the transmitting aspect, which presents more problems. Since the power of all stations during the tests will be limited to a maximum of 10 watts, the best and most simple transmitter to use is, without a doubt, the pure crystal oscillator.

This should give quite satisfactory output, and is infinitely preferable to the self-excited transmitter with the crystal across the grid coil. It is hardly worth while making use of a stage of R.F. power amplification, as it is only necessary to couple up the loose-coupled aerial coil to the plate coil of the crystal oscillator to obtain really good antenna radiation as indicated by a hot wire ammeter. Keying should be done in the counterpoise lead, either through a relay, or direct ; the crystal is oscillating continuously, and an excellent note is assured if this method is adopted. The antenna coupling should be as loose as possible consistent with good radiation, as on 1,770 k.c. the aerial amps. definitely serve as an indication as to how the transmitter is radiating. Obviously, a crystal that is guaranteed to function satisfactorily without reaction should be used ; such are obtainable at £1 from any of the various quartz crystal firms who advertise in the Bulletin, and though the price may seem a trifle high the results well repay the purchaser of a guaranteed article, while the crystal is the only expensive item to purchase when designing a transmitter for 1,770 k.c. A valve of high impedance—and amplification factor—must be obtained for the C.O., suitable types being the DE5B or LS5B. The crystal should be operated on its fundamental frequency, as one with a fundamental of approximately 338 metres gives rather a weak harmonic in the 160-metre band, and certainly gives less output than one oscillating on its fundamental within the 1,770 k.c. band. A word about the grid H.F. choke will not be out of place, as the successful operation of a non-reaction C.C. transmitter depends largely on the efficiency of this component. Solenoid H.F. chokes are, generally speaking, apt to cause self-oscillation. The best types are the standard broadcast chokes of the "Polar" people, "Trix," "Lewcos," and R.I. makes also being very good.

If, however, it is found impossible to build this "ideal" type of single-valve transmitter, or if one desires to utilise one's short-wave transmitter on the 1,770 k.c. band, then every effort should be made to obtain a completely "chirpless" note, very sharply tuned, for it must be remembered that the frequency range on the band is less than that allotted by the G.P.O. in the 40- and 20-metre bands. Any of the well-known circuits—T.P.T.G., Hartley, Ultraudion or R.F.B.—are excellent for 1,770 k.c. work, and in the majority of amateur stations it is only necessary to substitute larger coils for the present short-wave ones to be able to tune to the lower frequency. It is advisable, though, to use a loose-coupled aerial.

Among the best oscillator valves for use with 10 watts on 160 metres may be mentioned the DE5, LS5, CT25X, P625, and P650. These valves usually require a grid leak, but in the T.P.T.G. circuit a 32-volt grid bias battery will be found to work equally well, and should be connected to the grid via the tuned grid-coil. A certain amount of experiment will be necessary in order to determine the most satisfactory method of keying, but the popular practice of keying in the grid leak—where one is used—should be quite effective at most stations. As a spacer wave will cause great annoyance on 1,770 k.c. during the tests, it is inadvisable to key in the H.T. circuit with a resistance across the key, unless, of course, crystal control is used.

Turning now to the question of the most efficient aerial system for 1,770 work, it is safe to say that one cannot do better than employ a single wire or twin antenna with the lead-in taken from the end nearest the transmitter, and with the vertical component kept fairly short—that is, the type known as the inverted L. In many cases amateurs will wish to utilise their existing short-wave aerials, and may be deterred from joining in the tests simply because it may be thought that their carefully-cut sky-wires will be unsuitable. To them one may

(*Continued at foot of previous page.*)

Station Description No. 4.
G6VP.

By "Guy Wire."

PROBABLY one of the best known British stations of to-day is that owned and operated by Mr. Alan Smith under the call sign G6VP, for it is capable of communications with even the remotest parts of the globe and has a claim to over 4,000 trans-Oceanic contacts.

The owner is the G.C. of group IC on 28 M.C., and a very keen and enthusiastic worker.

Though VP says he owes much to Mr. S. S. Tyrrell (ex KI8) for his personal assistance and the quantity of apparatus at his disposal, great credit is also due to himself, as, unlike most amateur stations, it is not of the hay-wire type. On the contrary, it has been carefully thought out beforehand, the owner often figuring it out on paper before proceeding with the construction, in this way getting far more efficiency than by the "cut and try" method.

Most of the apparatus in the station has been designed and constructed by the owner—the only things which appear to have been purchased are valves and condensers.

Success in the way of DX that has been had is attributed by the owner to the fact that he has stuck to the 14 M.C. band only and designed all his equipment for utmost efficiency on this frequency. One of his greatest aims is to make the transmitter as small as possible and the wiring short, and in this he has certainly succeeded.

The station is situated in the basement of the house and one room seems to have been commandeered for the purpose of housing the transmitters, power supplies and broadcast receiver.

For comfort the S.W. receiver is normally in the living room and the transmitter remote controlled from there.

Looking at the photograph it shows, from left to right, the main power supply and smoothing, the crystal control and frequency doubler panels and behind the grid-bias panel, "Peter Pan" and above aerial tuning equipment, the ten metre set on top of the broadcast receiver and more power supply, and the short wave receiver on small table.

The main power supply is obtained by stepping up the 200 volt, 50 cycle, A.C. mains with a home-built transformer (weighing about 35 pounds and looking as if it took some years to wind), to 1,000 volts. This is then rectified by a thirty-six cell full wave chemical rectifier. The cells are one inch test tubes, six inches long, mounted as two units and water-cooled. As electrodes, lead and aluminium are used, the electrolyte a saturated solution of ammonium phosphates.

Both the electrodes and electrolyte are the purest obtainable, and yet G6VP is known to go all over those pieces of aluminium with a pocket knife picking out all foreign matter. In this way the electrodes have a longer life and the efficiency is much greater.

The smoothing consists of 14 mfds. and the secondary of an American power transformer. Even with this amount of smoothing the signal, as heard round London, is not an absolute pure D.C

Although a bad chirp (due, no doubt, to the charge and discharge of so large a filter capacity) is heard locally, it is not heard at any distance.

Other power supplies include a perfectly filtered two-valve rectifier unit delivering 40 watts at 400 volts. Metal rectifiers are used to supply grid bias for crystal control work and charging purposes. The charging transformer is capable of delivering one thousand watts.

Up to quite recently the transmitter, known to many as " Peter Pan " (because it never grows up), embodying the well-known T.P.T.G. circuit, has been doing yeoman service on the 14 M.C. band and giving remarkable results. It is unique in that it is very neat and compact, being only about nine inches square.

The valve used is a B.T.H. B12 (which, unfortunately, is not now being manufactured) and has been in constant use for the past four years.

For 28 M.C. a separate transmitter is used, and is smaller still, being seven inches square and requires only 18 inches of wire for connections. The valve is a D.E.T.I. in a modified Ultraudion circuit with a coil of four turns, two inches diameter, entirely self-supporting, and suspended on the dual condenser.

After much experimenting with various types, the aerial finally adopted for both transmitters is an old type voltage fed Hertz operated below the fundamental and using a single wire feeder. The top span is 70.2 feet suspended between two wooden poles. It is 52 feet high at the free (East) end and 35 feet at the home (West) end. The feeder is tapped on about one-third the way along and the point is very critical, as during the December-January gales the aerial was brought down and broken, some time being spent finding the correct position again. For correct feed potential a variable inductance is included in the feeder and a tapping taken straight from that to the plate coil.

To conform with present procedure and help keep up the tradition of British amateurs, G6VP decided some months ago to change to crystal control, and this, I am glad to say, is at last materialising, the latest additions to the station being crystal oscillator and frequency doubler panels.

As it is in the experimental stage at the moment of writing, I will not attempt to describe it fully, but from observations it seems certain it will employ the Goyder Lock system to couple the last F.D. to the " Peter Pan " set. To allow work in the 28 M.C. band a further F.D. will be used.

Four crystals are available and it will be possible to shift frequency in event of bad QRM. A quick change of transmitters is also possible owing to convenient layout.

Another feature is the novel method of remote control. This works on the railway signalling principle, the pulling of a lever forward and sideways, letting it come to rest on an angle bracket. Utilising a piece of string and pulleys it operates direct two mercury contact switches, putting the filaments on a fraction of a second before the anode supply, and at the same time closing the aerial switch.

On the receiving side two receivers are around the station, both incorporating the Reinartz circuit. One has three valves and is fitted for the addition of a screen grid H.F. stage. Usually used for broadcast reception, it can be easily adapted for the short waves. It uses the same aerial as the transmitter and the H.T. comes from the 400 volt supply.

For normal short wave work the second set, using only two valves, is in action. Being supplied with power from accumulators (up to 190 volts) it is quite silent in operation and is the receiver for 28 M.C. work.

This receiver uses a 25 feet vertical aerial running straight up from the set through the ceiling and room above.

Being in the basement, the station is actually below earth level, and this has been found advantageous as sets do not require nearly so much choking to keep the currents in their proper place.

Whilst talking of chokes, it appears that G6VP winds most of his to resonate at about two meters above the working wave, thereby avoiding harmonics so troublesome with larger ones.

Several meters and shunts have been constructed, and having access to standards they have been easily and accurately calibrated.

Other station equipment includes a crystal resonator and absorption wavemeters of the usual type with neon indicator.

Being, unfortunately, confined to his home, the operator is able to " switch on " any time during the week, and this partly accounts for his fine list of DX worked. He has, on two occasions during the past year, W.A.C. in one day.

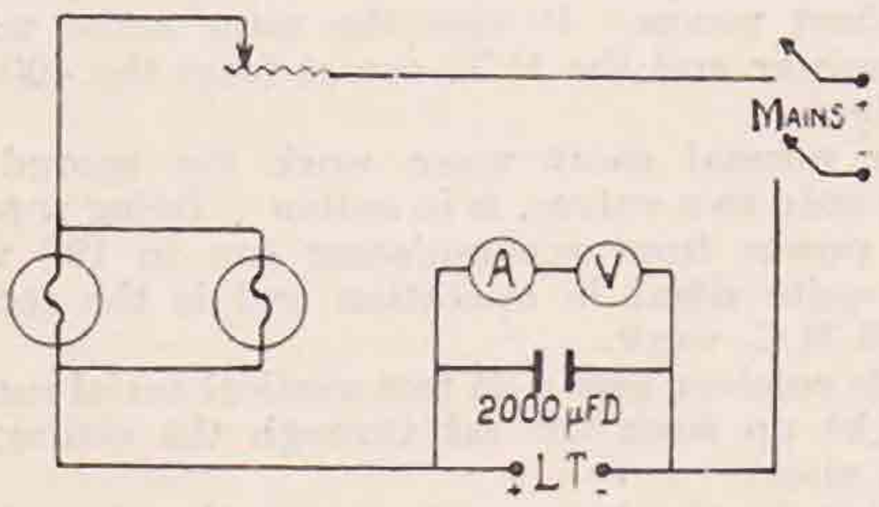
In conclusion, may I ask anyone who can to pay him a visit, as he himself is unable to " go the rounds."

Low Tension from Direct Current Mains.

By E. T. Somerset (G2DT).

IF there should be kindred Souls to the Writer, who abhors all forms of accumulators, let them follow his suit and part exchange these archaic contraptions for electrolytic condensers, etc., and start building L.T. eliminators by the aid of Herr Ohm his law. By his help you can easily determine how much to drop the current in the whole of the circuit down to the figure representing the consumption of the valve or valves in use. This figure is arrived at when the resistance of the lamps and valves plus a portion of the rheostat resistance wire is divided into the voltage of the mains. Suppose you are using one of the LS5D valves for transmitting and impinge 5 volts on its filament as I do, then, by Ohm's Law $R = \frac{E}{I}$ the resistance of the valve filament is seen to be 5 volts divided by .85 amperes (the consumption of the LS5D), which equals for all practical purposes 6 ohms. Now, assuming you have 220 volts D.C. mains; in order to reduce the current flowing in the circuit to .85 ampere you have got to have 258 ohms resistance, for $R = \frac{E}{I}$ You have 6 ohms

in the valve itself, say 25 in a 30 ohms power rheostat; therefore, you will require 227 ohms to be contributed by lamps. The wattage and voltage of an electric bulb are marked on it and to ascertain wattage multiply volts by current in amps. Therefore it is easy to find the current consumed by the bulb by dividing the wattage figure by the voltage. In the above case two 100-watt vacuum bulbs in parallel will do nicely by the following reasoning:—The resistance of one 100-watt bulb is 220 divided by 100 and the resultant fraction is then divided into 220, giving 484 ohms. To obtain the resistance of two in parallel we must add the reciprocals of the two resistances together, that is $\frac{1}{484}+\frac{1}{484}$ (reducing to common denominators must not be overlooked



when working out differing resistances in parallel) and we get $\frac{2}{484}$ Reversing this fraction we have $\frac{484}{2}$ which equals 242 ohms. Remembering that the valve's resistance is 6 ohms, we find that we only require 10 ohms of the rheostat to give us our required resistance of 258 ohms, and the remainder of the rheostat will come in handy for power station fluctuations, or also in the case of your mains being 210 or 230 volts D.C.*

As regards your receiver, and assuming you are using a 1-v-1 or 0-v-2 with 6-volt valves consuming in the aggregate .275 amperes, it is now obvious that the resistance of the valves is 20 ohms and that you require 800 ohms of resistance to drop the mains to .275 amperes. By the formula $R=E\div\frac{W}{E}$ (E is volts and W is watts), we find that a 60-watt bulb on 220 volts mains will have a resistance of 803 ohms, which is near enough for our needs. Of course, the wily ham will probably use a Telefunken transmitting valve which consumes .65 amperes, and will arrange for his short wave receiver to require the same current, so that he need only have one L.T. eliminator and arrange for switching from receiver to transmitter at one fell swoop!

The writer's mains are pretty rough, and yet nothing more than a 2,000 mfds. electrolytic condenser is necessary to give really excellent smoothing, and it is hoped that no one will find that they have such bad mains as to necessitate the use of special audio frequency chokes and bypass condensers. Remember *never* to switch on the L.T. eliminator when the L.T. terminals are disconnected, as in so doing you will impress the mains voltage on the condenser and voltmeter with dire results! Choose a super-power rheostat—Claude Lyons can supply a real hefty chap that will carry more than one ampere. The voltmeter can be quite a cheap affair, and, if thought desirable, as the writer has thought, an ammeter can be used in the eliminator also. Should any difficulty be found in getting the required *vacuum* bulbs as the writer found, the reader will be glad to learn that G2RM found the amiable manufacturers and he can supply same. Wiring diagram is shown and is quite straightforward and should present no difficulties whatsoever. Should any difficulty be experienced in getting the requisite lamp resistance in ohms, remember that bulbs suitable for higher mains voltage can be used, and in this way awkward resistances can be obtained.

*[It should be remembered that the resistance of the bulb as calculated above only holds true when the filament is at full brilliance. A cooler filament will have a lower resistance, and if the added resistance (rheostat and valve filament) is sufficient appreciably to dim the bulb, this fact should not be lost sight of.—Ed.]

