MERCURY

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EDITORIAL.

G3DPS

Now that the darker nights, (and colder evenings) are again with us, it is hoped that more time will be spent in the shack by members, thus resulting in a lot more work for the Awards Manager, the QSL Manager and, of course, the Editor. All would be vary happy to see an increase in activity as, I am sure would many members. Even if you are not a 'Net' type why not try calling 'CQ RSARS' once or twice. It is really surprising just who is lurking behind those commercial CW and Teletype transmissions, which seem to be ever increasing on the 'ham' bands.

In this issue we see a plea from G3IDG for volunteers to assist the RAIBC. I could not recommend a more worthy cause. During recent weeks I have worked I3ANE several times and was impressed by his activity, good humour and interest in our hobby. I was even more impressed when I was told that he was totally blind. Many of our handicapped comrades are well established in the hobby and show great courage, fortitude and determination, but many handicapped people just don't know how to start. Amateur Radio is, without doubt, one of the best ways that the blind, handicapped and bedridden can make new friends and 'travel' the world. Perhaps, therefore, some of our members may like to contact G3LWY with an offer of a little time, advice, assistance or even, maybe a few new P's. Letters, with SAE, direct to Frances, please.

A lot of work has been put into the details of the "Five Fifty Nine" Trophy and it is hoped that as many members as possible will take part. When reading this I hope that YOU can say that you have a reasonable score in the first part, which took place in November. Even if you are not going to send in a Log, why not try and give the keen types an extra point or two.

So far three entries have been received in the Criss-Cross-Word which appeared a couple of issues ago, two of these being from overseas members. I understand that Bill has a couple of entries at Blandford for the 'Code' quiz, Perhaps these were too difficult for members. If so, there's an absolutely terribly easy one in this addition. If that's too hard, why not get the XYL to have a go for you?

No comments or letters have been received about the AGM Minutes and the various propositions, including the now 'infamous' Proposition 2. As members will see in "On the Awards Scene" the Society has decided not to change any Award rules now or in the future in the direction suggested. So, if you had similar ideas, please forget them - the matter is decided. Looking at the latest 'State of the Ladders' from Ray it is nice to note that members are still progressing up the aforesaid Ladders, with G8VG sitting very nicely on the top of the tree. Well done, Bill, you have certainly deserved the place after all the work you have put in. I certainly hope that the gap between 'Worked' and 'Confirmed' is getting ever smaller.

It is sad to see that the Postal Services are, apparently, no longer providing the service to which our older members had become accustomed. Ray reports the loss of five batches of cards and at least two letters to the Editor have never arrived. One was from Dave G3HSE giving an up-to-date picture on the QSL Bureau. So, unfortunately, no details in this issue but just a reminder that if you have ever worked a RSARS member, why not send along a couple of envelopes to Dave, who has little room to store unclaimed cards. Also, bear in mind that for RSARS Awards there is no log entry GCR - you MUST have the cards to hand to claim. No doubt Postal losses will mean that some members have to work a total well over-the-odds in order to get sufficient cards, so please don't make the task any more difficult by leaving their cards to you with G3HSE.

By the time you read this perhaps all the hangovers will have subsided, all the indigestion tablets will have been used up, and that brand-new transceiver that the XYL promised you for Xmas will have pride of place in the shack. A little late to wish you A Merry Christmas, but the President, Council and HQ Staff wish you and yours every success and good fortune in 1973. New Year Resolutions? - why not just make one this year - to try and attend the AGM - go on, put it in the diary NOW!

SSSHHH - YOU KNOW WHAT

Secret Agent No. 1794(P) tilted back his office chair, crossed his feet on the desk, and sipped his mug of 'Official' tea. Business was slack this afternoon, not like this morning when he had smashed two International Spy Rings, uncovered a Smuggling Ring on the Canals of England and beaten the Office Cleaner twice at 'Scrabble'. Suddenly, the door burst open and framed in the doorway was the figure of Colonel ~ [redacted] ~ complete with monocle, flowing white moustache, Sam Brown, Riding Breeches and long puttees. "Hi Sahy, Old Boy" bellowed the Colonel "Dashed sorry to barge in, and all that, but wonder if you can help me with this". "This' turned out to be a piece of paper covered in dots and dashes. 1794(P) scanned the paper. "Looks a load of rubbish to me ~~~ Sir" said 1794(P) adding the Sir' just quick enough to be respectful, "Are you sure it's copied correctly". "No doubt at all, Old Man" was the reply " taken by one of our best operators, WSA3WG in fact, and although he's backward he is our Deputy Net Control". "OK" said 1794(P.) "let me have a word with him". "Sorry, Old Boy. dashed strong Union man, took the message at one minute to five and went home at five, not a snowballs chance in hell of seeing him before tomorrow". 1794(P) took a longer look at the paper "Certainly looks like code" he murmured "but has dashes of different lengths, and the message has both figures and letters". Moving over to his extensive library, he took down one of his three books - a copy of ~ [redacted] ~ although he knew he could have found the information he required elsewhere. Five minutes later he was in Colonel ~ [redacted] ~ office with the answer. A copy of the code is reproduced below (taken from 1794(P)'s office by the Editor disguised as a Transylvanian businessman dressed up as a spy). Can you resolve the message? If so, send a copy of the answer, together with a brief explanation of how you, 'cracked' it, to the Editor. If your answer is one of the first to opened, you may well hear something to your advantage!

SILENT KEY

W5VA

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Once again it is our sad duty to record the passing of a Society member. Frank must have been known by many thousands of amateurs all over the world. He was a true Old Timer whose amateur radio started way back in the very early days and finished at the very top of the hobby. He was the owner of his own Television station - KRIS - in Corpus Christi, Texas, although he had known much harder times. During the depression he, like many others, was almost jobless but succeeded in getting a job as a junior engineer with a local radio station. Deciding that things could only get better, Frank worked for the future and usually climbed the ladder of success through sheer guts, hard work and determination, culminating in his own colour TV station. During all this time W5VA never forgot Amateur Radio - he felt that his progress in the commercial world was largely due to Amateur Radio and he constantly tried to return what the hobby had given him. He was an outstanding operator both on the mike and key but it was the key that gave him the greatest pleasure. He was a man of high ideals and would not hesitate to fight any injustice or action which he felt brought our hobby into disrepute. The writer first came into contact with W5VA when operating from VS5JC and having a hard time with the obvious pile-ups. Frank came on the frequency, organised things, and with tact and firmness informed certain 'lids' the errors of their ways. He organised the printing of VS5JC QSLs and acted as QSL Manager - a service for which he flatly refused to be reimbursed. He had many friends in the British Forces throughout the World and took a particular interest in the Gurkha Brigade in Brunei. For his help and good wishes the C.O. of Gurkha Signal Regiment instructed that he should be presented with a Plaque to commemorate his actions. He was also presented with an inscribed Kukri. He was particularly proud of both as he believed he was the only United States amateur so honoured. Frank held, or had held, every type of radio licence issued by the U.S. Government. He was a member of FOC since 1963. His 'rig' was housed in a shack which he had built (together with a beautiful house) on the beach at Corpus Christi. He had a large collection of ancient and modern amateur radio gear, one rig dating from 1908, a Spark transmitter costing less than $10 to make, a "sideswiper" of similar vintage and an original Fleming valve. He was Secretary of the Old Timers Club with a 50 year endorsement on his Diploma. He also held the call W5AI.

Amateur Radio has lost another foundation stone. Frank will be sadly missed by his many friends. If ever a book were written about W5VA it would doubtless be a best-seller.

G3DPS/G8VG

WANT A QSO WITH .....?

Puerto Rico? KP4CH is crystal controlled on 21·339 MHz and operates daily during the evenings (GMT) and is interested in 'G' contacts as his father came from London.

Bermuda on Top Band? VP9BO is still trying to work Europe on Top Band. He would be interested in hearing from any European station who wants VP9 on 160, particularly regarding the best times/frequencies etc. Ken runs 220 Watts input and has the whole Band (1·8 - 2·0) at his disposal. If YOU are interested in arranging a sked, why not drop Ken a line at :

Kenneth E. Simmonds, VP9BO, Kenglo, Mount Hill, Pembroke W., Bermuda.

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DXNS

We have all heard of the DX NEWS SHEET or GEOFF WATTS NEWS SHEET as it is sometimes known, but do you get a copy regularly? Giving up-to-date news of DX stations, new prefixes. Contests, Times, Frequencies, etc., it is put in the post to you direct around midnight every Tuesday and they don't come 'hotter off the press' than that!. Details of world-wide subscriptions are given below and overseas subs may be paid by Banknote, Money Order or Cheque. Payment can be made in any National Currency or in International Reply Coupons (Present rate of exchange, 20 IRCs for £1 or 8 IRCs for $1). If you also collect stamps you get an additional bonus as Geoff uses Commemorative or Special Issue stamps whenever possible.

UK RATES.

(1st Class Mail)

54 issues = £3:00, 27 issues = £l:50, 18 issues = £l:00, 9 issues = £0:50.

(2nd Class Mail)

50 issues = £2:50, 30 issues = £l:50, 20 issues = £l:00, 10 issues = £0:50.

EUROPEAN RATES.

(Sterling)

13 issues = £1:00, 26 issues = £2:00, 53 issues = £4:00.

(U.S. Dollars)

16 issues = $3:00, 26 issues = $5:00, 53 issues = $10:00.

ASIAN, AFRICAN AND AMERICAN RATES. (By Air Mail).

(Sterling)

15 issues = £1:00, 30 issues = £2:00, 46 issues = £3:00.

(U.S. Dollars)

18 issues = $3:00, 30 issues = $5:00, 55 issues = $9:00.

OCEANIAN AND FAR EASTERN RATES. (By Air Mail).

(Sterling)

13 issues = £1:00, 26 issues = £2:00, 53 issues = £4:00.

(U.S. Dollars)

16 issues = $3:00, 26 issues = $5:00, 53 issues = $10:00.