Monitor as Frequency Meter.

By A. M. Houston Fergus (G22C).

The use of a screened monitor as a frequency meter for a quick check on one's own, or other people's frequency, has much to commend it, especially if built into a biscuit tin, with all batteries, etc., inside, but there appears to be one difficulty, namely, in getting oscillation strong enough to transfer the heterodyning from the monitor to the receiver, or from the receiver to the monitor. This can be overcome if the monitor is fitted with the usual type of plug and jack connection, for use with phones. Phones are used when monitoring, but when the meter is wanted I have found that if one procures a plug of the long shape type (from Messrs. Leslie Dixon), winds a small coil of wire (D.C.C., say) over a pencil, and attaches the ends of the coil to the respective ends of the plug connections, and then finally covers both the coil itself and the end of the plug with Prout's glue, Chatterton, etc., so as to make it a solid job, the coil is quite enough to pick up oscillation at a strength that can be heard. As the coil and plug cover are bound solid to each other, once calibration has been done, there is no chance of the frequency altering to any extent, and, in any case, it can be checked at each Frequency Calibration Service.

If your Subscription is due, you will oblige us by remitting it without further delay.

Book Reviews.

ELEMENTS OF RADIO COMMUNICATION. By J. H. Morecroft. Chapman & Hall. 1929. 269 pages. Price 15s. net.

This is undoubtedly a book which will appeal to the amateur; though the subject is treated soundly and solidly, no more mathematics is required on the part of the reader than a very elementary knowledge of algebra. Professor Morecroft's famous "Principles of Radio Communication" will be more suitable for those who wish a fuller mathematical treatment.

The "Elements" is not a simpler re-hash of the "Principles," but has been written entirely anew. Nor can it be classed with the general run of "popular" texts which have flowed forth since broadcasting began. It is a thorough introduction to radio engineering, and is intended to prepare the reader for the heavier "Principles."

In the earlier chapters a good foundation of electrical theory is laid. Electrons, D.C. and A.C., batteries, rectifiers, Ohm's law, inductance, capacity, and A.C. circuit calculations are treated with direct application to the main subject, and specimen calculations worked out.

Some exceptionally interesting information on propagation is given in Chapter 3; curves are given which show the results of experiments on the range of various waves down to 10 metres under day and night, winter and summer conditions.

British 28 M.C. Tests, March 2, 9, 16, 23.

The treatment of the triode as an oscillator is of necessity limited because of the mathematical nature of the subject, but the principles and a specimen calculation are given in clear manner, and the use of quartz crystals for controlling the frequency is explained.

The receiver is very fully described, and this chapter provides most enjoyable reading. The problems of amplification without distortion, and the data given on output valves, grid bias and speakers are of the utmost interest, and this part of the text will repay careful study.

Many problems are provided at the end of the book, but it is a pity that the answers to these are not supplied; it would be of great assistance to the reader if he were able to compare his solutions with those of the author.

T. P. A.

HANDBOOK FOR WIRELESS TELEGRAPH OPERATORS WORKING INSTALLATIONS LICENSED BY HIS MAJESTY'S POSTMASTER-GENERAL. Revised in accordance with the Radiotelegraph Convention of Washington, 1927. Published by His Majesty's Stationery Office. Price 6d. net.

This replaces the old handbook which every amateur surely has upon his shelves. It is in no way a textbook dealing with the principles of radio, but is a manual "for the guidance of wireless telegraph operators . . . with regard to the transmission and receipt of signals, and other details of actual working."

While much of the information in this little book is of interest only to commercial operators, there is a deal of material of importance to amateurs. In our work there is a tendency for unconventional

methods of operating to creep in, and it is really necessary for every amateur to study the operating regulations as laid down in this handbook.

The old edition was 1s. 3d., but the present one is only 6d.; this publication can be obtained from the following addresses: Adastral House, Kingsway, London, W.C.2.; 28, Abingdon Street, London, S.W.1; York Street, Manchester; 1, St. Andrew's Crescent, Cardiff; 120, George Street, Edinburgh; Ministry of Finance, Donegall Square West, Belfast. In each case the application should be addressed to H.M. Stationery Office, or any bookseller will obtain a copy for you.

T. P. A.

RADIO TRAFFIC MANUAL AND OPERATING REGULATIONS. By R. L. Duncan and C. E. Drew.

The opening chapters deal in detail with methods for acquiring the Code, and explanatory diagrams showing the correct way of keying will prove of interest to many beginners. The use of Q code signals with a full list of official abbreviations form a useful addition to the Manual. In later chapters the operating rules of the R.C.A., the full text of the recent Washington Convention and the U.S. Radio Act of 1927 are published. The final chapter deals with the regulations governing the issuance of radio operators' licences.

Within its 180 pages appear all the essential facts concerning present-day operating, and for those who require a compact study of the radio laws of the world the volume is recommended. Its published price is ten shillings net, obtainable through Messrs. Chapman & Hall, 11, Henrietta Street, London, W.C.2.

J. C.

Strays.

G2RT states that YI2GQ is again on the air with an input of 60 watts to a T.P.T.G. transmitter and wants to work all active G stations. The operators are four R.A.F. men at Sulaimania, Iraq, and QSL's should be addressed to Poste Restante at that place.

OZ7T says that the insertion of a thin sheet of mica, say 0.03", between the crystal and one of the electrodes will produce a frequency change of about 10 to 12 per cent. Such a change is useful when interference is being experienced from another station. The oscillating properties of the crystal were not in any way impaired.

Trade Notice.

The Telegraph Condenser Co. inform us that they have recently concluded arrangements with Microfuses, Ltd., by which they become the sole distributors of "Microfu" fuses, and that all inquiries regarding them should be sent to the Microfu Section at the company's address.

HIC et UBIQUE.

CALLS HEARD.

By ZL1FW, E. WHITELEY, 1, Halston Road, Dominion Road, Auckland, New Zealand:—G—2lz, 2od, 6vp, 6wt, 6hp, 6rb, 6nf, 5ms, 5wk, 2ao, 6uj, 6vj, 6qb, 6nt, 6bd, 6dh, 6oo. (Anxious to arrange a sked with a G station.)

By M. H. CHURTON, Seakew, Wharf Road, St. Helier's Bay, Auckland, New Zealand:—G—2od, 6vp, 6vj, 6wt, 6nf, 6un, 2lz, 2ao, 2nh, 6rb.

By SN1AA, L. FORD SMITH, Ascension Island:—G—6wt, 5ml, 6ci, 6wl, 6nx, 6rb, 5wk, 6vp, 6gc, 6yk, 6uz, 6vj, 2cj, 5uq, 5ma.

By RADIO CT2AA, c/o Western Union Cable Station, Horta, Fayal, Azores:—7 M.C.: G—2dq, 2dt, 2dz, 2fs, (QRP), 2gf, 2nd, 2nm, 2nz, 2pp, 2qh, 2rt, 2sc, 5br, 5cm, 5cx, 5dr, 5is, 5kl, 5lw, 5td, 5ub, 5vm, 5yk, 6ci, 6dh, 6ds, 6gz, 6hl, 6pa, 6rb, 6rr, 6wl, 6xc, 6xq, 6yq, 6za, gi6mg, gi6wg, ei2b, ei2d, ei5d, ei8b, ei8c. 14 M.C.: G—2cg, 2cj, 2dt, 2dz, 2gy, 2ma, 2nz, 2op, 2oz, 2un, 2vv, 2zp, 5bd, 5lw, 5ma, 5ml, 5ms, 5rs, 5sy, 5wk, 5yg, 5yk, 6bd, 6dr, 6gs, 6lk, 6ll, 6nf, 6nx, 6ps, 6uy, 6vp, 6wd, 6wn, 6wo, 6wy, 6yq, gbvj, gi5nj, gi6wg.

RULES GOVERNING THE ISSUANCE OF W.B.E. CERTIFICATES.

(1) The W.B.E. certificate shall be awarded by Council to Corporate Members of the R.S.G.B. or the B.E.R.U.

(2) The W.B.E. certificate shall be awarded in accordance with Rule 1 to those persons who have effected two-way communications on amateur frequencies, with at least one station in some part of the British Empire located in each of the other four continents.

(3) All applications shall be made in writing to the Honorary Secretary of the R.S.G.B. and shall be accompanied by documentary proof, in the form of letters or post cards, that the claim is justified.

(4) For the purpose of differentiating between the five continents, Council shall approve a map of the world showing clearly certain arbitrary datum lines. A copy of this map shall be held at the Headquarters of the R.S.G.B. and arrangements made to publish a reproduction in the Society's Journal.

(5) All claims shall be judged in conjunction with this map.

(6) Members to whom the W.B.E. certificate has been issued shall be permitted to use the letters "W.B.E." on personal correspondence during the time they are members of the R.S.G.B. or the B.E.R.U.

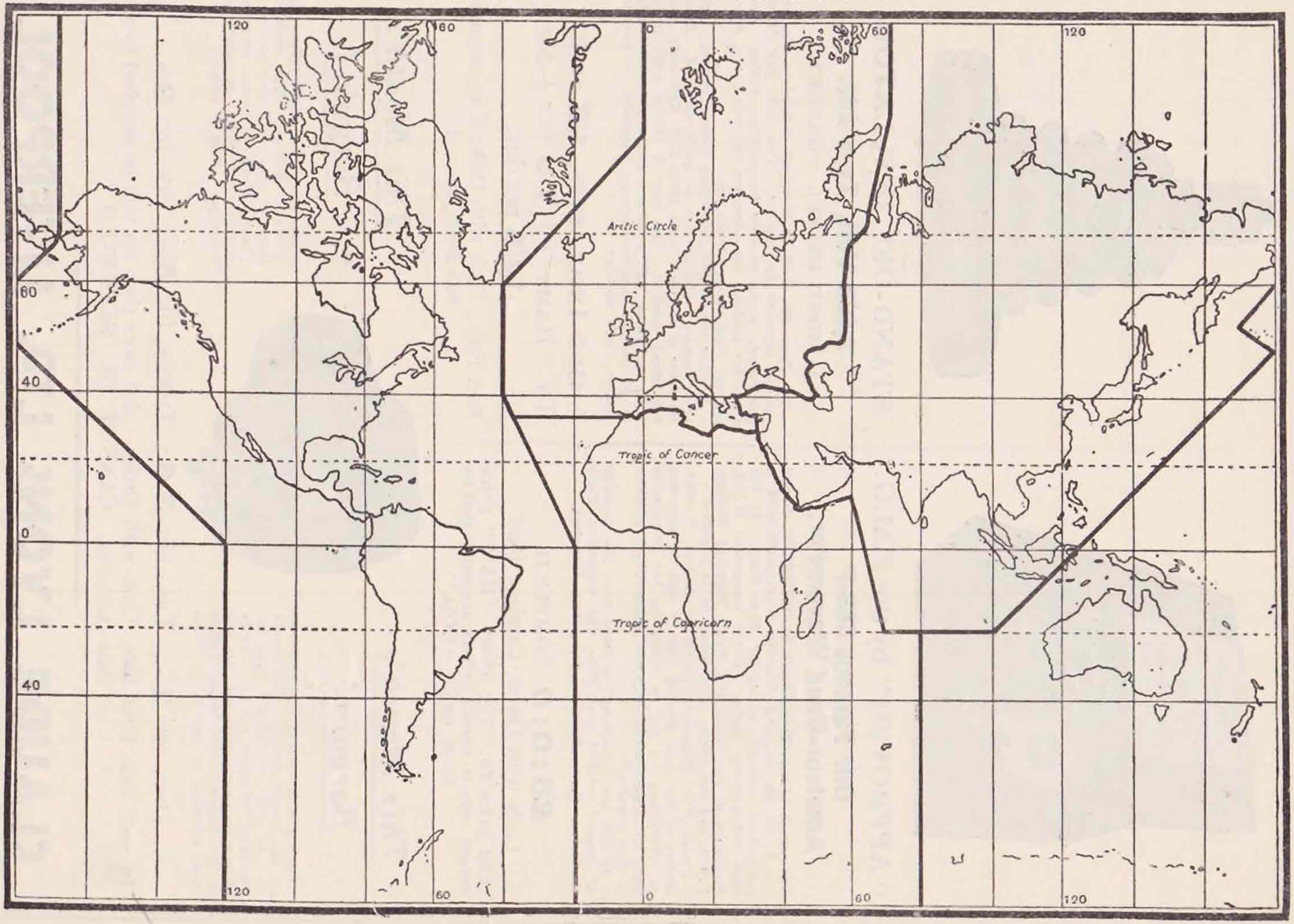
(7) Communications with ship stations sailing under the British flag and British mobile stations will be considered as Empire contacts.

(8) British mandated territory and Protectorates shall be considered as forming part of the British Empire.

The above rules were approved in Council, January 22, 1930.

(*Continued on page* 206.)

A Map of the World showing Divisions into Continents as approved by Council for the purpose of the W.B.E. Certificates.



Contact Bureau Notes.

By H. J. Powditch (G5VL).

THE 28 M.C. tests arranged for March 2, 9' 16 and 23 seem to be exciting some interest abroad. The ARRL promise to give us a notice in "QST" for February, enquiries from French stations have already followed a notice in the "R.E.F." paper, Germany has given us notice in "CQ," and OH2NM seemed to know all about the tests when I got a word with him *via* radio. We can be sure, so far as I can gauge, of notices in all the Colonial papers. In addition some 50 cards and letters have gone out from C.B. to amateurs known to be working on 28 M.C., and I would thank those of our members who have themselves advertised the tests as requested in last month's notes.

You will possibly wonder "Why all this?" Because now its up to C.B. and R.S.G.B. members to do their bit. First, by covering the whole periods of 24 hours each day with receiver and transmitter. The time may be wasted, but there is a jolly good sporting chance of pulling in the cup which G2DT offers for the first station to QSO four Continents on 28 M.C. Probably there will not be another time when the majority of 28 M.C. stations are on the watch until 1931. The second point seems to be the tuning up of gear and so avoiding adjustments during the test days. I think we all agree this is a fatal move for consistent work.

May I remind 28 M.C. G.C.'s of the request to them in my circular that they organise their groups to cover the test periods. Have you done this, OM's?

Last month it was mentioned that a small memento would be given to the most successful receiving station under the rules. Thanks again to the generosity of G2DT there will be a challenge cup for the receiving station. Therefore the most successful transmitting log gets G5VL's challenge trophy for the year 1930 and the receiving log holds G2DT's challenge cup. C.B. tenders its thanks once again to G2DT; may his shadow never grow less and his projected removal to South Africa be long delayed.

A word of explanation. There is nothing to prevent a transmitting station winning the receiving section's cup. If the transmitter is lucky and skilful enough to log more stations than anyone else its only fair that he holds the cup as the best receiving station irrespective of what he may do with the transmitter. If there are any "snags" in the rules on p. 169 of January Bulletin, please drop a note to C.B.

To conclude, please keep full logs of everything likely to have any bearing on your results and—whatever these results—send the whole log to C.B. for analysis at the close of the test period and not later than March 30.

Printed on another page are the rules for the 1,750 *K.C. band tests*, which take place on the four Sundays of April. They will be a complete contrast to the 28 M.C. affair, and for this reason only should prove interesting. Here we offer two challenge cups, one for the transmitters from G5VL and another for receivers given by the R.S.G.B. Committee, to whom thanks. If Mr. Editor will permit, I would like to explain the reason for the somewhat unusual rules for these tests. The trouble in drafting any suggestions for this band was that—unless we limited the number of contacts made within short distances—a station in the more thickly populated areas of amateur activities might easily obtain QSO's with his neighbours, leaving another station in the wilds under a severe handicap, inasmuch as almost every QSO in his case would be at extreme range for the power and band. Again, we want to demonstrate the reliability of the band under various time and weather conditions, and therefore by using these conditions as test transmissions we seem to meet both requirements and ensure that a reliable contact has been effected. Owing to the fact that our counties are not laid out to give equal areas, there is still some advantage in locality. However, the scheme seems to me to be the best compromise possible. Again, we give preferential points for the cups according to the times at which the contacts take place, and hope also to encourage schedule working by the "two period" allowance.

The whole success or failure rests with our members, and may I personally ask everyone who can possibly do so to have a shot at these tests. The gear required is of the simplest, and a recrudesence of interest on the 1,750 K.C. band will strengthen our amateur position markedly.

G6OT, the G.C. of Group 10A, will give any information required on the practical side and G5UM is collaborating with him in general matters.

The G.C. of our C.C. group points out a slip in the diagram of the C.C. adaptor on p. 166 of January Bulletin. A blocking condenser is obviously required and should be placed in the lead between the C.D. plate coil and the T.P.T.G. grid coil.

Below is the second article on the work and aims of various groups. In this case G5SY tells of Group 1B.

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28 Megacycle Work in Group 1B.

By W. B. Sydenham, B.Sc. (G5SY).

ANYONE who spins a dial through the 14 M.C. band nowadays knows that it is far from being the "splash of silence" of yesteryear. In fact—sometimes it seems to be as homely as 7 M.C.—it has that nice crowded feeling! Here, then, is one justification, if such be needed, for exploring the possibilities of 28 M.C. It seems evident that as time goes on and bands become crowded we are practically forced to seek new

avenues. It is hoped, however, that readers will not take the foregoing to mean that the sole object of the group's work is to do DX on the band. DX communication is, of course, a pretty good test of the results of research in design and so on, but a good deal depends on natural conditions. Remember that the chief, in fact the sole, reason for the group's existence is research. It would be as well for amateurs generally to realise that that is why they have been granted licences.

Some fifteen months or so ago 28 M.C., or rather "8 metres," was "in the air." Contact Bureau had started, and therefore it was natural that 8-metre work should be an object for the attention of this organisation. Group 1A had only been in existence a short time when group 1B was formed under G5SY. Group 1A in its original form has since been broken up, but 1B still carries on, though its personnel has changed somewhat. It should be noted, however, that of the original six, G6LL, G5VL and G5SY are still carrying on and as keen as ever. The remaining present members are G5ML, G5LU, G6WY, and BRS290. All are doing excellent work.

A brief outline of what has been done will probably be on interest. Most of us started off with the quite erroneous idea that as we were about to double our frequency we must discover some entirely different type of receiver and transmitter. On the transmitting side we set out to design circuits and sets which would operate specially on these high frequencies. We have since come to the conclusion that if the components and lay-out are designed to have low losses, the particular type of circuit used is to a certain extent a secondary consideration. We have found that practically any of the standard types of transmitting circuits may be made to work efficiently, though one or two have rather high feed currents. The Ultra-udion, T.P.T.G., and crystal controlled frequency doubler are all in use by different members at the present moment. It seems evident, therefore, that once the troubles in sharpness of tuning, etc., have been mastered there is no great difficulty in constructing a set which will work efficiently on 28 M.C.

We are, however, still very undecided as to aerial design. One has only to look up back numbers of the BULLETIN to realise that this point is not a monopoly of 28 M.C. The 14 M.C. experts are still heatedly arguing the point about it, and each amateur is perfectly decided that his method is the only one worth using. The members of group 1B are in much the same position. Last winter we seemed to be drifting to the conclusion that a half wave vertical aerial was the thing; now, however, we appear rather to be in favour of a longer one. Several of us are using a full wave vertical and are getting better results. But it is rather upsetting, is it not, when G6LL tells you that he has been using his 14 M.C. horizontal for 28 M.C., and it has made no difference!!!? Evidently we have a lot to learn about aerials, and this must form a very important part of our future research. We shall find no doubt that the real solution of the problem lies in the discovery of an aerial particularly suited for the district in which it is to be used. Absorption is evidently much greater than on lower frequencies, therefore it is all the more important to get our radiation up and out with as little loss as possible. It will be thus seen that aerial design must form an extremely important part of the policy of the group. G.C. G5SY hopes that the members will succeed in obtaining valuable information on this subject.

As regards receiving apparatus, little change has been made in the types of circuits in general use. We certainly commenced by using some of the more unusual types of receivers, specially adapted for low wave work. It appears at present, however, that most of us have gone back to standard types. Indeed, as G.C. has pointed out on several occasions, it appears that the usual standard arrangements are quite effective, provided that the lay-out and coil construction are designed so as to have low losses on these frequencies. This appears to be the problem at the moment and we may claim that we have made great strides in this direction. It is hoped that further research may be undertaken in coil, L.F. coupling, threshold howl, and so on.

So far we have dealt with what the group has done, and hopes to do, in the design of apparatus. As regards achievements in actual transmission and reception on 28 M.C., group 1B has a record to be proud of. The efforts of G6LL and G5VL are well known. G6LL was awarded the Wortley Talbot Cup in 1928 for the best individual advance in radio research. His finely-designed crystal controlled transmitter has already been described in the BULLETIN. Last winter, during the 28 M.C. "season," he and G5VL were in constant communication with W's, including W1BJD, W2TP, W1XAM, W2JN, W2BG, and others. G5VL's first reception of California and G6LL's report from Johannesburg were notable achievements. The group is proud to be able to claim G5VL, now manager of C.B., as a member of 1B. G5ML last winter, though a late arrival, did excellent work, and now G5LU and G6WY are active transmitters. BRS290 is a very useful and keen member, and we shall certainly hear more of him soon. G5SY's achievements in DX reception include the reception of W6UF, of California, on 28 M.C., using a S.G. receiver. As far as can be ascertained this is the first and only of its kind from that distance. This winter the best result so far is ZS6C, and it is understood that only one other station had heard a South African on 28 M.C. at the time of this reception.

The circulation of the monthly letter budget guards against slackness. It is almost impossible for a member who wishes to keep up his monthly report to let things slide. G5SY inserts copies of the Air Ministry's weather chart for each Sunday in the hope that something may be learnt of weather effects. The interchange of ideas via the letter budget keeps interest alive and lets the other fellow know what one is up to, and there is no doubt that all this will result in fresh knowledge being gained this season.

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GROUP REPORTS.

Before starting on existing groups there is a suggestion made for a television group to be started. Have we enough stations interested to form a nucleus? As the BULLETIN articles now deal with the subject we should follow up in C.B. Now, then, you people who supported television research at Convention, how about pooling your work in a Television Group?

28 M.C. WORK.

Group 1*B*.—G.C. G5SY reports activities by all members and that generally the weather conditions seem to fit in with the theory of high pressure to South and West for best results with U.S.A. G.C. has been carrying on a " sort of postal argument " with G5VL as to what happens to the radiation from half and full wave aerials. G5SY wishes that the other members of the group would have something to say about it, as he suspects an interference effect at distance from the two halves of a full wave. G6LL has 5 QSO's covering W1, 2 and 8 districts. He is still busy with C.C. experiments. G6ML has also 5 QSO's in the same W districts, but his receiving log is a wonderfully good one, comprising W2AQB, W9FAX, W9BYC, W2BON, W8NR, W1MB, W2BG, and PY1IA. (Congrats, G5ML, especially on PY.) Reports of reception in England have come from a number of stations, G5SY at 170 miles being the furthest. G5SY has continued his aerial tests using half, full and double wave radiators. He finds double wave or half wave produce best results and, in fact, got no reply with full wave and wants G5ML to consider this point. BRS250 turns in a log of 4 W's, 5 commercials, EAR65, SM2RW, and G5ML. He suggests that G6LL's chokes are picking up what the crystal tickler may not require of 5XX's signals from a nearby B.C.L.! G6WY has trouble caused apparently by a repaired valve (VO/50), but has been busy with receiver and reports 3 W's and a crop of G's (6LL, 6VP, 5WK). G5LU rejoices over a new receiver which has brought in a number of stations in a district considered to be " blind," but does not add if they were on 28 M.C. G5SY had half the month at Minehead, and, I understand, found conditions there good, as was the case last year. His receiving log shows 4 W's in 1st and 2nd districts, W9BYC, 7 different commercials and ZS4M. The latter was R5 and both ends of a QSO between him and W2JN were heard. G5ML was heard twice. On December 29 W2JN was heard at R3 with raw A.C., and later changed over to his long aerial and C.C., when he improved to R5. G2OD noticed a bigger increase than this, as will be seen from his report under 1E.

Group 1*C*.—G.C. G6VP has had " Christmas QRL " and, in addition, had his pole and aerial blown down and later his house inundated. Hence, only a few local contacts to report plus W2JN and commercials. G5YK has a most curious log of harmonics and local signals, viz., G6LL and G2OD on December 16, G5ML, CT1AA on 22nd, SU8RS, another harmonic, on 29th. In addition, OH1NT on 22nd, which seems to be a 28 M.C. signal. G5YK has also been experimenting with aerials, but does not, apparently, draw any definite conclusions from results obtained. He states that he started with old vertical aerial, but changed to a semi-horizontal, 100ft. long. This got signals to W2JN. Later he put up a 68 ft. true horizontal with 52ft. feeders. He obtained a balanced aerial by using a centre tapped anode coil, splitting the coupling coil and coupling to each end and this arrangement gave improved results. A SG stage is now found to be an improvement and a little amplification is obtained, but the background is not so good as D. LF. receiver. G6WN, like so many other stations this month, notes local signal from G5ML and harmonics of CT1AA and EAR65 ZS5C was heard and called, but G5WK QSO'd him. The December 29 seems " dud," but 4 W's were heard and G2OD and G6LL were louder at 17.30 than all day. RKV was heard for hours. The ops. have been successful with current feed modifications and have improved aerial efficiency. (Details, please.) G6DH seems to be the group's star station. He reports WIK, WIY, and WKU harmonics heard every day. An Ultraudion gives good results and a D.E.T. 1 S.W. is going in soon. Another aerial problem crops up from the fact that he worked W1BJD and got R7 with 13 watts using the dead end of Zep. Question: Did the other portion of the Zep take any part in the proceedings? A second stage of L.F. is recommended and December 22 is noted as best and December 29 as worst days. W2JN has now been heard for eight consecutive Sundays. Four other W's are listed in addition to stations mentioned; most occur several times. 2BIV has been renovating the station and has to rescale his receiver as a consequence! He reports W2JN, G6YC, and commercials heard.

Group 1*E*.—G.C. G2OD kindly keeps me posted as regards his experiments. The late QSO's with W2JN continue. The transmission noted by G5SY was one made by W2JN with a half wave horizontal aerial using a temporary self-rectified set and the signals from this were very faint with extreme QSS. Late in the afternoon W2JN changed to his standard C.C. set with long horizontal aerial and his signals were then R7 with G2OD. The contact was held till well after dark. On January 11 G2OD was QSO with NKF again until 15.45 G.M.T. A heavy snow and sleet storm developed and the sleet froze on the aerial until " it resembled a heavy rope." This had the effect of increasing the effective capacity of G2OD's aerial, and series condensers had to be inserted to retune before any H.F. energy could be persuaded to enter the aerial—a point showing the sharp tuning of the system. The aerial used is direct from window, sloping up to mast, and two wire feeders are used only inside the room up to window. These are spaced 3 ins. In this case the added diameter of aerial appears to have given very noticeable added capacity, and as it is free from screening and adjacent objects the experience is one which points to several minor correction factors in the design of such radiators. After the sleet melted wave returned to normal. January 12 was marked by a power supply failure, and contact with W2JN was only possible at 16.20. ZS4M and W2BG were heard during the failure. G5PL is still encountering some trouble with aerial set adjustments, but hopes to be going soon.

Group 1*F*.—G.C. BRS25 starts with an appreciation of G5WK's work, viz., three different W contacts on three days, and the first and second contacts with South Africa on December 22 and 29. We all offer our congratulations to G5WK. A new C.C. transmitter was built, and after only one local QSO, worked W1BJD (R6) on December 15. On 22nd ZS5C gave R5 at 15.35 G.M.T. On 25th W2JN was worked R3-5, on January 1 W2NM again R3-5, and on January 5 ZS4M giving R3. The aerial used is 64ft. long and tapped direct to plate coil. He contemplates making tests with full and half wave Zeps shortly. Receiving log is also good and includes W9BYC on December 29.

Peculiar conditions were noticed on January 5, when no W's were heard and WIK and WIY harmonics were inaudible except for a very brief period in afternoon. At 13.15, however, OZ7Y was R2 calling CQ, and at 16.00 VO8AE, calling "CQ.DX.G.," was R7, probably harmonic. OZ7Y is supposed to have been working on 28 M.C. G6HP has done little but is building a new C.C. transmitter. G2CX and G2DZ do not report BRS25 again heard W9BYC on December 15 and 29. Both at about 16.45 G.M.T. He has received a letter from W9BYC which states that he has not yet worked Europe on any band and has only worked East Coast U.S.A. stations on 28 M.C. Input is 30 watts to a CX310 with modified Hartley circuit. BRS25 continues with some interesting notes on "freakish" reception conditions. He has not been able to hear South Africa even when G5WK—only some five miles away—was receiving ZS4M at R5-8, BRS25 carefully searched for the signals without result. Precisely similar results were found when G5WK was working ZS5C on December 22, although G5ML at 200 miles away was heard several times, an event which has not happened before or since. Regular reports are sent to W2JN and W2NM each week.

Group 1H.—G.C. G6OO has another blank month. His group do not report, so he presumes N.D. and wishes he were near enough to the London stations to get local reports on his own signals. Many thanks, G6OO, for advertising the tests and a message to the group members. Keep in touch with your G.C., even if there is nothing in the way of DX to tell him. Yet, if you are interested in 28 M.C. work, there must be something worth mentioning.

Fading, Blanket and Blind Spotting.