The Islands on the Air Award Directory is also available at 20p. or 4 IRCs, (6 IRCs by Air Mail). Also the QSL Managers Directory which lists the full QTH of Managers to over 3,500 DX Stations. By special arrangement with W6GSV subscribers to the DXNS can get a copy at the special price of £2:00 or $5:00. Directories are mailed direct from the U.S. For further information on any of the above, please write to :

GEOFF WATTS, 62 BELMORE ROAD, NORWICH, NOR.72-T, ENGLAND (Please mention RSARS).

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VHF NEWS.

(Or, perhaps, this should be called "No VHF News"). Recently, your Editor was reading his copy of "Mobile News" in which it was stated that Messrs Pye Ltd., had for disposal a quantity of 'Cambridge' equipments. A letter to Pye Ltd. produced a rather delayed reply stating that they had decided not to deal with the public direct and had appointed two 'distributors' to whom they had passed my name and address. After a further delay a letter was received from one of the distributors in Gravesend stating "I regret that I have no FM or AM Cambridge equipment available at the present time. I will write you again when any of this equipment becomes available. I wonder what happened to all those Cambridge equipments??????? (Editor).

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DID YOU KNOW.....?

That Marconi Communications Systems are the largest European manufacturers and exporters of HF Radio Communications systems, and that Marconi Self-Tuning Systems (MST) for HF Radio, worth over £14,000,000 have been sold to over 47 countries.

THE LARGE STEERABLE AERIALS AT GOONHILLY EARTH STATION.

By V. C. MELLER and P. S. J, DUFFY C Eng. MIEE.

(This is Part 1 of an article reprinted from The Post Office Electrical Engineers Journal, Volume 65 Part 1 dated April 1972. Due acknowledgement is hereby made to that publication and thanks are extended to the Managing Editor for permission to reprint in "Mercury".)

U.D.C. 621.396.677:621.396.946.

Goonhilly has changed from a low-capacity experimental earth station, operating only a few hours a week via low-altitude satellites, to a high-capacity station giving continuous commercial service via geo-stationary synchronous satellites. The earth station aerials and associated radio and control equipment have evolved to meet the new requirements. The basic radio performance standards have not, however, changed radically, nor are they expected to in the near future. Salient features of the new third aerial are described and compared with those of the two older aerials.

INTRODUCTION.

Three large steerable aerials have been built at Goonhilly earth station in the ten years of rapid development and growth of satellite communications that has followed the TELSTAR experiments (BRAY, W.J. Preliminary Results of the Project TELSTAR Communication Satellite Demonstration and Tests 10-27 July 1962, P.O.E.E.J. Vol. 55, page 147, Oct. 1962). Although many of the basic design requirements (TAYLOR, F. J. D. Large Steerable Microwave Aerials for Communication with Artificial Earth Satellites. P.O.E.E.J. Vol. 55, page 152, Oct. 1962) have not changed significantly in this period, the latest aerial, Aerial No. 3, designed and built by Marconi Communication Systems Ltd., is quite different from either of the earlier aerials. In this article, the nature of the major design differences are identified, the underlying reasons for them explained and the expected advantages are considered.

Aerial No.1, designed by Husband and Co. and the British Post Office (B.P.O.) Research Department, was an outstandingly successful adaptation of an existing front-fed radio telescope design for tracking fast-moving experimental satellites in inclined orbits (HUSBAND H. C. The 85 ft Steerable Dish Aerial at Goonhilly Downs. British Communications and Electronics, Aug. 1962). In 1965 it was successfully modified (WRAY, D. Goonhilly in Transition, Post Office Telecommunications Journal, Summer 1965) to work with the first operationa1 INTELSAT satellite in a 24-hour synchronous equatorial orbit, and in 1969 it was again adapted to work to the INTELSAT III satellite (BACK, R. E. G., and WITHERS, D. J. The Development of the Intelsat Global Satellite Communications System, Part 1. P.O.E.E.J. Vol. 62, p. 207, Oct. 1969~) stationed over the Indian Ocean. It has a reflector which is small by current standards, and this, together with the lack of adequate accommodation for equipment, especially the low noise amplifiers (l.n.a.s.), has always presented formidable operational problems. Nevertheless, current plans for Goonhilly include comercia1 operation of this veteran aeria1 for at least another five years.

Aerial No.2, built by Marconi Communications Systems Ltd., is based upon a Husband and Co. design that was made available to British industry by the B.P.O. at a time when no British manufacturer or consortium of manufacturers had ever built a complete earth station. The design was intended to provide adequate accommodation for all equipment needed for the estimated growth of traffic during a 20-year design life. Originally designed as a front-fed aerial, it was adapted by the tenderer to accommodate a Cassegrain feed-system (Cassegrain feed-system - Radiation from an aperture in the main reflector is collimated by a front-mounted sub-reflector and reflected by the main reflector). At that time, the dominance of the 24-hour synchronous orbit for civil communications had not been completely established, so the ability to track relatively fast-moving satellites in sub-synchronous orbits was included in the specification. In general, flexibility was the keynote in the design. Although it was designed for operation with the INTELSAT III generation of satellites it will also be possible for this aerial to continue carrying some of the transatlantic traffic via the INTELSAT IV satellite after the third aerial has been brought into service.

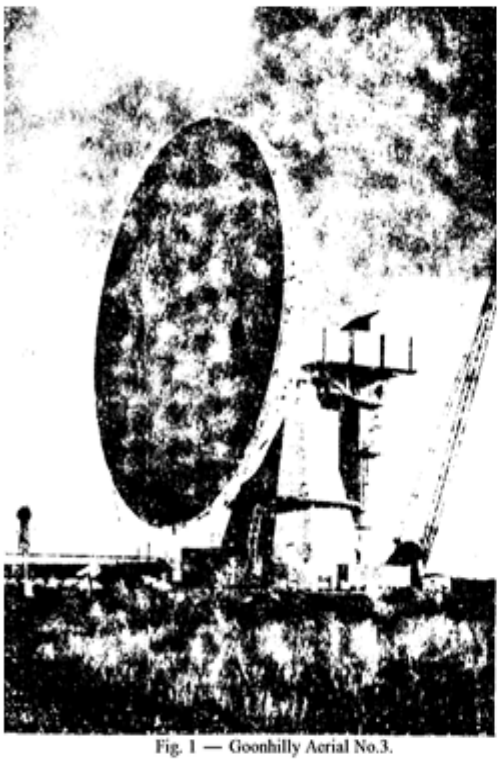

Fig. 1 — Goonhilly Aerial No.3.

Aerial No.3, illustrated in Fig.1. is one of five similar aerials designed and built by Marconi Communications Systems Ltd. Designed specifically for tracking satellites having a 24-hour synchronous orbit, it embodies the results of wide operational experience at Goonhilly and other earth stations. The salient features are the reinforced-concrete tower, which provides on three floors a total of 250m^2 of accommodation for audio equipment, and the high level azimuth bearing. The tower is surmounted by a rotating platform which carries the aerial driving machinery, and provides 52m^2 of accommodation for the low noise amplifiers. Equipment rooms in the tower are served by an internal lift and access to the moving accommodation is via an external lift carried by the rotating structure. Annexes at ground level house mains power switchboards and air-conditioning plant. The technical features include the first use at Goonhilly of an aluminium reflector to reduce the movable weight, low-power movement machinery, stationary low-noise amplifiers, a new design of azimuth bearing and an ingenious new elevating screw-mechanism.

Some of the more important factors that have influenced the development of earth station aerials are :

(a) the successful development and launching of large satellites into the synchronous 24-hour orbit.
(b) the relative stability of international agreements on the major technical parameters relating to earth station equipment, and,
(c) the need to minimise maintenance out-of-service time and to provide adequate access to all equipment.

A summary of the three major characteristics of the three aerials at Goonhilly is given in the Appendix.

ELECTRICAL PERFORMANCE.

In communication systems the quality of circuits is influenced by the ratio of signal power to noise power. For a given satellite system, the received signal power is proportional to the earth station aerial gain, 'G'. But, because of the very high propagation-path loss, the received signal power is extremely low and may be only slightly above the level of noise in the receiving system. The receiving system noise is represented by the physical temperature. 'T, at which the thermal noise power available from an equivalent resistor is equal to the system noise. The ratio of the two parameters 'G, and 'T' can therefore be used as a measure of the performance of an earth-station receive system. Conventionally, G/T is referred to the input of the l.n.a., and international agreement requires the system G/T, at the operational receiving frequency 'fGHz to be

$$40 \cdot 7 + 20 \mathrm{Log}_{10} \frac{f}{4} \mathrm{dB}$$

When measured under clear-sky conditions, in light winds, at the operational elevation angle.

The primary aerial design-objective must be attainment of the requisite gain-to-noise-temperature (G/T). This means that the aerial itself must have high gain, but low noise, In addition, the design must enable the telecommunication equipment to be mounted so that its noise contribution to the system can be minimised and so that the required radiated power can be generated economically. It must also enable essential maintenance work and periodic overhauls to be carried out without loss of service.

The major factors which govern the attainable gain at the input of the l.n.a. are :

(a) The aperture area and profile accuracy of the reflecting surfaces.

(b) The aperture blockage introduced by the feed system and any secondary reflector.

(c) The spill-over of the signal at the edges of the reflecting surfaces, the scattering of the signal from the feed or sub-reflector structure and the diffraction at the edges of the reflector.

(d) Phase errors and cross-polarization.

(e) The insertion losses of the waveguides between the primary feed and the first receiving amplifier, and

(f) The mis-matches which occur both in the waveguide assembly and between the physical components and free space.

The net gain is determined by the extent that the losses associated with (a)-(f) above can be minimised in the design.

Ideally, the gain should be independent of the reflector elevation angle, but unless the design provides adequate stiffness, gravitationa1 effects distort the reflector shape and feed or sub-reflector supporting structures, thus reducing the gain as the elevation angle is changed from that at which the shape was set.

The main components of system noise are :

(a) Noise collected by the main lobe of the aerial,

(b) Noise collected by spill-over at the main and sub-reflectors, side lobes and reflections from aperture blocking components, and

(c) Thermal noise generated by losses in feed and waveguide components.

The total system noise (T) comprises the components listed in (a)-(c) above plus a contribution from each of the amplifying stages, dominated by that from the first amplifier. All noise contributions are summed and expressed as the equivalent noise temperature at the input of the l.n.a. Component (a) depends on the elevation angle and is greatest near the horizon. This component comprises galactic noise and noise originating primarily in water and oxygen in the atmosphere. The received noise level from both these sources varies with frequency, and cannot be altered by aerial design, unlike the other noise components which can be minimised by good design.

With a front-fed aerial, the effects of spill-over are worse when the aerial is operating at high elevations because the spill-over is directed towards the noisy, relatively hot earth instead of the cold sky, whereas spill-over past the Cassegrain sub-reflector gives greatest noise at low elevations. However, the sub-reflector blocks the aperture more than the front feed. In general, the more convenient location of l.n.a.s. and the shorter waveguide connection between feed and l.n.a.s. that are possible with the Cassegrain design have been the major reasons for its choice. The overall efficiency of a Cassegrain aerial can be improved slightly by deliberate distortion of the sub-reflector profile from the true hyperboloidal shape so that unavoidable tapering of the illumination of the sub-reflector gives roughly uniform illumination of the main reflector, which is also mis-shaped slightly from the paraboloidal to correct the phasing of the electromagnetic wavefront.

For Aerial No.3, the overall efficiency is expected to be about 72%, and the resultant gain 60·3dB at the centre frequency of the receiving band (3·95GHz). The corresponding system noise

temperature at 5° elevation, assuming a contribution of 20°K from the n.l.a. and other receiving stages, will be about 75°K. In practice, the noise temperature of the l.n.a. will rarely exceed 16°K, and, therefore, G/T is expected to exceed 41 dB. The efficiencies and gains of Aerials Nos.1 and 2 are 55%, 58·5 dB and 67·6%, 60 dB respectively.

STRUCTURAL MATERIALS.

Mild steel, stainless steel, aluminium and its alloys, reinforced or pre-stressed concrete and metal-sprayed plastics have all been used in the construction of the aerials. Mild steel is widely used as a structural material because it is cheap, strong, and easy to fabricate and weld. If thoroughly protected against corrosion it can be used for main structural members and reflector frameworks, but repainting is difficult if it is used for the reflector membrane. High-grade stainless steel is resistant to corrosion, but is tough and difficult to work. It costs about eight times as much as mild steel and is, therefore, too expensive for main structural members, but is attractive for reflectors because it will retain its shape for many years without corrosion and need never be painted.

Relative to mild steel, the cost of aluminium and its alloys is six to eight times greater, the density and modulus of elasticity, E, are each about a third, and the temperature coefficient of linear expansion is double. The lighter weight is attractive because loads on bearings, and the size and costs of driving systems can all be reduced. Unfortunately, the lower value of E increases the volume of material required for a given stiffness, and great care is required to avoid failures from structural fatigue. Pure aluminium is very resistant to corrosion, but is too soft for structural purposes. More suitable aluminium alloys are difficult to weld, are less resistant to corrosion, and therefore require protective coatings. These factors tend to restrict its use to the construction of alloy reflector panels faced on both sides with pure aluminium.

Reinforced concrete is bulky, but cheap, and relatively easy to cast into large complicated shapes which can be built in sections and joined together. Its life can easily exceed 60 years provided that all steel reinforcement is covered adequately to protect it from corrosion. It is suitable for the construction of aerial mounts, but requires expensive pre-stressing or post-stressing to enable very great tensile loads to be carried. The rigidity and mass of large concrete structures enables them to resist the effects of high winds, but when used for the components of the rotating structure, the structural savings are largely offset by the cost of the larger bearings and mechanical driving components.

Metal-sprayed plastics have been used for reflectors of small aerials up to about 14m in diameter but, as far as is known, not for larger aerials.

STRUCTURAL DESIGN.

Ideally, the aerial should be able to operate in all weather conditions. Economically, it may be acceptable for the aerial to work with a slightly degraded performance, or even be taken out of service for isolated short periods, to avoid the high cost of extending the design for rare extreme wind conditions. It may he necessary to stow the aerial with its reflector facing the zenith to minimise wind loads and ensure its survival in these extreme conditions. Structural deflexions about the movement axes are equivalent to steering errors and can be cancelled by auto tracking, but it is not possible to compensate for loss of gain arising from defocusing of the reflector caused by wind or gravitational distortion of the structure. An operational aerial should track a satellite with an error not exceeding one minute of arc to minimise loss of gain, and therefore, a very stiff structure is required.

A relatively deep, rigid backing framework is needed to give the required stiffness, and must be supported on bearings which allow the reflector to be tilted. Adjustment facilities are usually incorporated so that the reflector can be accurately shaped and set. The weight of the reflector must be counter-balanced to reduce the driving system torque. Elevation bearings should be firmly mounted and accurately aligned. The whole assembly must withstand thrust loads along the line of

of the elevation axis and radial loads arising from gravitational effects, wind and overturning moments. Axial and radial loads on the azimuth bearing are not usually excessive and can be carried by standard bearings. Overturning moments can be quite high and can present design problems, especially with tower mounts.

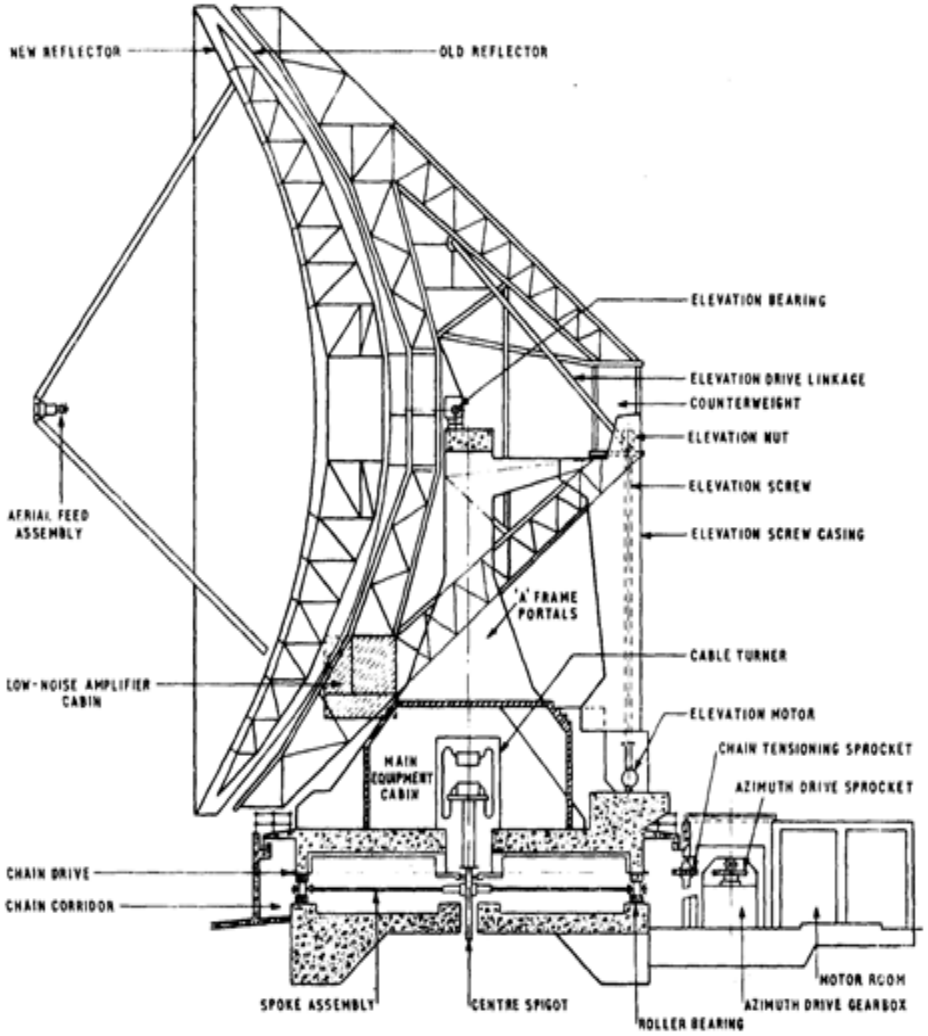

FIG. 2—Sectional view of Goonhilly Aerial No. 1

Aerial No.1 (Fig.2) has reinforced concrete mount comprising three A-Frames erected on a low level horizontal turntable 12·8m in diameter. The A-Frames are joined at the top by a post-tensioned cross beam which carries the elevation bearings. The main equipment cabin encloses the base of the A-Frame which severely restricts space available for equipment.

Aerial No. 2 (Fig.3) may be described as a strong rotating steel box, straddled by a steel gantry which carries the elevation bearings and reflector.

For Aerials Nos.1 and 2, the inherent strength of the steel reflector surfaces contributes to the structural stiffness. This is derived mainly from a large diameter, deep, steel framework. Overall stiffness is achieved by tack-welding and/or bolting 3·3mm sheet-metal panels to backing frames to form the shaped surface. These heavy reflector structures also carry the l.n.a. cabins and require correspondingly stout bearings and relatively high-power driving machinery.