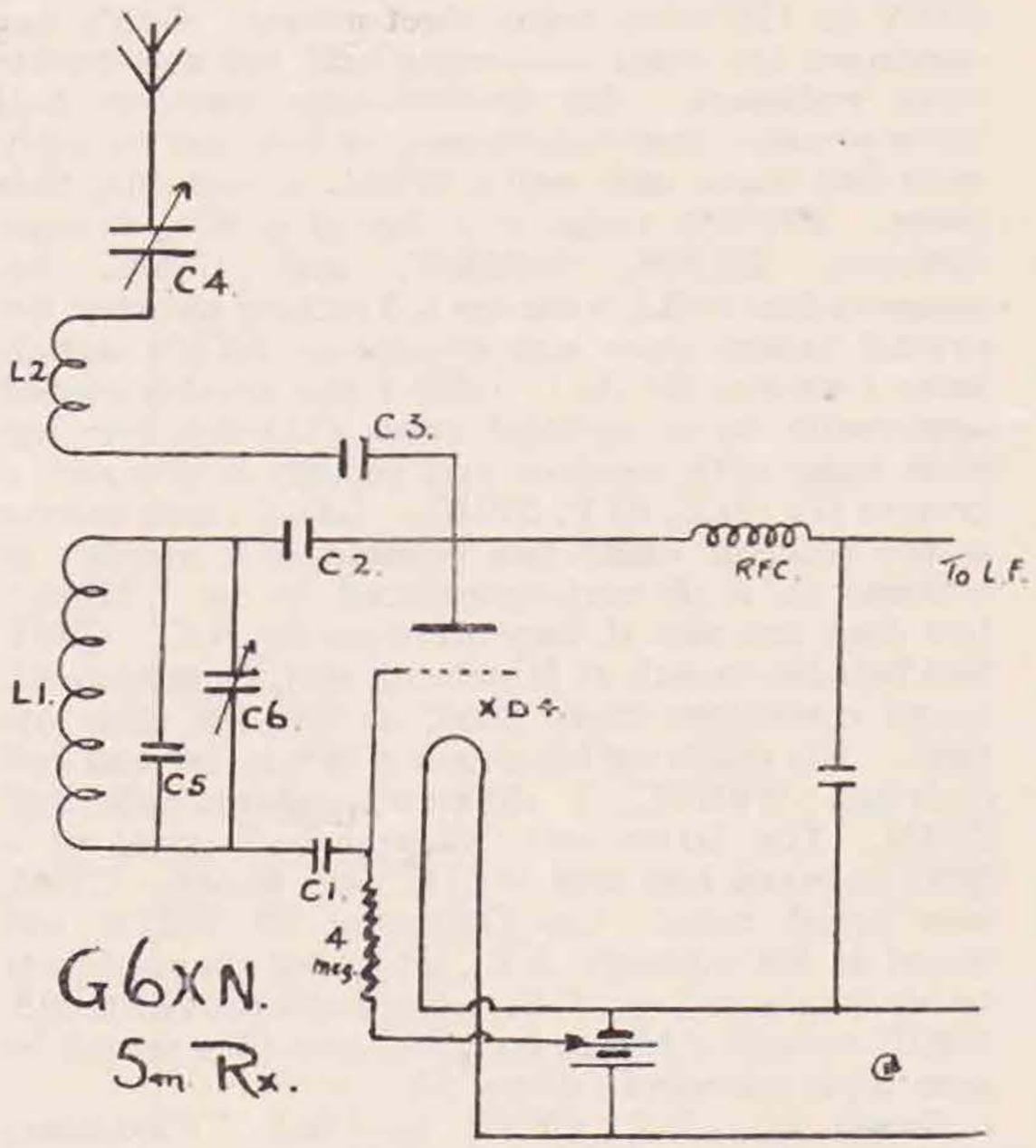
Group 2B.—G.C. G2ZC suggests a monthly short report of his group's work with a more detailed quarterly resumé of results. A good idea, and we will find room each quarter for this. CT1BL finds that blanketing can be due to local conditions, such as tramcars, and suggests that it may be due to a magnetic field, emanating from the car circuit, changing the potential of the earth's surface. Quick fading is, in his opinion, due to earth tremors, and G6PP agrees with him. The latter noticed that EAR149 was coming in on 14 M.C. when all other audible signals were about 5,000 miles away, and found that EAR149's true frequency was 7 M.C. He asks, "Are harmonics affected by skip?" and quotes from an article in "CQ" regarding DX and barometric pressures. CT1BK suggests that the group collect a concentrated list of all the known and accepted theories of fading and add to it from time to time. G2ZC has done little work in December, but would like to have suggestions as to the cause of "wavy" fading from near by C.C. stations. He suggests it may be due to ripple surfaces in the Heavyside layer. BRS272 (now G2IM) and G6YL have no reports. The former has been ill.

Crystal Control Work.

Group 3A.—G.C. G2NH calls attention to the error in diagram of C.C. adaptor last month (where blocking condenser was omitted). G6XB is building a set using G6QA's circuit, but has not yet any results to report. G6QA describes the tuning of his circuit and has been trying a C.O. with usual F.D., but has now returned to his old love. *Verb. sap!* BRS255 is a silent member.

56 M.C. Work.

Group 7A.—G.C. G2DT finds things too quiet for his liking. He is now QRT owing to impending change of QRA. Can anyone tell him where a Phillips' T.C. 04/10 valve is available? G6TW badly wants skeds with foreign stations or a station in North of Scotland. Any offers? He is working out a new transmitter for G2DT, which it is hoped to put into commission in March. It has been noticed that with the aerial lead 18 ins. from the transmitter, radiation of approximately one-third of normal is shown by a H.W. meter in aerial feed, and G6TW wonders what distance his transmitter should be from earthed objects to retain efficiency. G6XN sends some interesting criticisms of W2AIU's theories as set out in G2DT's



L_1—2t. 1½" diam.
L_2—3t. do.
C_1 C_2—1000 mmfds.
C_3 C_4 C_5—25 mmfds.
C_6—12 mmfds.
C_7—Serves as Reaction Control.
L_1 L_2—Must be correct direction for Coupling.

recent Bulletin article. He queries the change of frequency on refraction and mentions that some tests are going forward with portable sets in March, at which the question of frequency changes will be very carefully checked. He also draws an opposite conclusion from the test lamp experiment at W2AIU; that as with greater radiation by aerial the field round set should be correspondingly reduced, a diminution of the light from a lamp near set might point to a greater radiation of power from aerial, thus reducing the set's field. An Ultraudion circuit is used for transmitter, parallel feed with usual chokes in H.T. positive and negative. A .00005 mfd. condenser is across the whole coil, the latter being two turns, grid condenser .002 mfd., and chokes 50 turns, ¼ in. diameter. Aerial is direct to coil. Valves are DE5 or CT25X. I give a copy of his receiving

circuit, which is stated to be unusually efficient on 14 and 28 M.C. bands as well. The aerial coupling is a special point claimed to give improved results.

QRP Work.

Group 8*A*.—G.C. G2ZN finds work still hampered by bad conditions and DX impossible, OK being his best effort. G5RV is still interested in "High C" circuits and maintains that any small efficiency drop is more than compensated by steady note. He notes, however, that a coil of reasonable dimensions must be used to give sufficient voltage for "A.O.G." aerial feed. BRS245 is awaiting his full ticket and has two transmitters waiting, 2.5 watts for group work and 10 watts for general 14 M.C. work. He has rebuilt throughout. 2AUT has a moan at the bad conditions and finds 7 M.C. dead. He contributes a station description and suggests the handy "Ford" spark coil for keying choke. G5PJ also cannot get away at all during this dud spell. G5AZ reports only local contacts and says good-bye to the group owing to business interference. Sorry to lose your help, OM. The group is following up 8B's remarks on the different skip ranges of signals, and G2ZN notices that his QRP signals will occasionally get a local QSO when the usual fade out on 7 M.C. has taken place. He also asks if other QRP groups remember that there is a band on 1,750 K.C. and, if so, why not use it now and then ?

Group 8*B* also comment on bad conditions, but seem to have done well. G2OA has worked two more countries; TS and CV, and is getting good reports from EU and EAR. On the 3 watt (competition power) he has OH and HAF. He enquires how distances are to be measured, map or globe ? (Globe, great circle G5VL). G2RT still hopes for a W ! FM on 5 watts and TS and CN are his record for the month. Hints at QRM from a new motor bike; 3 watts working gives EU9 and OK. G5CM finds an Ultraudion better than T.P.T.G. Good reports from CT, EU, SP, and HAF, and a missed call from YI. G6SO also falls to an Ultraudion and finds it some improvement. FM on 3 watts is best effort. G5JF fails to report and breaks 8B's record ! G.C. G2VV again goes to Ultraudion, and seems to like it for low idle feed. Bad conditions have made actual trials uncertain. Best 3 watt work, FM and CT. All the QRP groups' budgets are now interchanged and a series of questions for discussion is added to 8B budgets.

Group 8*C*.—G.C. G5PH has D. on 7 M.C. and many Europeans on 14 M.C. to his credit. A crystal across grid still will not take hold. Consequent on a change of QRA a break in work and rebuild is expected soon. G6PS is the ultra QRP station of the month, 60 volts of H.T. reaching to OK and LA on 7 M.C. and to SP on 14 M.C. Power 3 watts gave 26 stations in seven days. QRO, 3 watts, gave EU2 and 9 and CT. G5QA was QSO W8BRH on 14 M.C., but is worried with an A.C. note from accumulators. G2AT has been moving, but is troubled by aerial difficulties. G2AV and G5PH are both tantalised by the number of W's heard, yet they cannot get across. The former has been noting the effect of removing crystal and ON gave him R4, C.C., with crystal in place, and R6, T7 with it removed. Only daytime European QSO's. G5AQ finds that darkness means a washout and regrets a clean note pad under such conditions. Another C.C. station with grid control.

Group 8*D*.—G.C. 2AUH is preparing for his debut on the air. G2GA reports a QSO with ship some 200 miles west of Gibraltar, also OH and SM. 2BHI is anxiously awaiting his Morse test. He has a 160m. crystal which controls 23 metres ! His note is that QRO signals seem to get through QRM better, although their QRK may be only the same as QRP ones. G2SA finds that dull, calm weather is best for DX, sunshine is bad, and cold weather means fading signals. (I wonder, did the fire go out in the den ?—G5VL.) He has worked most Europe on 7 M.C. and W and VE on 14 M.C.

1.75 M.C. Work.

Group 10*A*.—Several letter budgets are held up by members of this group. Will they please return them to G.C. immediately. G5UM has a list of 37 stations heard on the band, a fine effort considering the limited number of stations working. His best QSO was with G6SO in Tamworth. Reception is found to be definitely better on moonless nights, and he wonders if the tides can have any bearing on signals over land. Co-operation with stations working on higher frequencies might be of use. (Perhaps G2ZC of group 2B might be able to give some data). BRS164 has experienced very bad conditions, G5UM not being received and only two southern stations (G2MJ and G6OU) coming in. G6QC sends a first report. He is particularly interested in the DX possibilities of the band with 5 watts input. An Ultraudion circuit is used stabilised by a crystal across the whole of coil. The general trend of his experiments points to the use of a high impedance valve. Conditions have again been found bad, and G6AX and G2NF are the only distant stations logged. G.C. G6OT has got on the air again and renewed QSO's with some old stations. He hopes for great things when the new transmitter is finished and things are expected to look up, especially as the presence of G6CJ in the household adds "considerable weight" both to operation and the supply of gear. Only reception of note was a Dutch station, but the call was not completely obtained.

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This month's reports from groups are notable, first for the fine work of G5WK in his two QSO's with ZS and G5ML's PY reception. It is curious to note that through nearly all the groups the question of aerials for 28 M.C. appears the paramount question. Another thing is that all the 14 and 7 M.C. groups complain of bad conditions, and the 1.75 M.C. workers agree with them. Yet 28 M.C. has, generally speaking, been good. Also I am struck with the frequent references to stations using the Ultraudion circuit, and G6XN recommends quite a standard lay-out as working well on 56 M.C. His receiver, too, appears to be quite an ordinary affair, as compared with some, and one wonders if, as G5SY mentions in his article, the 56 M.C. band will yield its secrets to our present type of gear as was the case with 28 M.C. I wonder if anyone would volunteer to collect aerial data from our active 28 M.C. transmitting stations and give an article based on the conclusions he draws from the facts so obtained.

Tests on 1,750 K.C. Band.

Objects.—To test the band's possibilities for daylight and darkness communication, investigate the cause of fading and effect of weather, cloud and moon, and the differences in signal strength between daylight and dark. Also the causes of static. To give additional interest the tests will be run on competition lines and two cups are offered.

Dates.—April 6, 13, 20 and 27 from 00.00 to 24.00 G.M.T. Each day will be divided into *Light* period from 05.00 to 19.00 G.M.T. and *Dark* period between 00.00 and 05.00 G.M.T. and 19.00 and 24.00 G.M.T.

General Conditions. — The tests are open to R.S.G.B. corporate members in the British Isles. Stations taking part will endeavour to obtain by direct QSO weather reports from as many different counties as possible and to transmit to such counties their own weather conditions. Each station taking part will thus endeavour to work *one* station in each county and to give and obtain a statement of the weather at each end in the form set out below. Only one station in each county may be worked in each period of one Sunday (i.e., a daylight and dark QSO with each county on each Sunday is to be tried for). The same station or another in the same county may be worked so long as both contacts are not in one period, either daylight or dark. Full reports of the messages sent and received must be reported and failures or inaccuracies may cancel points to both stations. The messages received and sent in the two periods will obviously differ in detail. Correct reports of QSO's will count two points to each station for the daylight periods and one point for dark periods. Reports of QSO's should be sent to C.B. not later than the following Wednesday of each week showing the previous Sunday's work. Thus, four separate reports will have to be sent in, one for each week.

Working.—Power is limited to 10 watts to last valve. All P.M.G. regulations must be observed. Stations taking part will call "Test De G . . ., WX," followed by their own county in order that distant stations may avoid answering calls from counties whose weather reports have already been received. In addition, a directional call may be added to indicate a county from which a report is still required. Thus, G5VL in Cornwall, requiring a report from Hampshire, would call "Test De G5VL, WX, Cornwall Hants." Ridings of Yorkshire will be treated as separate counties, and the whole of the London Postal Area will be treated as the County of London. A contact can be made with the same county in which the transmitter is located. The final award will be entirely in the hands of C.B. and, in the event of a tie, the general value of the work done as shown on reports sent in will be considered. A cup will be presented to the most successful transmitting station.

Receiving Stations taking part must endeavour to send in accurate copies of the weather reports from as many transmitting stations as possible. These messages must be correctly framed (as rules) or a note should be added of any divergencies. *All* stations heard, no matter in what county, must be included by receivers, and QRK and general notes of QSS, etc., shown. For the dark periods, one point will be allowed for each correct report of a message from a transmitting station in the same county as receiver and two points for such message from another county. For the light periods these points will be doubled in each case. A cup, presented by the Committee of R.S.G.B., will be given to the most successful receiving station. Reports from both transmitters and receivers must give full details of stations working and the detailed weather reports. Accuracy is an essential point of these tests.

Form of Report (for transmission in tests).—"My WX is CLOUD . . . . . RAIN . . . . . WIND . . . . . SUN or MOON . . . . . TIME . . . . . G.M.T." The blanks are to be filled in from :—0, nil ; 1, very slight ; 2, light ; 3, moderate ; 4, heavy ; 5, very heavy. Thus cloud will be from 0 to 5 ; rain, from 0 to 5 ; moon, give phase only ; sun, bright, partial or nil only ; wind, 0 to 5 for force and add direction.