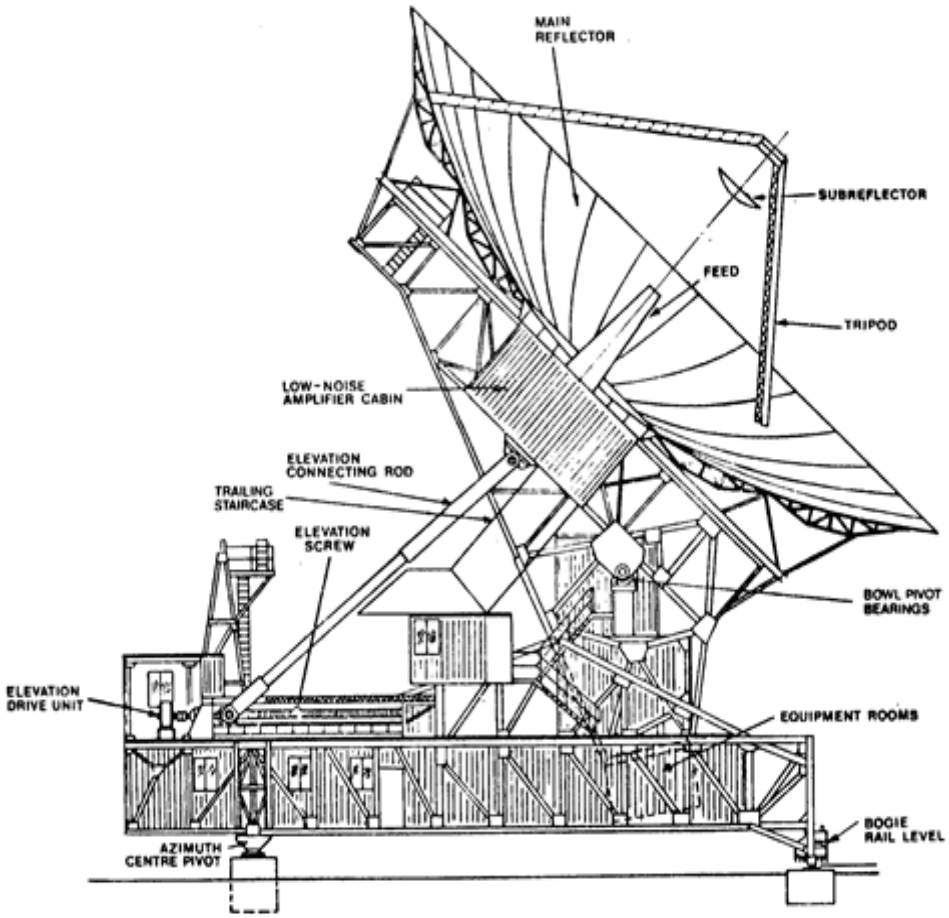

FIG. 3—Sectional view of Goonhilly Aerial No. 2

Aerial No.3 (Fig.4) has a tapered, reinforced concrete tower with an immensely strong neck which was post-stressed so that it could withstand all the dynamic loads. The rotating superstructure is fabricated from mild steel and carries stiff, lightweight reflector panels mounted separately on a steel backing structure. These panels comprise 2mm stretch-formed aluminium sheets, riveted to die-cast aluminium alloy stiffeners. A relatively small diameter, accurately machined hub-cone provides a stiff, central reflector datum. All connections in the reflector trusses are bolted to avoid stresses that could be built-in by welding. The weight of the l.n.a. cabin is not carried by the reflector.

AZIMITH BEARING.

The Azimuth bearing of Aerial No.1 (Fig.5(a)) consists of 54 tapered rollers running between two accurately machined and levelled manganese-steel tracks, 12·9m in diameter. The rollers are mounted at the ends of a tubular steel spider pivoted at the centre of the track. The central pivot has two double row, self-aligning spherical roller bearings, one to centre the spider and the other to centre the rotating platform of the aerial. This robust, high-precision bearing system was designed for high-speed tracking and seems to be capable of giving reliable operational service for many years.

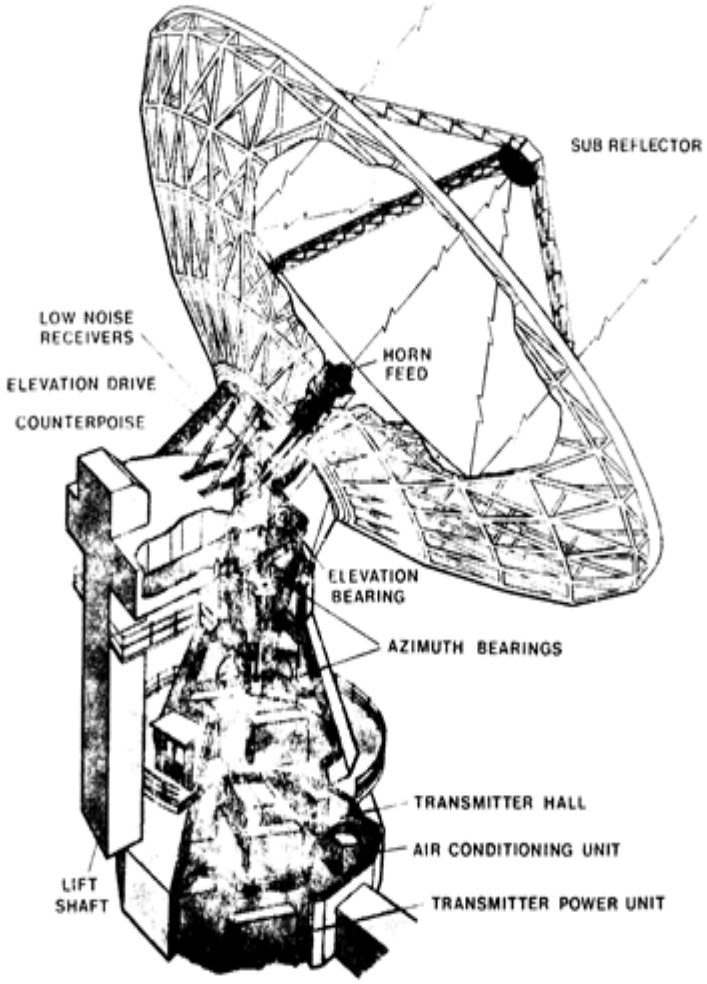

FIG. 4—Goonhilly Aerial No. 3

A tower type of construction was considered for Aerial No.2, but none of the crane-type bearings (Fig.5(b)) then available was suitable because of the difficulties involved in their replacement should they become faulty. It was clear that the overturning moments would have to be carried by a relatively small-diameter bearing, and the risk of its failure causing long out-of-service time could not be accepted.

Aerial No.2 has, in fact, a cheaper azimuth bearing (Fig.5(c)) which shares the moving load between two driven bogies which run on accurately levelled curved rails and a fixed pintle (pintle - pin of a hinge or bearing) having self-aligning spherical-roller thrust-bearings.

Although the bearings, rollers and bogies of Aerials Nos.1 and 2 are unlikely to fail within the design lifetime because of their very robust construction, any major fault might require a fairly long time for repairs, but the facility of tracking by means of sub-reflector or primary feed deflexion (beam swing) provides the possibility of service continuing during the repair.

(Future parts of this article will deal with Elevation Bearings, The Feed and Tracking System, Drive Transmission System, Equipment Accommodation and Future Developments, etc. Thanks are once again extended to the Post Office Electrical Engineers Journal for permission to reprint this article - Editor).

COMPLIMENTS ..... AND AFTERWARDS (Or : Increasing the dB yield. Or : How Member 559 radiates his very precious RF!) GW3ASW

(NB. Anything contained herein is with reservation only, handed over to our suffering Editor, who may, in his wisdom, retain, or otherwise, such of the copyright on behalf of the RSARS as he may deem necessary. The only exception is that the copyright of references made to and/or about the "GW3ASW DELTA ALL BAND ANTENNA" is still held and retained by the author. (Tnx, Cyril, but we like to leave the copyright of all our articles with the authors unless otherwise stated. Who knows, we might yet see one of our members sitting at a desk at that well-known London Bookshop autographing first edition copies of "Everything you have ever wanted to know about Antennas - but were frightened to ask", by RSARS 1111 as published by the Radiator Publishing Company!!! - Editor.))

Compliments? - Oh yes, I get 'em. Listen in to one of the domestic Nets and the reports I receive are ve-rrry flattering from most stations, but, boy-oh-boy, the questions I receive in the mail! .... ruff. verr-rrr-rrrryn ruff!!! So, to those who have not asked questions please excuse the space I am taking up in your favourite reading material, and to those who have asked questions by mail, overtheair, orbywhatevermeans (thats deliberate) 'ope this answers some of the problems (but I bet it won't!).

I think that the keyword of this article must be THOUGHT, as like many others, I suffer along with a plot of ground just over the 100 feet mark and just about 17 feet wide. I suppose I am luckier than many even at that, but please remember that when I first started at this QTH 24 years ago I had a kindly farming neighbour with 300 odd acres at my disposal and the only restrictions were that I kept to the hedges and the paths. The "Vees" and the Rhombics were very mundane antennas, particularly as I got a number of very nice 40 ft. poles up before the vesting date of the T & C Planning Bill could be put into effect (was there ever such a time?). So when the grim Reaper passed through the farm I lost forever the very nice antennas that I had been used to. (Aside for John.... for 'Antennas,' please read 'Aerials' .... Thank you, John).

So I also lost hope, but only for a while as I was lucky that the piece of land that "housed" my main distribution pole - a nice 32 footer - which is about 27 feet clear in the air, came to me as a result of a legal quibble and, although the strip is only about 20 feet wide, is today, the key to my antenna arrangements. It gives me a total length that is just short of 105 feet. That's the set up.

The main antenna is the "GW3ASW DELTA ALL-BAND ANTENNA", as described in "Mercury" Winter 1969 and Spring 1970 editions. To those who have not had sight of these a brief description is warranted and reference to Fig.1 will show the basic details. Measurements given are those for operation on QRG of 14·100MHz and is arrived at, by or from the normal formula of 234/f (MHz) = Length in feet. The original idea was to obtain the maximum effect on 20 Metres with a very good bonus on 80 (see below). Maximum radiation is typical of the 2 x ½ waves in phase, is broadside to the array, and with the spacing as shown gives a gain of over 3dB. Spacing on 20 is, in effect, ½ w/l - partly air and partly metallic. Fed as shown below the array will operate very effectively on all bands, including Top Band when the feeders are strapped together. The main

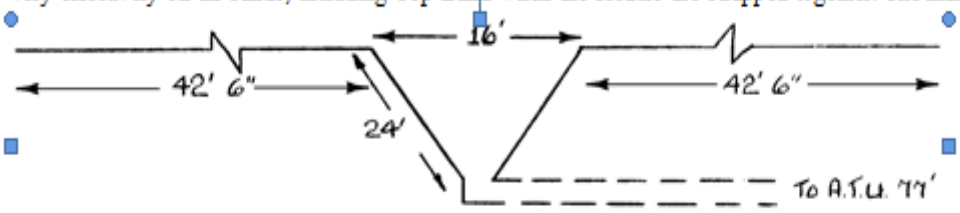

Fig. 1.

bonus on 80 is the 'all-round' radiation pattern it shows in operation. This, of course, is not peculiar to this antenna, as the G5RV, Trap Dipoles and similar 'shortened' antennae all show similar

characteristics, particularly when close to the ground. Deliberate advantage of this phenomena has been taken in the final design. In effect, then, I have a very efficient system on 20, 40 and 80 permitting me to operate to a very good effect. Very recently I had a report of 5 & 9+6 dB from a VE1 when using 220 Watts PEP on 80 Metres against another RSARS member using an Inverted 'V' at around 50+ feet and 350 Watts PEP. His report was 5 & 9+10 dB. I think the comparison is good.

Operation.

80 Metres : As a centre folded Dipole.
40 Metres : As a 2 elements in phase collinear - gain about 1·8 dB.
20 Metres : As a 2 elements in phase wide spaced - gain about 3·1 dB.
15 Metres :
10 Metres : On these bands the antenna operates as centre fed long wires with lobes characteristic for these bands.
NB : Some vertical polarisation occurs on all bands. Least on 40 and 20 but very marked on 80, 15 and 10.

The whole array is fed, through 600 Ohms line, from the station ATU. The length of this line is about 77 feet permitting parallel operation of the ATU on all bands. This length of feeder is very useful as it gives me a length of wire, with feeders strapped, of around 143/4 feet which tunes with the Tuner described in a previous issue of "Mercury", gives a very good account of itself on Top Band, and with a 1:1 SWR, too.

I'm often asked how I arrived at the above design. The simple and basic truth is that it was pure accident, if I am to be very hard with myself. At the time the old "grey matter" was 'jogged' into very reluctant operation I was using to rather good effect another 2 x ½ Wave Collinear which may be familiar to other ex-serving members as one that was, in the late 30s, used for receiving but occasionally used in the Transmit mode as well. This is shown in Fig. 2 below.

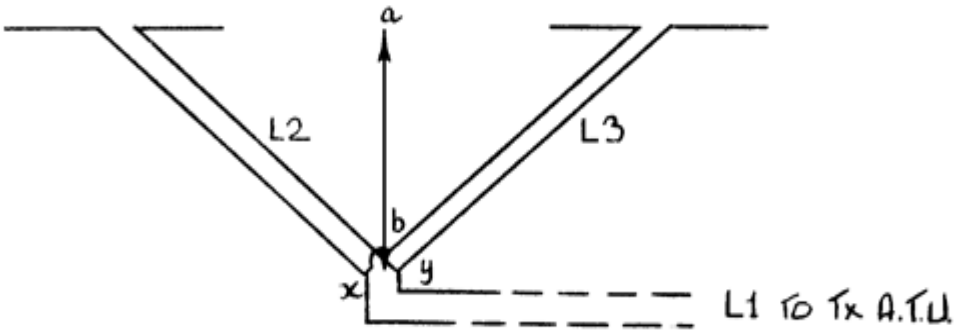

Fig. 2.

The distance (a) - (b) is very close to 40 feet and may present some trouble with the majority. (Only applies if multi-band operation as stated below is required).

I know that one of these antennas was at Sarafand around 1938 but if it was Ken, G2KK, in 'occupation' or not I just cannot remember. I came in from "the wilds of Samaria" to take delivery of a No.9 Set which ended up in Tulkam, I believe. I do remember that visit, however, as it was that 'jog' that was eventually to make me or cause me to seek a licence. The above antenna was, as I said, up in Sarafand and was explained to me on this visit. I saw another one at Mhow after I rejoined the Indian Army and used one on a No.1 Set during some emergency tests from Karachi into the Gulf around '42/3. These were partially successful (my ability on the key then was more or less as my rating allowed!). This antenna was fully described in Signal Training (Wireless) Volume II, Part II of 1936. (This is still one of my Bibles!).

A typical 2 element Collinear, spaced a half wave apart, it lends itself to multi-band operation readily, with the only disadvantage that the phasing lines must be a suitable length to bring to resonance, and, of course, must be transposed at 'x' and 'y' when the QRG is different to the design. A basic requirement of the phasing lines is that they be matched electrically to ¼/½/ wavelength. If we take advantage of this and make these feeders, on 14 MHz, about ¾Wavelength then we will have an antenna - with correct feeder transpositioning - that will operate on all bands if tuned correctly. As an example use typical dimensions for 20 Metre operation..... Assume that each dipole leg is 16' 3" and the inner separation between the dipoles is made around 33/34 feet then the whole array can be made to fit into 101 feet inclusive of insulators. Now the phasing lines ..... I did say that the requirements mentioned in the old 'Bible' (Signal Training Manual to the uninitiated!) was that the length of these must be around a ½ or a ¼ Wavelength. Nothing suits the purpose better ..... ¾ Wavelength is around 49 feet which ADDED to one section of a dipole gives us a length that is very close to optimum for VERTICAL VEE OPERATION on 80 Metres. WARNING - (there always is!!) the height from the centre of the array, even if we assume absolute flatness at the top, will be very close to 40 feet (but see below).

If you desire to operate on any special frequency on 80 Metres (3·720± MHz?? - Ed.) then, after deciding the dimensions of your main 20 Metre spot you require to work on, calculate the 80 Metre spot and make up accordingly the two phasing lines, L1/L2. However, as stated above correct transpositioning of the feeders is necessary. This can be done at points 'x' and 'y'. The right-hand feeder of L1 is joined to the left one and the left-hand feeder of L2 is joined to the right one and fed from the tuned line as normal (or, if you prefer co-ax then join direct, or, better still, through a balun (see below)). Using the 600 Ohms feeder lines this arrangement makes a very good Multi-Band antenna, for ALL-BAND WORKING.

So, as you can see, the GW3ASW is just a variation of this arrangement, without having to keep going out in the rain to transpose feeder lines. The other difference, if there is any, is that instead of feeding the 20 Metre array from a current point, I am doing so from the Voltage point. On my frequency though there is no difference at all as far as actual gain is concerned. The main advantages are there is slightly less wire in the centre dropping to the ground and there is no problem having to balance the phasing lines - so, as no fishmonger ever cries "Stinking Fish" - I think my arrangement is the better!. However, if there is any doubt about the dimensions I have given, particularly as a comparison between the two, I must hasten to add that the difference between the 20 Metre Dipoles and the 'Delta', electrically, is ZERO. What I have done is to take advantage of the theory of the "Double Extended Zepp". This is simply a method whereby the two 'electrical' dipoles are separated by a "metallic" insulator, which doubles as a feeder, in order to take advantage of the fact that any TWO ELEMENT collinear antenna of this nature will show gain in direct proportion to the spacing (see below). This spacing, in the Double Extended Zepp, is considered to be optimum at around ·28, which is why the dimensions are given as ·64 wavelength for each leg of the dipole. The array is then fed with 600 Ohms feeder. Any good Antenna Manual will give further (and better) advice on this radiator. The principle has, however, been taken advantage of in other designs of which the old Collins Multi-Band was just one (and that's a long time ago).

GAINS OF COLLINEARS HAVING 2 X ½ Wavelengths IN PHASE

Spacing	Gain in dBs	Spacing	Gain in dBs
Zero	1·9	·1	2·15
·2	2·5	·3	3·0
·4	3·18	·5	3·2 (Max.)
·6	3·1	·7	3·0

·8 and upwards - level of gain flattens off to 2·9 approximately.

Effectively therefore it can be seen that the claim that little, if any, gain is made by increasing the spacing of the Double Extended Zepp greater than ·28 is a very valid one. However, amateur-wise many other points have greater validity to a good many of us - the ability to work more than one band in limited surroundings being only one of them.

Now, if we again consider Fig.2. AND study the gain chart above, AND if you still like the look of the gains of this form of antenna on 20 Metres, AND if you can put up a top piece of wire about 120 feet, AND if you also require the facilities of working on 80 Metres, then by increasing the spacing of the two elements to about 53/54 feet (a spacing of about ¾ wavelength) you can still get the very useful gains (on 20) of around 2·9 dB, AND get - when you transpose - a 2 element collinear on 40 (vertical) and a very nice, almost vertical, 80 Metre - 'VEE'. Height above ground in the centre has been reduced to the very manageable 22 - 24 feet or less because you'll never get those phasing lines straight and rigid anyhow. Remember, my point was THOUGHT. Plot out what you can do, then see what else you can have for nought - it's surprising just what you'll be able to do. Don't worry over calculations - the basic formula for finding a ¼ wavelength or wire, and a piece of graph paper mostly solves mine as trig. and geometry passed out of mind a good few years ago. If you have a GDO or an RF Noise Bridge to help, THEN you've got a good bonus.