Please don't forget to report *each* week of tests to : G5VL, Porth, St. Columb Minor, Cornwall.

28 M.C. Notes.

A very sudden influx of reports this month has kept the editorial staff busy, and if the enthusiasm and interest which is shown this month is maintained and increases correspondingly, the tests in March will be an unqualified success, given good or even moderate conditions. Conditions—there we have it ; they are undoubtedly the governing factor on this band, more so than on any of the other bands.

The general conditions this month have been about the same as for the past month or two, but local conditions seem to have varied a great deal.

For example, when one station is working, say, **ZS4M**, and receiving him at good strength, another station a few miles away, whose receiver is above suspicion, cannot hear anything of him.

A point we would like to emphasise is the number of crystal controlled stations that are starting up on this band. This is a step in the right direction, provided they will try and smooth their notes out a little. There are a large number of stations now active in the London area alone, and yet every one of these is jammed up into a few K.C.'s at the bottom of the band. This is manifestly absurd, as this is the largest band we have, and all the DX stations seem to be in the same few K.C.'s. The result is bad QRM. Now, OM's, see to it and spread out over the band a little more. Give the crystal a few rubs over with some fine carborundum and leave that portion of the band where the DX is.

The work this month has reached a higher level than ever. A large number of stations have succeeded in making their first DX QSO, often with the first call.

A peculiarity this month was the large number of

OH stations audible on January 19. These were all of good strength and reported our stations, in nearly every case, as R 6-7, *irrespective of power*. This is a point worth noting, as it seems to bear out the idea that under good conditions increase of power will not increase signal strength.

The usual "local" G's have been heard again, at distances ranging from 70-200 miles.

There have not been a large number of W stations "on the air," but there have been a few regular ones, from whom signals are consistently heard. A perusal of the list below will confirm this.

We would like to offer our congratulations to South Africa for its enthusiasm and good work on this band, and we are pleased to include a few "calls heard" from them. Our old friend ZS4M is the most consistent station, although usually badly affected by fading, often reaching a maximum signal strength of R7 or R8. He is followed by ZS5C, who is not heard quite so regularly. There are quite a lot of other ZS stations on, but they do not seem to be getting out very well. However, we shall probably hear something from them soon.

As regards individual work, G5WK has been very active, and has worked ZS4M and OH, in addition to several W's. G2OD has been doing some good work with NKF and WZJN, and, we hear, has also worked W9EF. G6NF is also very active and has several QSO's to his credit, notably one with OZ7Y. G6LL has had his first contact with ZS and has also worked OH, in addition to several W's.

The general activity will be noticed from a perusal of the "calls heard," but mention should be made of two stations who claim to have obtained amplification from an S.G. valve in their RX. We hope that details of this will be forthcoming.

In conclusion, we would like to thank all those stations who reported this month and urge them to "keep it up." To the stations who did not report—"See to it!" Make a point next month, and send G6LL your report by 25th or 26th.

One last word: Don't forget to advertise the 28 M.C. tests in March. If we go on at the rate we are now, they will be a huge success, so see to it, OM's!

Calls Heard on 28 M.C.

(An asterisk denotes QSO).

G5VB :—w1bjd, w2jn, w2nm, w2bg, w2aqb, nkf, oh1nh, oh2nm*, oh2nx, oh2nv*, oh2op, ct1bx, su8rs.
G6WN :—w2nm, w2jn, w2acn, w8axa, w2bg, nkf, w1cow, w8bvm (?), oh2op, oh2nm, oh2nv, oh6dka.
G6KO :—w1bjd, w2bg, w2nm, w1vi, haf3b.
G5WK :—zs4m*, oh2nm*, w2bg, w1bjd*, w2jn*, w2nm*, w2acn, w1vi, oh2nv, oh1nh.
G6NF :—w2jn*, w2bg*, w2acn, w1bjd, nkf, w2nm, zs4m, oh2op*, oh2nm*, oh2nv*, oz7y*.
G6NT :—oh2op*, oh2nm*, w2jn, w2nm, w2bg, w9ef, oz7y.
G2GM :—w2jn, w2bg.
G6QB :—w1bl, w1cow, w2jn*, w2bg, w2acn, w2nm, w1aqd, w1bjd, zs4m.
G6DH :—su8rs, ct1bx, ct1aa, na1xlr, w2jn, w2bg, nkf, zs4m, oh2op*, oh2nm*, oh2nv, g5ml, g6ll.
G2OA :—nkf, w2jn.
G6PA :—oh2op, oh2nm, nkf, w2bg, w2jn*, g6ll.
G5VL :—w2jn, w1bjd, w2bg, zs4m, oh2op, oh2nm*, oh2nu.
G6LL :—w2jn*, w2bg*, nkf*, w2nm, zs4m*, oh2nv*, oh6dka, w1bjd.
G5YK :—su8rs, w8axa, w2jn*, w1bjd, w2bg, w1cow, w2nm, zs4m, oh2nm, g6ll, g2od.
ZS4M :—w2jn, w8axa, w2nm, g2od, g5wk*, g6ll*, oz7t*, oz7y*.
ZS4A :—g6ll, g5ml, g2od, w2jn, w2nm, oz7y.
ZS5C :—w2jn, w2nm, w2acn, w6awz, w2bon, w9byc, oz7t, g5wk*.
ZS2N :—w2jn, w2nm, 6ll.
ZT6K :—w2jn, w2aqb, g6ll, g2od, g5ml.
BRS25 :—w2jn, w2bg, w2nm, w1cow, w8afm, w1bjd, zs4m, w2ais, w2acn, oh2nm, oh2op, oz7y, g5yk, g5ml.
BRS190 :—nkf, w2jn, w2acn, w2bg, w2nm, oh2nv, oh2op, oh2nm, oh1nh, oh1nt, zs4m, zt6c.
BRS310 :—w2jn, w2acn, w8axa, w2nm, w2bg, nkf, w9oef, w2ais, w1bjd, oz7y, oh2nv, oh2nm, oh2op, oz7t, zs4m, g6ll, g5ml, g5wk, g6nt, g6nf.
2BIC :—w1bux, ok2va.
2AYX :—w2bg.
2BXM :—w2jn, w2acn, w9byc, w5cy, zs4m, zs5c.
2ABK :—w2acn, w2jn, w2nm, w2aqb, w1bjd, w2zg, zs4m, g5ml.
BRS250 :—w2jn, w2nm, w2bg, w2acn, w1bjd, oh1nh, oh2nv, oh2nm, oh2op, zs4m, zs5c.
OZ7T.—W1bjd, w2bg, w2aif, w2jn, zs4m *, ear59, ct1aa, g6ll.
OZ7Y.—G6nf *, w2bg *. Zs4m*.
G5PL.—W2bg, w2jn, w2ayn.
G5FY.—W2jn, zs2?, zs4m, oh2nm, oh2nx*.

Special Note—28 M.C. Tests.

We have been advised by the G.P.O. that permission has been granted for our stations to operate throughout the 24 hours on the days set aside for the 28 M.C. tests. It is a condition, however, that a list of stations desiring these facilities shall be forwarded to the G.P.O. through this office. Members are requested therefore to advise Headquarters immediately.—Ed.

LONDON DISTRICT HAMFEST

This has been arranged to take place at Pinoli's Restaurant, 17, Wardour Street, London, W.C., on Tuesday, April 1st, 1930. Commence at 7 o'clock. Morning dress. Price 5s. Book your seat through your District Representative or via Headquarters.

Stray.

Information is wanted regarding a station "WFD" who was heard working at 20.00 G.M.T. on January 18 on a wave-length of 32.75 metres. Information to Mr. G. E. Bull, 64, Arthur Street, Ryde, I. of W.

Hic et Ubique—(*Continued from page* 196).

B.R.S. STATION AND A.A. MEMBERS.

With reference to the announcement regarding tests under this heading in last month's BULLETIN, we regret that the arrangements we were attempting to conclude with the A.R.R.L. have fallen through. Up to the date of going to press no reply has been received from Hartford, and we are, therefore, compelled to call the tests off. We hope to arrange some special British Empire Communication tests later in the year.

THE BYRD ANTARCTIC EXPEDITION.

Our readers will be interested to read the following letters which have passed between the Society and General Dawes, the United States Ambassador to England. We are certain that the co-operation of all British amateurs will be given if the opportunity arrives.

January 27, 1930.

GENERAL DAWES,
U.S. Ambassador to Great Britain,
American Embassy, London.

SIR,

On behalf of all amateur radio transmitters bonded together in the association known as the Radio Society of Great Britain and the British Empire Radio Union, I extend to you our sincere well wishes for the safety of the " Byrd " Antarctic Expedition.

Through the medium of short-wave radio it has been possible for your countrymen in the Polar regions to maintain touch with civilisation.

At times of emergency when rapid communication is of vital importance it behoves all who may to render assistance whenever possible.

Accordingly on behalf of the members of our organisation I would advise you that they will continue to maintain a watch for any signals transmitted from the Expedition station, and to offer you any further assistance as you consider desirable.

I have the honour to be, Sir,
Your obedient Servant,
(Sgd.) JOHN CLARRICOATS,
Hon. Secretary.

Embassy of the United States of America.
London, January 29, 1930.

DEAR SIR,

The Ambassador wishes me to acknowledge the receipt of your letter of January 27, in which you state that the members of your organisation, the Radio Society of Great Britain and the British Empire Radio Union, will continue to maintain a watch for any signals transmitted from the Byrd Antarctic Expedition, and offer further assistance if desired.

General Dawes wishes to thank you for your courtesy in writing him and for the expression of your interest in the Byrd Expedition. Your friendly co-operation is greatly appreciated.

Yours sincerely,
HENRY DAWES,
Private Secretary to the Ambassador.

John Clarricoats, Esq.,
Hon. Secretary, Radio Society of Great Britain,
53, Victoria Street, S.W.1.

FIRST CONTACTS.

Can you claim a first contact with any country of the globe on any of the old or new amateur frequencies? If you can, please let us have your claim so that we may prepare a Roll of Honour which will, we hope, become an historical addition to headquarters' records.

There are several hundred claims to be proved, but we are confident that, with the co-operation of our members, we shall be able to prepare a full list.

If you have a claim to stake send a brief note to the Honorary Secretary, stating the details, with a QSL card confirming the contact.

All claims will be approved by Council and published monthly in the BULLETIN.

CALIBRATION SERVICE.

The R.S.G.B. Calibration Service (Standard Frequency Transmission) will be transmitted from station G5BR on the first and third Sundays in each month and by station G5YK on the second and fourth Sundays according to the following schedule:

9.55 a.m. Series of X's, followed by a telephonic announcement that the calibration service is about to be transmitted.

10 a.m. Transmission on 7,050 K.C. (nominal).

10.5 a.m. Transmission on 7,250 K.C. (nominal).

The actual transmission will consist of the call (in Morse) " RSGB DE G—— " (repeated), followed by a two-minute dash and the frequency used. The frequency of the preliminary announcement will be the same as that used for the first transmission: at the close of the second transmission a further short telephonic announcement will be made. Times are G.M.T. or B.S.T. as in force at the time.

LIST OF MEMBERS.

It has come to the notice of Headquarters that certain persons who in the past enjoyed the privilege of membership of our Society are still representing themselves as members on their QSL cards.

In order to stop this gross irregularity it has been decided to publish shortly a full list of members. To assist us in making this list as complete as possible we shall appreciate it if all members whose subscriptions are outstanding will forward them to Headquarters so that their names may be included in our official list.

THE HEBDIGE-GAY AWARD.

Council have pleasure in announcing that a special award will be made to the BRS member who, during the coming year, presents for publication the best contribution to our knowledge of atmospheric phenomena as applied to short-wave transmission and reception.

YOU WANT A "BIGGER AND BETTER BULLETIN."

The award will take the form of a technical book valued at 15s., and will be provided by Mr. W. H. Hebdige, of Botley, Hampshire, and Mr. A. Gay (G6NF), of London.

QSL Section.

Many letters have been received complaining that the call-signs of the writers have appeared in the "unclaimed file" although envelopes have already been sent to the Section. It is found that the trouble in these cases has arisen because the list of unclaimed cards is made out at least three weeks before the time of printing and that calls included in the list at that time cannot be removed at a later date in spite of the fact that envelopes may arrive from them in the intervening weeks before printing. If members will bear this in mind before writing to the Section, both sides will be saved the trouble of correspondence.

Packets of cards are constantly arriving at H.Q. on which excess postage has to be paid owing to their being over weight. It will greatly assist if members will weigh any bundle of cards that seems to be rather heavy and stamp accordingly.

Members may be interested to know that Jugo-Slavia now has a QSL agency of its own and, as a consequence, cards for UN are being sent direct to Zagreb instead of via DFTV, as formerly. As a result of this a much more rapid interchange of cards is being maintained, and it is hoped that it will soon be possible to add other countries to the list of reliable QSL agencies.

J. D. C.

QRA Section.

News to hand from Czechoslovakia states that amateurs in that country shortly expect to receive licences. For a start permits will only be granted to people who are taking radio or electrical courses at schools and universities, and have to be endorsed by teachers or professors of those establishments. As soon as a list of licensed stations arrives it will be published. M. W. P.

New QRA's.

G2IM (also BRS272).—E. R. Radford, 11, St. John's Villas, London, N.19.
G5FA.—J. A. Farrer, "The Willows," The Park, Buxton, Derbyshire.
G5GS.—W. Grieve, "Seborā," Waltham Road, Scarthoe, Grimsby.
G5IV.—L. Ivin, 53, Cecil Crescent, Hatfield.
G5QP.—J. V. Parsons, 24, Upper Holland Road, Sutton Coldfield, Birmingham.
G6YQ.—G. A. Massey, "Westcroft," Maliden Road, Prestatyn.
2AOZ.—P. R. Solder, 58, Tewkesbury Terrace, London, N.11.
2AUX.—J. N. P. Douglas, 89, Victoria Road, West Hebburn, Co. Durham.
2AYN.—C. E. Harwood, "Melrose," St. Mary's Road, Llandudno.
2AYO.—R. Brettell, 2, Thorne Street, Ettingshall, Wolverhampton.

NEW MEMBERS.

J. G. Price (G2BUF), 53, Powell Street, Abertillery, Mon.
A. B. Willmore (BRS304), 33, Balfour Road, North End, Portsmouth.
B. D. G. Barlow (BRS305), Fulshaw Lodge, Cheltenham.
A. G. de Quervain Colley (BRS306), Hillingdon, Hellesdon Road, Norwich.
W. H. V. Press (BRS307), 16a, Louisville Road, Upper Tooting, S.W.17.
F. H. Lawrence, 36, Earlsthorpe Road, Sydenham, S.E.26 (G2LW).
Herr H. Evertz, Pantaleonswall 22, Cologne.
A. E. Whitehead, 42, King's Road, Camberley (G2PR).
J. H. Rider, Calais Cottage, London Street, Chertsey, Surrey.
Earle H. Turner, 267, Notre Dame Street, St. Lambert, P.Q. Canada.
N. A. C. Lewrey (VE2BD), 195, Addington Avenue, Montreal, P.Q. Canada.
C. J. Dawes (VE2BB), Ste. Anne de Bellevue, P.Q. Canada.
J. Carlisle (VE2BH), 465, Lansdowne Avenue, Westmount, P.Q Canada.
Miles W. Weeks (WIWV), 40, Norfolk Road, Chestnut Hill, Mass.
N. H. Auret (ZU6W), 30, Newport Road, Parkwood, Johannesburg.
P. Selby, c/o Box 7028, Johannesburg, S. Africa.
G. B. Wild, Military Hospital, Londonderry.
E. F. Baker (BRS309), 5, Currie Road, St. John's, Tunbridge Wells, Kent.
J. Stannard, 18, Wimpole Mews, Weymouth Street, London, W.1.
Dr. Fielding Clarke (BRS311), Monkton, West Worthing, Sussex.
J. W. Hamilton (BRS310), White House, Sandhurst, Glos.
V. J. Nicholls, 38, Brooksville Avenue, Brondesbury Park, N.W.
J. S. Dykes, Thorncliffe, Skelnorlie, Ayrshire.
M. Louis Kint Fils, 64, Rue de Courtrai, Mouscron, Belgium.
C. H. Wood, 2, Percival Parade, Worcester Park, Surrey.
Walter Gray (ZS6M), Box 4020, Johannesburg.
T. J. Corley (VE5BC), 2,163, West 2nd Avenue, Vancouver, B.C.
J. H. Pienaar (ZS6P), 30, Grove Road, Fairwood, Johannesburg.
J. L. Atkinson (ZU6X), "Valkyrie," Cotswold Drive, Saxonwold, Johannesburg.
F. H. Walters (BRS314), 5, White Horse Street, Stepney, E.1.
John Hunter (BRS317), 63, Hervey Road, S.E.3.
L. L. Douglas (BRS316), 3, Baker Lane, St. Mark's Road, Mitcham, Surrey.
Eric Whiteley (ZL1FW), 1, Halston Lane, Dominion Road, Auckland, N.Z.
Miss Jane Burchard (SP3YL), Poznan Str. Kwiatowa 5, Poland.
Norman J. Ball (VE5CF, VE5CG port.), 224, West 18th Avenue, N.Y.
R. A. Goodsir, Brookside, Pachpedi, Jubbulpore, India.
H. Faunce-De Laune, Sharsted Court, Sittingbourne, Kent.
H. E. Randall, 28, Walford Road, Uxbridge, Middlesex.
L. E. G. Grosvenor, The Laburnums, Portland Road, Aldridge, Staffs.

WE WANT YOUR SUBSCRIPTION.

E. D. SYKES, Junr. (G6SK), 12, St. Robert's Road, Knaresborough.
ROBERT BARR (2BHK), 4, Dunkeld Gardens, Oldpark Road, Belfast.
A. C. JONES (G2BIX), 167, Plymouth Street, Merthyr Tydfil, Glam.
W. GLEDHILL (BRS318), "Rysedale," St. Martin's Avenue, York Road, Doncaster.
H. L. RANSON (BRS319), Whalebone House, High Road, Chadwell Heath, Essex.
E. J. THOMAS (G2ARU), High Street, Cwmgwrach, near Neath.
H. BEAUMONT, 14, Halliley Street, Dewsbury, Yorks.
ROBERT HOLMES, 5, Mostyn Avenue, Allerton, Liverpool.
A. J. PERKINS (BRS320), 126, St. Asaph Road, Brockley, S.E.4.

B.R.S. NUMBERS RELINQUISHED.

The following B.R.S. numbers have been relinquished :—

234.—M. H. M. ARNOLD (now G2BIK).
245.—J. A. FARRER (now G5FA).

B.R.S. NUMBERS ISSUED.

308.—H. GREGORY.
312.—W. LOCKE, Junr.
313.—J. J. CURNOW.
315.—A. W. ALLISTON.

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 Crystal Control Adapter.

To the Editor of T. & R. BULLETIN.

DEAR SIR,—I read with interest G2NH's article, "A Crystal Control Adapter," in the January "BULL." It appears that an error has crept in the diagram marked Fig. 1, as it shows a short circuit between anode and filament of the crystal oscillator. A fixed condenser should be shown at either a point between the crystal fundamenta' tuned circuit and the second valve's grid circuit, or between the second valve's grid circuit and filament, or else immediately above the tuned circuit of the crystal oscillator. In any of these positions the condenser will act as a stop to the H.T. on the first valve, but will provide a path to H.F. currents.

G2NH, in his article, mentions that a grid leak or bias battery may be used for biasing the crystal oscillator. I have always found that a bias battery gives very superior results to grid leak biasing, particularly if the H.T. is derived from an eliminator. If the bias is chosen so that the valve oscillates freely and a measurement is made of the anode voltage, then the bias is increased about 50 per cent., it will be found, in most cases, that, as the valve takes no load for a fraction of a second, the eliminator H.T. rises to a fairly high "no-load" voltage. At this point the valve will commence to oscillate strongly and will persist in oscillation, although the eliminator voltage is at normal "load" reading. This "over-biasing" is an advantage. To get good frequency-doubling a distorted wave-form is necessary, and to get this the grid must be swung extremely negative to well beyond cut-off and highly

positive to beyond saturation of the valve. The resultant H.F. output from the valve will show a squared-top and squared base wave-form, and this is very rich in harmonics. The first tuned circuit will not resonate to the harmonics, but the following circuit may be tuned to the harmonic that corresponds to double the crystal fundamental frequency or any other harmonic frequency.

It might be pointed out that, if the blocking condenser is inserted in either the first or third of the positions suggested in the first part of my letter, the H.F. choke shown in Mr. Dedman's Fig. 1 diagram at the second valve's grid can be eliminated and the grid leak connected in the conventional manner across the grid connection.

For the amateur who wishes to use C.C. to mask a poor filter, it might be found an advantage to tap the grid condenser of the second valve a little way down the tuned-grid circuit. When making adjustments for best control, I think it advisable to try this in every case, since the circuit has two jobs to perform : it has to tune to the harmonic frequency and provide the necessary impedance for efficiently exciting the second valve from H.F. current flowing from the grid, this current being fed from the anode of the second valve via the anode-grid capacity.—Yours faithfully,

P. JOHNSON (G5IS).

49, Carson Road,
Dulwich, S.E.21.
January 16, 1930.

To the Editor of T. & R. BULLETIN.

SIR,—I wish to thank you for the opportunity of commenting on Mr. Johnson's letter.

First, I must apologise for the stupid error that crept into Fig. 1 of my article in the January issue of the BULLETIN. My only excuse is that I drew the diagram on Boxing Day, and I presume the spirit of Christmas was still with me !

The ·001 mfd. fixed condenser mentioned in the text should have been shown in the diagram between the oscillator valve anode coil and the grid coil of the tp—tg amplifier. The filament bypass condenser was also omitted, and this should have been shown across the filament wiring at a point close to the CO valve holder.

I fully agree with G5IS that a bias battery is really preferable to grid leak biasing, for the CO valve in this circuit, for the reasons that he so clearly explains in his letter. At the same time, it must be remembered that, although a distorted wave form is required in order to accentuate the R.F. output at twice the fundamental frequency, it is also necessary for the valve to oscillate at this fundamental frequency ! Over-biasing is a distinct disadvantage in this connection, and therefore, where a valve is acting in a dual capacity, it is necessary to effect a compromise in the bias value. My experience is that a number of crystals will not oscillate easily, when the oscillator valve is biased sufficiently negative to provide the maximum output on the harmonics of the crystal fundamental.

The value of grid resistance that I chose was designed to provide a bias value that would enable the average crystal to oscillate easily, and yet distort the wave-form to a sufficient extent to provide enough second harmonic energy to control the frequency of the PA valve. Remember, it is not as if it were necessary for the CO to supply *all* the second harmonic energy to swing the grid of the PA, and it is really surprising what little energy is required to control the frequency, when all the actual excitation energy is supplied by the PA valve itself.

My article was essentially "practical," in the hope that I could show that crystal control is an attainable proposition for the man with limited apparatus and funds at his disposal. I have found that nothing frightens an amateur transmitter off C.C. more than the bias batteries shown in the average CO—FD diagram, the batteries often having a higher voltage than the QRP man's anode supply ! This was the main reason that decided me against showing battery bias to the CO, after weighing up the slight advantage to be obtained, against the disadvantage of additional cost and upkeep charges.

While on this subject of bias, I wonder if anyone can explain to me why, in a normal frequency doubling circuit, combined leak and battery bias as described by the Editor in one of his articles in the BULLETIN last year, is definitely superior to either battery or leak bias on its own ? I have proved that this is so by a number of actual measurements, but the reason for it still eludes me.—Yours faithfully,

E. A. DEDMAN (G2NH).

63a, Kingston Road,
New Malden, Surrey.
January 25, 1930.

"CQ DX."

To the Editor of T. & R. BULLETIN.

DEAR SIR,—A few months ago there appeared in the German paper "CQ" a short article by a well-known amateur, in which the writer stated that he was sorry to note that some inter-European contacts were taking place on the 14 M.C. band, which was reserved for DX work only. The attitude adopted by this amateur struck me at once as being rather high-handed, but I thought that his opinion was held only by a small minority ; when, however, in the November issue of the same paper, a note from the pen of another writer appeared, in which he absolutely deplored the fact that some stations, particularly G's, were replying to "CQ DX" calls, I thought it time to register a protest, hence this letter.

First of all, I should like to ask that German amateur on what authority he makes the statement that 14 M.C. is reserved solely for DX work. I always thought, and still do for that matter, that transmitting licences were issued to amateurs for experimental work, and particularly for the co-operation with other amateurs in their experiments, not for the purpose of individual feats of prowess (?) by communicating with others at the opposite ends of the earth to the exclusion of serious work.

I will not attempt to deny that many experiments can only be successful if carried out over great distances. We all know that a test is often dependent on the distance itself for its success, but some people, I hesitate to call them "hams," seem to think that DX is the only thing that matters in amateur radio and everything else, yes, even common courtesy, must go by the board if there is a chance of "raising" Tristan da Cunha, Timbuctoo or some other out of the way part of the world.

I can record a case of my own experience on 14 M.C. when I replied to the "CQ DX" call of an Hungarian amateur. It was about noon at the time, and conditions on that day were very bad, so that it needed very little imagination to describe the 900 odd miles as DX. But no, the Hungarian was most indignant, and rattling off at an almost unintelligible speed informed me that he had been calling "CQ DX," by which he inferred, no doubt, that it was pure and unadulterated impudence on my part to reply to him. Fortunately we were not working each other by television, or I am sure I should have been completely withered by his icy stare. From all accounts this is no isolated case, as I have heard of similar instances from others to whom I have spoken about the matter. Now this state of affairs won't do. Where is the "ham spirit" that we hear so much about, and of which we are so proud? It is evidently lacking in the actions of people who behave in this manner.

A CQ or test DX has its uses, inasmuch as it lets distant amateurs know that the caller is anxious to communicate with them, but not that he refuses to work nearby stations. Sometimes, when I have called "Test DX" myself (I very rarely do it, by the way) a nearby station has replied, but I have had just as enjoyable a QSO with him as I would have done had he been in New Zealand. To quote a case, some time ago I was calling "Test USA," and a Polish amateur replied. I didn't get angry and refuse to work him, but instead we carried out some interesting tests for nearly an hour.

I have not the slightest intention of putting myself on a pedestal, but why can't some other stations behave in a like manner? It would be to the good of amateur radio if they were to do so.

If you particularly want to work a distant station and a nearby one answers you, then cut the QSO short if you must, but don't be rude about it. Remember that the other chap has just as much right on the air as you have, and if he wants your co-operation in a test, surely it is up to you to give it without making a fuss, even if it inconveniences you.

Owing to skip distance I cannot say whether there are any British offenders in this respect. I sincerely hope there are not, but in case anyone feels guilty on reading these words, let him take them to heart and mend his ways.

Yours faithfully,
M. W. PILPEL (G6PP).

London, N.W.2.

NOTES & NEWS FROM THE BRITISH ISLES.

DISTRICT No. 1.

Representative: D. J. BEATTIE (G6BJ), 14, Rosehill Mount, Manchester Road, Burnley. Telephone 3659.

G5JF finds the periods just before and after sunrise best for working DX on 7 M.C., also that the LS5 for CW and the DFA9 for fone are the best valves for QRP work. G5ZN is trying a new V.F. Hertz antenna and has worked twenty-four countries to date on 7 M.C., including FM and YI. 2AUH visited the Burnley stations. He will be on the air on QRP very shortly. BRS274 complains of QRM from his local stations, G5ZN and G6BJ, but talks of joining us on the air soon. G6BJ is still waiting for new receiver parts. He agrees with G6CL that any old piece of wire will work as an aerial, and has worked three continents and twenty-eight countries on his, which is "end-on," 52ft. long and 9ft. high. Conditions were generally bad, but that is little excuse for the huge total of reports this month. I shall be glad to have opinions and suggestions regarding this year's Northern Area Convention and the idea of a stand at the Manchester Radio Exhibition in October. All offers of assistance will be accepted!

GET THAT "BULLETIN" FEELING AND TELL US ABOUT IT.

DISTRICT No. 2.

Representative: T. Woodcock (G6OO), "Santos," 8, George Street, Bridlington, Yorks.

G6XC says conditions for DX very poor, but twelve contacts with W on 14 M.C.; best QSO for the month was VK5WR on this band. On 7 M.C. AU7AA worked, using a QRP C.C. outfit. Preparations for 28 M.C. work in progress. G6UJ has got C.C. going on 14 M.C., using harmonic control, and worked D, EAR, and CT, receiving nothing less than QSA 5, R7, and T9 during recent gales. Conditions poor for DX on this band, but on 7 M.C. AU and YI have been QSO'd, also CN after dusk, whilst EU9BA (Smolensk) was worked in daylight QSA 5, T9. Asiatic QSO's qualify him for WAC. (Congrats, OM!) G6DR, using 3 watts dry batteries on 7 and 14 M.C., worked most Europe, receiving R7 to R8 reports. Best QSO, CT2AA. Comparisons of $\frac{1}{2}\lambda$ (indoor) A.O.G. aerial and full λ A.O.G. outdoor aerial on 14 M.C. showed no difference. G5QY adds HAF, HB, CT2, and YM to list of countries worked; best DX on 7 watts was QSO ship near Greenland. Is erecting $\frac{1}{2}\lambda$ indoor aerial for 14 M.C. to escape screening effects noticeable when outdoor end-on aerial is used. Prefers T.P.T.G. to Ultraudion. G6PS has QSO'd CT2 on 14 M.C., getting R8 on 3 watts. No luck with W yet, but says QRM from that quarter was phenomenal on 7 M.C. for an hour or so on December 29 and over eighty were logged. Having trouble due to parasitic noises when LS5 is used. 2BIV has rebuilt his BCL RX for television experiments, also H.C. frequency meter for amateur bands. Tried fifty coils before correct winding found for 28 M.C. band. G5DR worked fone on 7 M.C., using 4 watts. QSO'd Italy, getting R5 modulation, F8 after dark. Tried straight crystal RX on 7 M.C. and logged twenty F, ON, and D hams. 2AZQ finds conditions good on 7 M.C.; regular schedule kept with G6YC; best DX on 14 M.C. VQ2: heard G6OT and G6SF on 1.7 M.C., and owing to all his time being spent on RX, no transmitting has been done. BRS290 has 28 M.C. RX working O.K. Nothing of note heard on any band. G6NG says business QRM keeps him from the key; hopes to be on the air again soon. G2UG paid station visit to G6OO. Nothing exceptional except a QSO with Iraq on 7 M.C. has taken place, using QRP with R6 report. G5CX hopes to be on 28 M.C., using C.C. in time for tests. BRS298 is awaiting morse tests for full radiating licence. (Good luck, OM!) G6OO is receiving requests for Conventionette to be held soon at Leeds or Hull, and is busy making arrangements for February 15 or 22. (Further details later, OM's.) Regular schedule kept with G2VQ, who is testing various modulating systems on 7 M.C. daily at 09.30. No DX on any band; conditions poor. One more new member has been "roped in."