This then, Dear Sufferers, is the story (or part, at least) behind the now infamous "DELTA" antenna that drowns out some of you when you deign to join the various RSARS Nets, which now leads into the other part or the story - THE FILLIN POLE -. As stated above the main antenna is, by far, too directional for me to operate and control the Saturday morning Net. The orientation of the main wire is East-West and unlike 80 Metres little if any vertically polarised radiation is thrown other than due East or West. It is therefore of little use as a Control radiator on 40 Metres. I mentioned above that I had a decent wooden pole at the North end of my 'demesne'. To this had been attached, a long time ago a 24 feet extension made up of water piping which had, also a very long time ago, been galvanised. After using the main antenna on two occasions and receiving S8/9 reports from DL and only, at best, an S3 or S4 from Ken at G2KK it was very obvious that something had to be done if the new 40 Metre Net was to get off the ground and have a chance. A very rough and ready Ground-Plane was made up by cleaning off a portion of the very rusty base and extending the pipe towards the ground for another 12 feet. 34 feet radials (2) were put out, and the whole array linked up to 600 Ohms line (I didn't dare attempt co-ax feed, as Heaven knows what the Zo was!). The next 'Meet' went like a bomb with very reasonable reports coming from all the way round. I was on the right track, at least, so the following evolved.....

THE "FILL-IN" POLE.

Very simple, yet effective, it consists of 3 lengths of 2" dural tubing of the type used to carry TV antenna arrays. These were joined together to give me a length of 33 feet. The splicing of these poles is important, both mechanically and electrically, and was carried out as under. It is possible to obtain 2" doweling which can be turned down to fit the inside of the tubes. Usually it is of Beech or other hardwood. I used Oak and turned them down myself into 18-inch lengths. These were pushed 9" into each tube section. Pieces of Dural tubing were then split (18" long) and after a very thorough cleaning and polishing of the insides and the exteriors of the tubes with steel wool, were pushed on with an equal overlap on each tube. Pick a very dry day for this, in order to preserve the metallic dryness inside the sleeves. Two holes are then drilled in each tube section, on opposite sides to accommodate 0 BA screws or similar. Bolt up. Cover with plastic insulation tape to ensure as waterproof a joint as possible, a couple of coats of polyurethane or similar varnish finishing with a liberal application of aluminium paint. Erected on the pole, as far up as possible, AFTER attaching suitable guys and pulley halyard, it makes an imposing 'Vertical'. The top is around 51 feet above the ground, and the 45/46 feet mark also supports the main wire radiator.

The antenna is mounted on the pole by using TV type chimney clamps formed to fit the top of the pole. The 'J' or Hook-bolts are let out to their fullest extent, bound around with galvanised wire and the hook-bolts tensioned up. A firm fixture to the mast is assured.

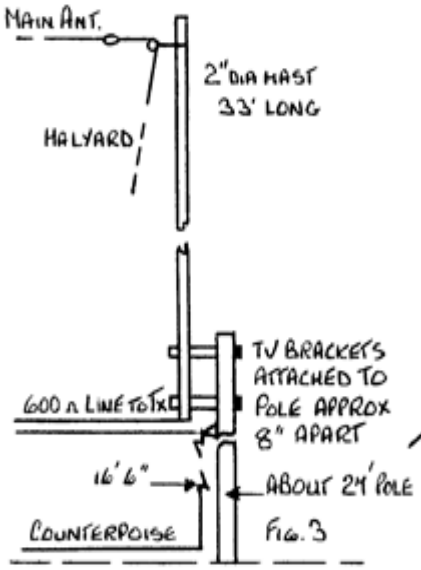

FIG. 3

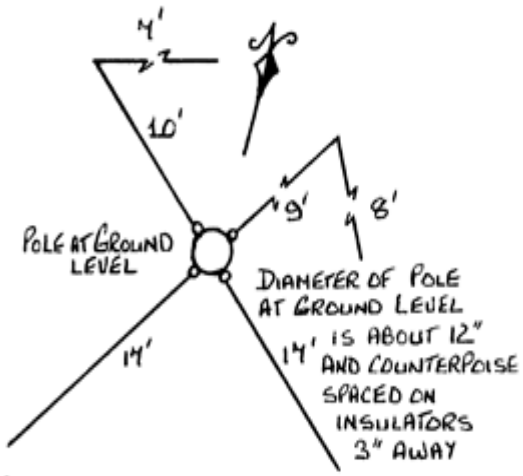

FIG. 4

The counterpoise wires are made from 7/048 PPJ, insulated, of the type used for outside mains and/or similar work. Too expensive to buy these days but having about 75 yards "in stock" it was put to good use. The ground-level layout gives a distorted picture but is, under the circumstances, the best that can be done, and does not appear to effect the performance on any band. The main use is, of course, on 40 Metres, but it also comes into its own as a 2 element collinear on 20. On 15, it was the antenna on which I managed to work, during the last Activity Weekend, WA8TGA at 579 and also our man in San Francisco, Bill G8KL/W6 albeit at 339. So it has its uses. It also performs the useful job of supporting the far end of my main aerial (that's for you again, John, so that you won't lose track!!).

N.B. A point omitted from the above is the method of insulation of the main mast to the TV brackets. As supplied, these brackets usually have included in the kit, plastic or rubber grips. These are used as supplied and added insulation is given by winding at least four layers of plastic tape around the 3/8" "U" bolt. In fact, one should use so much of this that the bolt or clamp has to be forced around the grip. Added protection is made by "backing" the grip with a good block insulator drilled to take the "U" bolts. Mine has been up now for nearly a year without trouble even under ice, snow and rain.

At the time of writing these are the only radiators that I have up. But having selected the best possible available radiators to suit personal requirements it is imperative that the maximum possible amount of the precious RF gets to where it is most wanted - into the receivers of your victims (? - Ed.). Usually, your victim will have a very expensive £500 "Uranus-Mars" Special operating into a very indifferent antenna array with RF emulating the song and continually "going around and around". Don't allow it to happen to you - if you can avoid it.

This is, I suppose, a natural end to one section. If permitted, and space is available, the remainder will have to wait until later.

GW3ASW

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MARIA THERESA REEF.

As a result of a survey conducted by the USNS BARTLETT early in 1972, Maria Theresa Reef (FO8M.) will not be shown on maps published by the National Geographic Society in future. The Reef has been deleted from the Island-on-the Air Award. (From DX NEWS SHEET No. 539 published by Geoff Watts).

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AN OPEN LETTER TO THE EDITOR.

G3ONU
Wilton,
Salisbury.
16 Oct 72

The Editor,
"Mercury".

Dear Editor,

Lots of newer members - and some older ones - are asking why the Award Rules have limitations. (Those not interested in Awards read no further). Having a spare moment I thought I would fill up some space and fill in the back-ground.

Prior to the 1968 AGM the Award Scheme catered for a small membership only. As the Society expanded it became apparent to the Council that it would quickly run into debt if it continued to give away expensive "Jimmy" plaques for only 50 QSOs. It was even suggested that some people only joined to get the free gift and then did not bother to renew their subscription.

At the 1968 AGM the matter was fully discussed by those present and it was agreed that all members should be consulted. About 140 members (20%) replied to a proforma sent out with the AGM Minutes in the Autumn 1968 "Mercury".

The then Field and the then HQ Secretary spent a lot of time (and 807 money) drafting a set of Award Rules which took account of the views of the interested members (2o%), took account of the planned reduction in overseas stations and took account of the need to have a scheme which would last for some considerable time without the need to alter the basic rules. The rules were approved by Council and published in the Winter 68/69 "Mercury" (Issue 26?).

The main points worth emphasising now, were :

Firstly. Every call-sign issued to a member by the appropriate licensing authority counted for Award purposes. In this way the Service member, who moved about every two/three years would provide a number of different calls for the Award Scheme. Expedition and Special Event Stations counted automatically for Award purposes.

The member could count all QSOs, from all held calls in a defined Area towards his Award and this is important for the Service member who does not stay long enough in one place to accumulate a large number of QSOs. /A and /P, or any suffix added by the member, did not count for Award purposes except for those such as T&AVR Unit Club stations, which only operated from Camp locations.

Secondly. Home members were defined as "Those in the UK and Continental Europe (Zones 14 and 15) excluding the Azores, Gibraltar, Malta, Cyprus and all Islands in the Mediterranean". This was deliberately done to ensure that the excluded areas would provide "Overseas" contacts for Award purposes as the other Army overseas bases run down. There was a chance that "Overseas" expeditions could be easily combined with Summer holidays in the Mediterranean. (Not me. I can't even afford a good TX!).

At the 1969 AGM, a decision was taken at the meeting to change the Rules thereby eliminating the two important principles that were uppermost in the minds of those, who originally drafted and approved them. From then on membership numbers only counted for the Awards (a maximum of only two QSOs would count - one at HOME and one OVERSEAS) and HOME was defined as Zone 14 thereby eliminating some areas which could easily have counted as Overseas, including one of the Army bases - Gibraltar. Unfortunately, none of those directly concerned with drafting the rules were able to be present to explain the reasons behind them, nor were those who were really interested consulted. (At the 1969 AGM 18 members plus the Council were present. 20% of the 68/69 membership was 140/150 members).

Well, Jack, there it is - but I bet we haven't heard the last of it yet! Some one is bound to point out that every RSARS member operator of (for example) G3HKR counts for Award purposes. So how about putting yourself, G3DBU, G3FMW and G4ANH on one evening to jam up the Net? (Let me know in advance, please!). After all, you do let the P.O. know who is authorised to operate the Club station, don't you?

Do you realise that it is not really necessary for a member to hold a call, provided he holds the necessary qualifications to operate? Any one station could count, for Award purpose, many times provided a supply of new operators were available. Do you realise, Jack, that taken to its limits, most of us could sell our equipment and the Award Hunters could drive one set of equipment a around the country for us to provide them with contacts. Why, we could even stop paying our licence fee and merely keep up our qualifications.

How about changing the rules so that calls not beginning with, G, count as overseas? (No - I did not say that GW, GM etc., were foreigners).

How about another hasty decision at the AGM?

Which leads to a more serious suggestion, which is "That the AGM is not the place to make decisions".

The AGM should be the forum where the Council makes its report for the year, members can briefly air their views, and matters can be freely discussed. The Council should take note of the views expressed and at some other time decide, "In Council" whether to adopt a proposal, consult other or all members, or take no action. Results of these Council deliberations could then perhaps be briefly published in "Mercury", and reasons given for decisions, if appropriate.