DISTRICT No. 3.

Representative: Joseph Noden (G6TW), Coppice Road, Willaston, Nantwich.

This month reports seem to be improving, and I hope they will keep it up. Thanks. G5FC is rebuilding C.O.P.A. transmitter, although the old one was a rough one he had excellent results; he intends this one to be a FB one. G5BR is having good results with his 50-watt C.C. set and excellent reports from various parts of the world on C.W. and speech. G2VP is now working on chemically rectified A.C. to LS5 with Zepp $\frac{1}{2}$ wave. Also experimenting with key-thump filters. 2BHI has applied for full permit, and has passed morse test, so is hoping to be on the air before long. 2BIK (exBRS234) has a good bag this month with the receiver. He is working on various circuits for the A.A. work. Visit paid to 2BHI, G2OA, and G5GY. G5PO and G5XD show a renewal of activity in activity in North Cheshire, and are starting up again after four years' silence, G5XD having transferred from the Isle of Man. Both stations will be operated in digs, and it is hoped to contribute some useful data on "working under difficulties." Both stations will use the Ultraudion circuit. Reports will be appreciated. G2OA has worked most of Europe on 14 M.C. and 7 M.C.; also getting fone out on 1.75 M.C.; has been trying 28 M.C. and reports reception of NKF, W2JN, and the harmonics of WIY and WQP. G6TW is busy with 56 M.C. work, but has found time for the usual 7 M.C. and 14 M.C. tests; on all waves but 7 M.C. has found it very quiet.

DISTRICT No. 4.

Representative: A. C. Simons (G5BD), Lynwood, Mablethorpe, Lincs.

Very little change has been experienced in conditions again. They are still only moderately good. Half of the month has been spent in London on holiday, so any startling occasions have been passed unnoticed by me. G2AT has nothing outstanding to report. Only local Europe worked with flypower. G5CY had no QSO's at all. S.G. receiver appears to be totally screened to the exclusion of signals. G5BD is full of new ideas from seeing London hams. Heard plenty of DX, but none worked. G6LI has had trouble with power supply, but now carrying out preliminary tests on the air. G6HK is experimenting with C.C. when he has time. G2XS will shortly be starting up on 7 M.C. with QRP—H.T. accumulators. G6MN spent an afternoon with two P.O. inspectors eliminating key clicks successfully—TX seems to be sick. BRS245 dons phones again after college and hears, on 7 M.C., VK3PP and HH1A (is this a new one?), and only now waiting for call sign before starting up. 2BIC thinks things have improved slightly, having logged all continents except S. America. Swatting for a full permit.

DISTRICT No. 6.

Representative: R. C. Horsnell (2ABK), "Hepani," Wickford, Essex.

G5QV has been having unusual results on 14 M.C., using fundamental aerial, and has had QSO's with New Zealand for as long as $1\frac{1}{4}$ hours on 100 watts. G5RV is comparing 4- and 6-volt valves for transmission. Is shifting QRA soon to a "mains" abode. He hopes for his W.A.C. soon on 5 watts max. G2SA has given up 14 M.C. owing to bad conditions. On 7 M.C. he has worked C.T. and XEARN, a Spanish steamer. G5YK is active on 7, 14 and 28 M.C. Worked two W stations on 7 M.C. On 28 M.C. has heard S. Africa, and has been heard by W2JN. Power 50 watts, one aerial is used on all waves, 68 ft. long by 40 ft. high, two 52-ft. feeders at centre. While at Cambridge BRS77 has heard OH2NM and OH2OP on 28 M.C. 2AFM sends his first report, and is busy with A.A. transmitters. BRS233 and BRS291 still active

but no reports to hand. G5SN is busy on 1.7 and 7 M.C., and is putting out some good fone. G2LZ is busy on 1.7, 7 and 28 M.C. 2ABK has heard several W sigs on 28 M.C., also ZS4M. Will soon be busy with series tuning in place of parallel. A Tungsram LG210 valve gives beautiful results in RX, as compared by test with about six other makes. BRS233 is also using these, and can confirm results. G6QX (ex BRS142) is active on C.C. on 7,139.2 K.C. European D.X. worked, but no further yet. QST Ross Hull 4 R.X. is in use.

DISTRICT No. 7.

Representative: H. C. Page (G6PA), Newgardens Farm, Teynham, Kent.

I have no comments to make on the number of reports received, for it seems to me that all the live stations in this area are reporting fairly regularly. Still, it seems a pity that there are not more live stations.

Surrey.

G6LK has been working all the ZL's in the call book, at least the list he sent me looks like it. He is using an Ultraudion, with a tuned grid coil. His power supply consists of 600 volts of dry batteries. He reports that the best time to work ZL's is in the early morning, especially Sunday mornings; 14 M.C. is no good at night just now. G2AX has had a stroke of bad luck. One of his smoothing condensers broke down, with disastrous results. I understand the station is a mass of molten copper and burnt ebonite. Hope he will soon be all right again. He reports that he has overcome the trouble he had with hum on 1.7 M.C. If he tunes the TX dead on to the aerial all ripple vanishes. G5WP has had his aerial blown down. He is not putting it up again, as he is moving soon, but he hopes to be on for the R.S.G.B. tests. G2DZ has been doing quite a lot of work on 7 M.C. and 14 M.C. He reports conditions improving. Has had one QSO on 28 M.C. He thinks that conditions on 14 M.C. will improve soon. G5CM is using an Ultraudion, and finds it very good. He has worked Iraq with an input of 5 watts. G2RT has got his TX working well on 14 M.C., and the receiver working like a B.C.L. set on that band. G2VV is now using an Ultraudion, having scrapped his T.P.T.G., but wishes he had not done so. Reports are about the same on 7 M.C., but 14 M.C. seems hopeless with this TX. He is now thinking of building an ultra low loss T.P.T.G. He reports conditions poor on 14 M.C., but quite good on 7 M.C. The B.C.L. QRM eliminator is working well, as no complaints have been received since its installation.

Sussex.

G5AQ has been getting good results from his C.O./T.P.T.G. He finds early mornings good on 7 M.C. and has raised "W" on that band. (The input was 5.8 watts.) He is building a separate T.P.T.G. for the 14 M.C. band and hopes to have it working soon. G5UY is building his station into one cabinet, as he has not much room. G2DT is moving, so has not very much to report. He has been doing some work on receivers, especially on the SG valve used as a detector. He is moving to Dorking, so will still be in this area. G2RM has been very busy, so has not had much time for radio. However, he has done some work on 7 M.C. He reports conditions fair.

Kent.

BRS309 is "swotting" morse as hard as he can go. Has been doing some experimental work on crystals. He has found conditions on all bands patchy. G6PA has been doing a good deal this month. Has built a 2-valve amplifier for the transmitter, rebuilt the receiver four times, and built a 28 M.C. transmitter. The receiver has been taking up most of the time. It is a SG set with unusual features. More about that later. Has not done any DX beyond a "W" and Egypt. The new RX works well on 28 M.C., and the first stations ever heard here were heard last Sunday. He was so bucked that he turned to and built the TX. That makes four TX's in all. He is now thinking about one for 56 M.C.!

DISTRICT No. 9.

Representative: G. Courtenay Price (G2OP), 2, St. Annes Villas, Hewlett Road, Cheltenham.

During the month conditions have been generally patchy, and sometimes really bad. At the time of writing there seems to be a very distinct improvement. A third Conventionette has been suggested, this time at one of the seaside towns of the district. I would welcome opinions as to location and offers of local help there. A good train service to town and the Midlands is essential. G2CJ is now C.C. on 14 M.C., and works week-ends only. Best DX, VE5AO. G2LV is on 1.7 M.C. fone and is also on 7 M.C. fone and C.W. Finds former band dull, but getting good results on latter on QRP. G2OP is C.C. on 14 M.C. Best DX ZT6R and several W's, also SU8WY and VQ4MSB. G2ZP has returned from Malta and has been on 7 M.C. and 14 M.C. Best DX VE5AO, ZL1FR, and W 1, 3, 6. Has now closed down until April. G5QA has deserted 7 M.C. at week-ends on account of QRM. Found 14 M.C. conditions bad, especially after 18.00 hours. G5RQ has been on 14 M.C. Best DX VK eight times, VS7AP, ZS4A. G6RB has been on 14 M.C. Best DX VE5AW and several ZL's. On December 29 was QSO all continents in space of twelve hours. Has also been doing some C.C. work. G6RR has been home again and working for three weeks on 7 M.C. and 14 M.C. Best DX PK6UM and several W stations, using current-fed Hertz. Recommends "Break-in." BRS212 is now QRT until June. BRS310, a new member, is chiefly interested in 28 M.C. work, and will co-operate with anyone on this band, on which he has heard twenty-eight stations during the month. (The D.R. can strongly recommend anyone wanting reports to get into touch here for good and conscientious help.)

DISTRICT No. 10.

Representative: J. Clarricoats (G6CL), "Ciel," Hartland Road, London, N.11.

G6PP left for a month's holiday in Nice, taking with him a short-wave receiver. He hoped to obtain some interesting data regarding conditions. Prior to his trip, he built a new T.P.T.G. transmitter, and worked Cairo with 4 watts. On 7 M.C. Morocco was worked for the first time, and later CNE. He loaned his set to G2IM (late BRS272, Mr. Radford) whilst in France and the latter made his first QSO on amateur bands. G2IM will be a low-power station, and we wish him every success. G5UM had a good month on 1.75 M.C. DX working was much improved. He is able to work Lancashire consistently. His input is fixed at 7 watts, and he is most anxious to receive reports from south

of the Thames as this is one of his " dead " spots. His wave is 171 metres. G5QF is now working again on 7 M.C. and 14 M.C., and has had a fair measure of success. Cairo was best for the month. G6CL, in collaboration with G5QF and G2CB, proved that the 28 M.C. band holds little mystery. Using the same valve, circuit and aerial, with an input of 4 watts, Finland was worked R7 on the first call made on that band. Incidentally, this was the first station ever heard at G6CL on 10 metres, and contact was made within five minutes of the receiver being tuned to that band. G6CL will be pleased to inform others who may be in difficulties of the circuit arrangements. One other interesting contact was made during the month—the Swedish cruiser Oscar II was worked at Lemnos, Greece, on 7 M.C., using an input of 2 watts; signals were R8-4. BRS273 has just built a new S.G.H.F. short-wave receiver of original design. (What about an article, OM?) He took part in the seventy-seventh series of short-wave tests made by the French stations FYS, FYR, FLE. He hopes other BRS men will write to him for information regarding future tests. He also promises an article on television.

DISTRICT No. 11.

Representative: L. H. Thomas (G6QB), 66, Ingram Road, Thornton Heath, Surrey.

There is no doubt that the BRS's are the bright spot in this area! I have not had a single report by post from a ham in the area this month, and only those that I have met during the month have enabled me to write up any notes at all. Next month I shall be coming round with the Wouff-Hong, or some equally painful instrument, if something hasn't happened by the 20th. BRS25 has done some fine work on 28 M.C., and has logged thirty-nine W's (all districts except the 6th and 7th), two VE's, two OH's, one VU, one ZS, one OZ, one D, and one UO. Also such morsels as VE4, etc.! He has ordered components for a new 28 M.C. receiver and hopes to log some more shortly. BRS190 is beginning to despair of 56 M.C., but is sticking more or less to 28 M.C. now. BRS250 thinks conditions are exceptional both on 28 M.C. and 7 M.C. now. He has heard several ZL's and a Chinese station on the latter band. He has also logged several W's and ZS5C on 28 M.C. BRS300 reports for the first time. He finds a pentode very useful for short waves, with the priming-grid voltage reduced so as to keep the feed reasonably low; even then it gives more mag. than a power valve properly biased, and taking more current. G2CX has changed over to " Goyder-lock " C.C. He has been on 28 M.C. with a self-excited outfit, but no DX has been worked yet. G6NF has worked XU2UU, W6CUH, and VS7AP on 14 M.C., and W2BG just before going to press on 28 M.C. He wants reports on his 28 M.C. C.C. Saturdays and Sundays. G6WY also wants reports on 28 M.C. He has been working W's on 7 M.C. during the month. G6QB has also worked a bunch of W's on 7 M.C., and W2JN at his first shot on 28 M.C.

DISTRICT No. 12.

Representative: T. A. St. Johnston, 28, Douglas Road, Chingford, E.4. Telephone: Chingford 118.

G2ZN is investigating the possible relation between sun spots and radio phenomena, and has the aid of a 3-in. astro telescope. He is trying crystal control with fair results on 7 M.C., using a cheap lens for harmonic control; with 1.4 watts has been R6 in Moscow. G6LL is rebuilding for all bands, and is using 14 M.C. band for arranging skeds on 28 M.C.; on this latter band he has recently worked ZS4M and OH2NV, and was reported R7 and R6-7 respectively, and in addition has received a number of reception reports from South Africa. 2AZR is now receiving on 28 M.C., and is preparing for a full permit. G2NU is getting many T9, R9 reports on 7 M.C., using his recently rebuilt crystal-controlled transmitter. He is very active with experimental work on both the transmitting and reception side of radio, and DX is not entirely the one result aimed at. G6LB is now on the air again after rebuilding. Station visit: SU8KW to G6UT.

DISTRICT No. 13.

Representative: H. V. Wilkins (G6WN), 81, Studland Road, W.7.