Equally important, are member's correspondence pages in "Mercury", as these can give the Council an indication of what members want from, or can contribute to, RSARS. Not all Council members have the time, or equipment, to be able to listen to all the "natter on the Net".

Lastly, a few suggestions for you, Jack - you did ask, you know! Could "Mercury" be numbered and the Season and Year of publication be printed on the front cover? I have 40 issues, excluding one in print at Blandford as I write this, but many give no indication when they were printed or published.

Could G3HSE give a short resume each issue on how many members use the QSL Bureau and how many cards were handled in the quarter? This would give a good indication of interest in Awards.

Could members write about the good and bad points of their commercial equipment?

Could we have a crossed referenced membership number/call-sign, call-sign, membership list at least once a year - preferably twice a year?

Would it not be better to have a slightly thinner "Mercury" out on time rather than a thick one which must create the printing problems and delay issue? Looking through the 40 issues I have it seems to me that in many cases the most interesting and best produced were the thinner ones.

73
076 (The Wilton Warbler).

FROM THE EDITOR.

G3DPS

The main point of this Open Letter is obviously the RSARS Awards. My own opinion on this matter of Awards is that any Award should be based upon certain aspects. Any Award should be a reward for the successful acceptance of a challenge completed according to a recognised set of rules. The Award should be neither too difficult (such as for working a Space Vehicle - virtually impossible at the moment) or too easy (such as for working all licensed members of one family - contact one and the rest are called to the mic!). It should not be too expensive ("Send GRC and 20 IRCs") and should leave the organiser "breaking even" or, perhaps with a small working profit.

Award Rules should be fair and not tend to favour one class or type. Where an Award is issued for working a number of members of a Club or Society, the requirement should be "upped" at intervals as membership increases (It is a darned sight easier to work 25 members from a total of 1,000 than it is to work the same number from 100). I also feel that our particular Award should be based on working members rather than call-signs (maximum membership participation). One of the reasons, I believe, that the Award rules were changed in 1969 was that at least one member held a job which took him to G, GM, GW, GI etc., etc., and being an active member, gave a lot of points towards a 3rd Class Award. During my amateur career I have held 18 call-signs, so someone could be well on the way to an Award for only working one member, had all these applied during my membership period.

In one paragraph of the above letter it is stated "..... nor were those who were really interested consulted". Surely, this is what happened at the 1972 AGM when the proposition to hold a referendum via the pages of "Mercury" as to suggested changes in the Award rules, was "talked out". Bear in mind that the proposition was not to change any rules then and there, but to ask the subscription paying membership whether they felt that the time had come to amend the rules. If the motion had been lost on referendum nothing would have changed. Had the membership, in sufficient strength, voted they wanted a change then this could have been done. Apparently, the AGM did not think that those who may well be interested SHOULD be consulted!. As was remarked after the AGM "If we're going to run a 1972 Society on a 1968 referendum, then why don't we go back a bit farther to 1961 and put the sub back to 5/-. Apparently, times DON'T change". So much for not making hasty decisions at the AGM!!!

I wonder why putting four operators on G3HKR should " jam up the Net". Surely, if each member came on from his own QTH (as is quite likely, now that 3FMW and 3DBU are sporting brand new FT-401s!!) the possibility of "doubling" QRM etc., is far greater.

I do realise, of course, that it is not really necessary for a member to hold a full call-sign to operate, but surely this is one good reason why membership numbers should count as compared with call-signs in our Award system. Why penalise a member because he does not hold a full call? (maximum membership participation again!).

I agree with the suggestions that cut and dried decisions should not be made at the AGM - but isn't this what was done when it was decided not to proceed with the referendum proposition? "Mercury" is, of course, always available to make known the decisions of the Council, or to seek opinions of, or further information from, members, and this will remain one of key jobs of our Journal.

Regarding the suggestion about numbering the editions of "Mercury" I cannot see that this should present any great problem. Unfortunately, I do not have a copy of every "Mercury" issued (some, I believe, decorate the bottom of Singapore Docks!) so if you have the accurate and up-to-date numbering sequence, Des, I would certainly appreciate it and I see no reason why your suggestion should not be implemented.

The QSL Bureau suggestion I pass on to Dave, but, surely, to get an indication of interest in Awards, one should talk to the Awards Manager. Personally, I use the QSL Bureau just about as much as the average member but I have yet to claim the RSARS Award!.

I think the suggestion regarding notes on commercial equipment is an excellent one, and if members would care to pass along ANY information on commercial gear of their experience, points both GOOD and BAD, I will maintain a file on same and will be quite happy to make the information available to other members on receipt of an SAE. All equipment should be included such as keyers, SWR meters, commercial antennas as well as complete rigs etc..

It is intended to publish a membership list as you suggest in the near future, although I don't know if it will he possible to do so before Bill leaves for cooler climes. However, rest assured that one of the priorities on my arrival at Blandford will be a new and up-to-date membership list. One point

of interest is that, in the past, it has been suggested to me that we should NOT publish membership numbers, and that these should only be obtained over the air during 'official' award-type QSOs!.

I don't think that a thinner "Mercury" is the answer to your next point. One or two editions, in the past, have run to 50+ pages, it is now restricted to around 30 pages and the problem is still with us. I feel (although I may well be wrong) that printing is a matter of priorities and as we have no priority for "Mercury" we just have to wait our turn. Once our turn comes, the actual printing and stapling of "Mercury" is a fairly rapid process. A thinner edition may well have to wait just as long and be produced just as quick. However, if members prefer a thinner "Mercury" I am quite prepared to produce one - at least it would cut down the draft production time, and ease a few "filler" problems, but I would hate to see "Mercury" degenerate to a quarterly "News-Sheet".

Well, I hope that the letter from Des and the subsequent notes are controversial enough to prod the lethargic and awaken the sleepy enough to make most members put pen to paper (or fingers to keys) in reply. If enough members show interest perhaps, Des, we will get that referendum that was not considered necessary - Editor.

(Ornithological Note : The Wilton Warbler is one of the older members of the RSARS flock, being known since 076. It's normal day-time plumage is of a delicate shade of khaki ornamented with brighter appendages. It is migratory at regular intervals and this is believed to be influenced by larger birds of similar plumage. It has been found overseas but in more recent years has been found both in the North and South of England. It is sometimes difficult to recognise by its call, this being similar to other members of the same flock, but is roughly "Seee Kewww Haity" sometimes followed by "Geethreehoennyu". It is known to frequent 80 Metres and possibly other bands. It strongly attacks anything which it feels is detrimental to the flock and equally strongly supports anything of interest to the flock as a whole. Is sometimes seen in company with the Netheravon Nightingale (known since 046) on which it spends a lot of time attempting to keep from the vicinity of Old English Inns, etc.).

POSTAL REGULAT1ONS

The latest edition of the Post Office Guide shows that where Second Class Mail cannot be delivered by the Post Office and, when opened, is found to contain only newspapers, magazines or commercial advertising material it will be destroyed and not returned unless a return address is shown on the envelope. This could well include "Mercury" and unless we adopt a rubber stamp showing our return address and stamp EVERY envelope before despatch we will no longer know if you have 'Gone Away' by getting non-delivered "Mercury's" returned. If everyone let us know when they moved, this problem would not exist. How about it??????

****

OLYMPIA DIPLOMA 1972.

Check your Log. If you have had QSOs between January 1st and December 31st 1972 with 50 Countries who sent competitors to the Olympic Games in Munich, send a GCR List and 6 IRCs or $1 to :

DARC OLYMPIA DIPLOM 1972, P. BOX 262, D 8950 Kaufbeuren, Western Germany.

DARC will be happy to send you their Olympia Diplom and publish your details in "CQ-DL", the Club Magazine of DARC.

****

DID YOU KNOW…….?.

That G3OAZ/RSARS 021would like to know the whereabouts of ex-member G3TNU, J.J. SMITH who was RSARS 247. Any details to 9, Appledore Close, Eastbourne, Sussex, or ring Eastbourne 761012 (STD 0323).

****

HARROGATE

Dear Jack,

Please excuse me thumping your table but I feel I must reply to one or two criticisms levelled at us OTs. I don't think it is below my dignity to work anyone. I still have a chin-wag with all and sundry, learner or Old Timer alike. The fact that I do not do so more often is simply that with life as it is today, time is at a premium, there simply isn't sufficient in a 24 hour period.

Regarding the Net, I do not join in for the reason that Communication is my bread and butter as well as my hobby, and I sit around enough during the day without siting around during the evening as well, and this seems to be all one does on the Net.

With regard to Contests, although I don't participate very often, I think Rays' (G3EKL) idea of a limited period an excellent one - at last we are getting some sense into it, I would like to suggest at this point that, in my opinion, rather than buy a caravan with all the implications of insurance, etc.) it would be much better to give an Annual Award for best results in Contests or whatever you like, say on the lines of a statuette of 'Jimmy'. In this way all members could benefit instead of the chosen few.
I think that one of the reasons for the lack of technical articles being submitted to 'Mercury' is that people are afraid of being pulled apart (technically speaking) or ridiculed. This is understandable - but it doesn't help 'Mercury'. Perhaps the old 'Hints & Kinks' would help. I am sure that most of us can still learn something!!. I would like to see more in 'Mercury' about the VHF Bands, and I'm sure that a lot of the G8s would welcome this. My own particular headache is a postage stamp sized garden - anyone know of a good aerial that will fit into a space of 18' X 26'?

Finally, G3HKR will be fully equipped for 2 Metres in the very near future (by the time this gets into print we should be operational). We will be pointing our 8 over 8 Southwards from 600 feet ASL on a 65' Tower so, yoh Sothan Gents, pin back yoh aree and lets be hearing you on '2'.

Will now shift my backside off your desk, Jack, and let you get on with business.