G2OL worked Russia and other European countries with a half-watt input on 7 M.C. He is collaborating with G2OW and G6XN on 56 M.C. experiments, and has succeeded in getting high-speed C.W. to the former station half a mile away. A valve rectifier did not prove successful, so C.C. is on trial. G2OW has concentrated on 28 and 56 M.C. He has twice heard G6XN on the latter band, on both occasions after dark. G2OL has also been heard (R8 QSA5). G5VB raised his first South African on 14 M.C. He has now a P625, and is obtaining T9 reports. Two Finnish stations were worked with 7 watts on 28 M.C. Mr. Wilberforce (ex EAR-W) hopes shortly to receive his full licence. G6VP has gone over to C.C. and has worked ZL and W since the change. W6 and Z5 were earlier contacts. He has come to the conclusion that it is fatal to wind chokes haphazard for C.C. work. G6WN finds his 14 M.C. C.F. Hertz useless on 28 M.C., except for locals. He is working fone on 7 M.C., and will appreciate reports. G6CO is building a two-screen grid and pentode receiver, and has tried frequency doubling on his transmitter. G5PJ worked Ceylon on 14 M.C., and Iraq, India and Caucasia on 7 M.C. His QSO with India was with VTVVZ, who, he believes, is an Egyptian Signal Corps station at Quetta. Experiments with a counterpoise in place of feeders showed little difference between the systems. (Please report to Mr. Wilkins in future—Ed.)

DISTRICT No. 14.

Representative: John Wyllie (5YG), 31, Lubnaig Road, Newlands, Glasgow.

December-January proved a very quiet period in the Area. Conditions generally were far from good, and the writer is of the opinion that it is futile to look for a stability of radio conditions so long as the barometer continues to make ultra-rapid fluctuations between 28 to 31, as it has done with bewildering frequency during the period under review. Generally speaking, an improvement was noted towards the bottom of the " falls," but in most instances the improvement only pertained for a few hours. Heavy gales have been experienced usually during the first " rise " after a " fall," and many aerial systems have suffered, notably that of G5XQ, who had his 1½-in. steel tube mast snapped off about 12 ins. from the top.

Our weather in Scotland has been entirely our own, and generally has not coincided with that experienced in England. Only a few hours prior to writing these notes, the writer heard G2KF indicating to a foreigner that it had been a "fine, warm, sunny day." At this particular moment G5YG was having a gale from the west accompanied by sleet and rain, in addition to which the temperature was very low.

Apropos of this weather talk, G6WL, who left for the States on December 27, took 19 days on the passage, and evidently experienced all the wild weather there was. He was to cable the writer if he were unable to keep his schedules, and as this cable did not materialise, we may assume that all was O.K.

While on the subject of peculiar conditions, did anyone note the phenomena relative to the evening of January 2? It took the form of multiple harmonics accompanying each station's fundamental transmission. For example, the American end of the transatlantic 'phone service had at least 15 harmonics over the greater part of the amateur 14 M.C. band. W1VC was found to have five harmonics and all other stations heard were similarly affected. Did anyone note this?

I understand that G5NW has been laid up for some weeks with something which was very "catching." His segregation, however, centred his interests on radio, so that his time was not totally lost. G5GK has, since his change of QRA, had a lot of trouble converting his gear from D.C. to A.C. supply. All is now O.K., however, and the station is regularly on the air. G2MA comments on bad 14 M.C. conditions, but managed to work a few Yanks. He has erected a new 3/2 wave V.F. Hertz, but bad conditions have prevented a proper test being made of its capabilities. G5CL is working on 14 M.C., using a short indoor aerial. G6MS has worked all Europe on 14 and 7 M.C., but has done no DX. G6NX is building a new TX. G5XQ, pending the repairs to his aerial system, is adding a stage of tuned H.F. to his RX. G5DK is understood to be getting out well on 7 M.C. G5YG has succeeded in curing the break in his note, but for the love o' mike, don't ask him how!! He also is building a new RX with a stage of S.G.H.F.

DISTRICT No. 15.

Representative: H. ANDREWS (G5AS), Wireless Depot, Ystradgynlais, Swansea.

Now, OM's, glad to see that some of you have sent me reports. Last month they were conspicuous by their absence. Now keep it up and let's know what you are doing. G5TJ reports that he is now using MOPA, and it is working FB with 400 volts on the PA. First QSO YI, who reported R8. Tried several radiating systems, but find the half-wave Hertz by far the best. Congratulations to 5TJ for his successful efforts to increase the membership. 2AWX: Congrats on you receiving your call sign. 2BIX testing various oscillator circuits here, and finds the Hartley the most adaptable. 2BJX busy building Hartley oscillator for lab. tests; also has constructed long- and short-wave wavemeters. 2ARU just gone into business, but hopes to put in a little time experimenting with S.W. coil design. G. Evans (BRS number not known) carrying out lab. test with coloured films and special amplifier (which he has patented). 2AKG has decided on the design of Xmitter and is busy building. His 2-valve S.W. set is working really FB. Sorry, OB, to hear you have been laid up; a speedy recovery to you.

DISTRICT No. 16.

Representative: C. MORTON (GI5MO), "Simla," Glastonbury Avenue, Belfast.

I wish to say a word or two about the Radio Transmitters' Union, N.I. Until quite recently this Society was open only to transmitters, but the rules have now been amended to admit artificial aerial and BRS stations as associates, provided they already are members of the R.S.G.B., and I shall be glad to hear from any prospective member in this district. The subscription is the merely nominal one of 1s. Any further information will willingly be supplied by myself or GI2CN.

Conditions appear to have improved, especially on the 14,000 k.c. band, this month, judging by the reports received. GI6TB has just had his power supply changed from D.C. to A.C., and has been very busy getting his gear fixed for the change. GI6HI is still working on 28,000 k.c., with one German contact to his credit. He reports fairly good reception conditions, and remarks he heard W2JN at the same strength on both 28,000 k.c. and 14,000 k.c. GI2CN still awaits the promised A.C. supply, and is using the hand gen. meanwhile. GI5WD is busy with crystals, but after managing to get good C.C., he broke his best crystal. GI6YW has only been on a few times, as he is house hunting, the main requirements for the new house being an A.C. supply and a half-wave garden. GI6YM is the Y.M.C.A. Radio Club, Mr. John J. Cowley, hon. secretary, and I am glad to get a report from them. A new T.P.T.G. Xmitter has been made, and a new aerial erected. Transmissions are on 7,000 k.c., Tuesday, Friday, Saturday, from 2.000 to 2.200 G.M.T., and reports will be welcome. GI5MO is working on 14,000 k.c. at week-ends. Nothing of importance to report.

B.E.R.U. News.

EGYPT.

By CECIL RUNEKLES (SU8RS).

We regret we were unable to make our debut in the January BULLETIN, but better late than never. We trust our small contributions will contain something of interest for our "pals of the ether" at home and abroad.

Amateur radio is still in its infancy here, and enthusiastic amateurs are few and far between, but the next year or so will, we hope, see our numbers considerably augmented. The Egyptian Government appears to have realised how far behind their country is in such matters, and to awaken interest is holding a Radio Exhibition in Cairo on January 9 and 10. Details will appear in our next notes.

Concerning the amateurs themselves things are very slack indeed just now. SU8AN has turned his attention to B.C.L., and is working on superhets, but hopes to come on the air again within a month or so. SU8KW has returned to "Blighty." SU8WY has had a thorough overhaul and is going strong again on 20 metres. Hopes to be down on

10 metres soon. SU8CW has opened up at Port Said and works on 41 metres fairly regularly. Business matters prevent SU8GM doing more than about three calls per week. SU8RS has had his activities curtailed somewhat by the fact that the station is handling service traffic for several hours a day, but gets in as many calls as possible on either the 40 or 20 metre bands. This, as far as we know, completes the list of amateur transmitters in Egypt, with the exception of one or two who, for various reasons, cannot be mentioned.

SU8RS is at present the only one of the above-mentioned working on 10 metres, but up to January 5 he had not QSOd on this wave. A report has, however, been received from Australia, signals on this wave being R4 and steady. Several stations were heard on Sunday, January 5, but none better than R2. As these were the first signs of life on this band for some weeks we hope that things may now be looking up.

Conditions on 20 metres are improving daily, but American stations are rarely heard before midnight (22.00 G.M.T.). VK's and ZL's come in well, and South Africans exceptionally well just now. SU8RS recently worked VK4RJ, who was using only 7 watts and was being received QSA3 R4.

In conclusion, any SU cards sent via SU8RS will be forwarded. Cheerio everyone, until next month.

IRISH FREE STATE.

The outstanding feature this month is the first contact between the Canadian 5th district and the I.F.S. This was effected by EI8B, who worked VE5AW. EI8B also worked South Africa during the month, thus being the second EI station to do this. EI3B, the Wireless Society transmitter, is complete at last, and reports will be welcomed. EI6C is at present in London on business, and it is reported that he may not be returning to Dublin. EI7C is still away from home, and EI8C has again worked South Africa. EI5D is a new station, situated at Lough Derg.

IRAQ NOTES.

At present there are only two active stations, known to the writer, in Iraq, viz., YI2GM and YI2GQ, at Bagdad and Sulaimania respectively. A third station is being built at Mosul, but it is not yet known with what call sign it will work. YI1LM has closed down (see page 96, "BULL.," October, 1929), also YI1MDZ; I believe YI1AC has also closed down. YI2GM is usually working on Saturdays and Sundays from 18.00 G.M.T. onwards, using a power input of 7 watts on the 7 M.C. band. YI2GQ is also on the 7 M.C. band, but is using from 30 to 50 watts input to a T.P.T.G. circuit, energising a half-wave C.F. Zepp antenna.

Receiving conditions on 7 M.C. are good, apart from the overcrowding, especially between 17.00 and 02.00 G.M.T.; G stations are best from 23.00 to 02.00 G.M.T.; W, VE and VO best from 03.00 to 06.00 G.M.T. 14 M.C. is fairly good from 05.00 to 17.00 G.M.T., but from then until 05.00 G.M.T. static interference is very bad.

Results of tests at YI2GQ, so far, are not very good, the best contact during December being with VK6WR (about 7,000 miles), who reported us as R4, improving to R5; our power input was 50 watts!

YI2GM (Cpl. Bubb, Main W/T Station, R.A.F., Hinaidi, Iraq) would like contacts and reports from stations situated in the British Isles.

SOUTH AFRICA.

B.E.R.U. Representative: W. H. HEATHCOTE.

Holidays have prevented me getting in my usual batch of notes, but I am pleased to record an increase in interest on 28 M.C. The first contact with Great Britain was made on December 22, between ZS5C and G5WK. ZT6K heard G5ML (R3), W2NM, G6LL (R4), CE2AB (R3), KKZ, G2OD, W2JN and W2BQN on the same day. At ZS4A, G6LL came up to R8, whilst on December 28 he worked NKF on 14 M.C. and arranged a 28 M.C. schedule. ZS4M was heard by W2JN on December 29.

Notes and News from Europe.

BELGIUM.

By PAUL DE MECK.

During December conditions on 14 M.C. improved. One of our Antwerp low-power men on 4GK worked New Zealand using a five metre indoor aerial. His signals were received R6 by ZL4AJ. In Liege ON4JJ worked the Yukon twice, whilst ON4FP, another low-power man, worked VK 5 and 6, and W 6 and 7 consistently. In Brabant ON4RO and ON4FT worked considerable distances. ON4UU has now W.A.C. on telephony. He uses an input of 100 watts to a Hartley push-pull circuit with choke modulation. ON4FE made the first contact between Belgium and the Fanning Islands (VQ4MSB). South Africans were received regularly at about 17.00 G.M.T., whilst a new station, NA1XLR, has been heard and worked. We have no details of his location.

RPX in Franz Joseph Land has been heard calling on 43.2 metres, but has not been worked.

It is interesting to record that our QSL manageress (Mrs. Ulrix, wife of ON4OU) has dealt with 20,000 QSL cards in nine months.

Amateurs who understand French are cordially invited to join our society, the fee being 5s. per year, including a copy of our monthly journal "Q.S.O."

GERMANY.

By W. RACH.

We are very pleased to be able to state that the licensed German stations have been given permission to use the 3.5 M.C. band (83.33 to 85.71 metres). We sincerely hope that the 7 M.C. band will now be less congested, and some stations will return to 3.5 M.C.

During December D4ABV and D4ADU were using this band.

QRM on 7 M.C. has recently been very bad; nevertheless, American signals have been heard at good strength at 22.00 G.M.T. Many stations also found it possible to connect with them, notably D4ABR, D4UAL and DOO7. DOO7 is working with 400 watts input, crystal controlled, using quite a new system, which will be described in one

of the next numbers of "CQ." Several QRP stations also did some DX, D4BY with 6 watts, and D4GY with 7 watts, both working U.S.A.

On 14 M.C. a lot of inter-European work takes place in the afternoons, but some DX has also been accomplished. D4GO (4 watts) has worked ZS6N and FK4RM, D4GJ (2½ watts), QSOd FM, and D4GW (3 watts) has connected with FM and YI.

NORWAY.

By G. H. Petersen (LA1D).

Reports indicate that during December conditions on the 14 M.C. band were still good. However, no interesting DX feats were performed. LA1W has been transmitting speech and gramophone records on the 7 M.C. band, and has received some interesting reports from England. He also reports working ZU6N at Johannesburg at 17.00 G.M.T. on the 14 M.C. band.

At N.R.R.L. headquarters we have been busily preparing for the coming negotiations with our Government regarding the new regulations as a result of the Hague Agreement. These discussions, which were to have been held in December, have been postponed till January, but we hope to be able to report the result in our next notes.

HOLLAND.

By H. Pomes (Assistant Traffic Manager, N.V.I.R.).

Conditions generally have shown little real improvement. We noted that on 3.5 M.C. the Americans were more consistent than on 7 M.C., and regret that more of our newcomers do not use this band in preference to the higher frequencies. There is a lack of co-operation between European countries in the matter of dividing our bands in channels for telephony, local C.W., and long-distance C.W. work. This is particularly important on the much crowded 7 M.C. band, which continues to be clogged up with badly operated telephony stations. Most Germans and some Britishers put out excellent speech, but much of it simply adds to our suffering! Naval Americans and Porto Rico stations were consistently received on 7 M.C., but little real DX.

The 14 M.C. band is returning to normal winter conditions, and this improvement should continue until March.

Australasia, South Africa and India were heard regularly and occasionally worked. North and South American stations have, in general, been weak.

Heavy interference from high-power commercials (notably RKV) is causing us concern.

In general, conditions were rather poor during November and December. During daylight communication with all European countries was possible in the 7,000 K.C. band. After sunset reception decreased, but at 22.00 G.M.T. usually a few stations could be worked. Most nights the reception of U.S.A. signals was bad. Only a few good QSO's have been established by us in this band, mainly with stations in an easterly direction.

The 14,000 K.C. band still maintains its capricious character. Usually the reception of European stations is good, and occasionally fine DX has been made. PAOXG twice, and PAOZK once, worked the seventh district U.S.A.; other stations worked from time to time South Africa and Australia. Communication with these countries was established, however, under very favourable conditions, and only during short periods.

No reports came in on work in the 28,000 K.C. band.

The number of licensed Dutch hams still increases, and our club activity is greater now that many courses are given for those preparing for the official examinations. As our Government wants the stations to be controlled and approved by the Technical Service, everyone is busy with completing his outfit.

Our annual meeting will be held on February 16 in Utrecht; we will be very glad to see foreign amateurs there. The committee will give all information wanted. Needless to say, a real hamfest will end the day!

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