Bill

73

G3DBU/RSARS 130

(Editors Note - It is nice to hear from Bill, who has long been a Silent Worker in the Amateur Radio business. He was very active from Austria as MB9BR before being licensed as G3DBU. He is the licence holder and a pillar of strength in the Army Apprentices College Amateur Radio Club (G3HKR) and devotes several evenings a week to looking after the constructional side of the Club. Whenever possible, he operates G3HKR on Wednesday afternoons and is active from his home QTH on '2'. He recently added a nice HF Transceiver to his shack, so, despite what he said above, I'm sure we will hear a peep or two from G3DBU one of these Net nights. Although now retired from the Service, Bill is a professional military communicator and many Royal Signals Operators have him to thank for their ability to operate some of the higher powered HF radio equipment now in service.)

****

GAINFORD
Co. Durham.

Dear OM,

.....Regarding 'Mercury', I do wish that new members Service history might be continued (It is intended to do so - Ed.). As a new member I had hoped that such a history might have put me in touch with Old Comrades and Ex-Rats (both Boys Service and Desert kinds). Just a quick whip through my service history -

Army Number 2323944, 'F' (Boys) Company January 1935-May 1938 - 3 Div. Signals (Bulford) May 1938-September 1939 - 13 Infantry Brigade Signal Section September 1939-January, 1941 - B.I. Signals Section January 1941-September 1942 - POW from September 1942-April 1945, then various Units including 46 Div Signals 1945/46. Demob in March 1946.

While I am about it, I have a query regarding the Wilcox-Gay VFO (Master Oscillator Unit M1-19467-A). The chokes in the heater line in my unit drop about 4 Volts necessitating a 10 Volts heater supply. Have others had the same experience I wonder……

…….By the time you receive this, I hope to be QRV on 80 all ready for the Sunday Net……

Tom Griffin 73

G3GUV

RSARS 777

SHORT STORY.

A friend decided to build a piece of electronic gear. He carefully worked out all the components he required and compiled a list which he sent off to a well known component supplier in Mitcham. He received a reply which said : "Dear Sir, We have your enquiry but regret we are unable to assist in this instance. We are a Mail order business with sales based almost entirely on our catalogue and we have no staff available for the detailed working out of individual quotations. If you are needing components regularly we feel sure a copy of our catalogue would be worth your while. It costs 70p inc. post and packing but we have a coupon scheme whereby part of the cost is refunded as goods are purchased". "I suppose that's fair" thought my friend and sent off 70p. In due course another letter arrived from the supplier. "Dear Customer, We thank you for your order for our catalogue. We regret that due to a change of size there will be a delay of several weeks before the new edition is ready. In the meantime in order to assist you we are enclosing an order form and a pre-paid envelope. If you would kindly write out your order and return it to us we will mark up and price all the items we can supply, and return it to you the same day. When you return your order with your money we will immediately despatch the goods. Please make sure you return the priced-up order..... etc.

My friend (who is not an amateur or RSARS member) is still walking around with a dazed look, and I haven't had the heart to ask him whether he has scrapped the project, ordered from elsewhere or re-written his list. But it would appear that business these days is conducted on regrets and changed minds!!

****

VHF SURPLUS.

G3DPS

Mention elsewhere is made of surplus VHF equipment from Messrs PYE. At long last a letter has turned up from the second distributor. It reads : "Dear Sir, I have been requested by Mr. M.E. Collins, the Pye surplus distributor to send you a price list of equipment available at the moment..... AM25B Vanguard sets only no control equipment high band and low band £12:00 AM10D Cambridge dash mounting high band and low band £25:00 AM10B Cambridge boot mounting high band and low band sets only no control equipment from £15:00 PTC 2007 Transistor Ranger dash mounting QQV03-10 in PA complete low band only £6:00 PTC 2207 Ranger boot mounting QQV06-40 in PA, Transistor (sic) modulator and power supply units only no control equipment low band £8:00 AM27 Base station high band and low band complete and in good condition, transmitter £16:00. AM27 Base station receiver transistor high band and low band £15:00 Base station cabinets to take one TX and RX and control panel £4:00. All the above equipment is 25kHz spacing, 12·5kHz equipment is £10:00 extra. All orders for 10 units or more is subject to 10 per cent discount. Carriage at cost .....etc.
B. BAMBER, Electronic Surplus, 20 Wellington Street, Littleport, Camb. No comment – Editor.

ON THE AWARD SCENE

G3EKL

Unfortunately, with the delay in the production of the previous "Mercury", the "Five Fifty Nine" Trophy was a late starter and in consequence the 160 Metre phone section will be held over the last week-end in March 1973.

There seems to be quite a bit of interest in the Trophy and I hope that the 'multiplier' element of the rules doesn't deter anybody. For what it's worth, had Cyril had his own way with the rules I doubt if anybody would have had the courage to enter!! Sufficient to say that they were simplified with the deliberate intention of attracting as many members as possible. In so doing, Cyril and I fought long and hard - so please don't let me down by not participating. Thank you.

The rules of this particular competition are repeated again but this will be the last sight of them until next Summer.

THE FIVE FIFTY NINE TROPHY

The trophy has been presented by Capt. R. Mountjoy, Royal Signals to the Royal Signals Amateur Radio Society to be used as a perpetual challenge award for members.

The Trophy will be put up for competition annually between all fully paid up members of the Society and will be presented at the Society's AGM.

The Competition will consist of four short operating periods spread over a five months Rules are as follows.

1. Entrants must adhere strictly to the terms of their license.
2. Members may operate /P or /A as defined by the license but they may only operate from one QTH per section of the competition.
3. /M stations may operate at will but must give their QTH or National Grid Reference with each QSO, logging this detail if operating on 160 Metres.
4. Multi-operator entries are not allowed although AFF Club stations may compete provided that the same operator is used for all sections of the competition.
5. A contact will consist of an exchange of reports, names, QTH/Grid Reference and RSARS number. /MM and /AM contacts are not allowed.
6. Log Sheet layout (to the following pattern) will be kept in GMT and submitted to the Society Contest Manager within fifteen days of the end oF each section of the competition. If acknowledgement of receipt of a Log is required an SASE post card must be sent with the Log.

Call-sign :_____ Full QTH _____ Band _____

Serial No.	Date :		Freq.	Station worked		RSARS	QTH and/or	Points
	Time On	Time Off		Call-sign	R.S.T.	No.	Grid Ref.	Claimed

7. The Competition, comprising four operating sections, will be held on the last weekend in October, November, January and February. Details are :

Band in Metres	Mode	Overall time-frame	Period to count
160	Phone only	1800hrs Saturday to 0300 hrs Sunday	3 hours (March 1973)
80	Phone only	1500 hrs to 2359 hrs Saturday	3 hours (You've had it)
40	Phone only	0900 hrs to 1800 hrs Saturday	3 hours (January)
160/80 and 40	CW only.	1400 hrs Saturday to 0200 hrs Sunday	4 hours (February)

None of the periods are compulsory but the "period to count" shows the maximum time allowed for each section of the competition. Each entrant is free to select his own period of operation within the overall time-frame allocated. He may operate over the entire period if he wishes but can only submit logs for the "period to count" as best suits his claim. Each period is divided into one hour blocks which start and finish on the hour GMT.

e.g. a) 160 Metre Phone Section - 1900 hrs to 1959 hrs; 2100 hrs to 2159 hrs and 0100 hrs to 0159 hrs = 3 x 1 hour blocks = total of 3 hours.

b) 160 Metre Phone section - 1930 hrs to 2029 hrs; 0200 hrs to 0259 hrs = 1 x 2 hour block and 1 x 1 hour block = total of 3 hours even though the actual operating time is only two hours.

8. Scoring is as follows :

i) 160 Metres (based on Zone 14)

a) One point per contact.

b) Plus a bonus of two points per County.

c) Plus a bonus of : 10 points for three "Call areas".
20 points for four "Call areas".
30 points for five "Call areas"
40 points for six "Call areas".
50 points for seven "Call areas"

(Call areas are defined as G, GC, GD, GI, GM, GW and the remainder or Zone 14).

ii) 40 and 80 Metres (World-wide)

a) One point for contacts within Zone 14.

b) Five points for Inter-Zone contacts.

iii) Members may contact each other in any section but only one contact per band/mode can score. This means a maximum of six possible contacts during the entire competition.
To encourage "All Band/All Mode" working, members working each other on different bands/modes may add the following bonuses :

Three contacts	5 points
Four contacts	10 points
Five contacts	15 points
Six contacts	20 points

All scores are additive, resulting in one total for all four sections of the competition.

9. The reverse of the first page of the log(s) submitted to the Contest Manager requires a signed declaration giving the entrants station equipment, aerial system, input used and confirming the adherence to the rules of the competition.

10. a) The reverse of each "Band" Log Sheet is to show any bonus points claimed giving QSO serials involved and explanation.

b) The last Log Sheet is to show the total points claimed for that particular section.

11. In the event of a draw the station with the highest number of multiple contacts as defined in para. 8 iii) will be declared the winner.

12. The decision of the Society Awards Manager must be taken as final and he may amend or supplement the rules as necessary. Such alterations must be published in "Mercury" directly preceding the annual competition period.

13. "Check Logs" from non-competing members will be greatly appreciated.

****

Now to the Society Awards. The extension of the scheme has already produced some rumblings and I am able to show the start of all three new Award Ladders (no cracks, please) up to November 16th. There are also two more "Special Awards" - Europe No.7 to G3JVD/RSARS 190. and Europe No.8 to GW3ASW/RSARS 559.

On behalf of the Council and all members, congratulations to you both. I wonder who will be the first member to make a bid for a Bronze Clasp?

And so to the new Ladders (as at 16 Nov 72).

First Class Certificates	200 Stickers	250 Stickers	300 Sticker	350 Sticker	400 Sticker
No.25 G3UTI	G8VG	G8VG	G8VG	G8VG	G8VG
No.26 G3WRY	G3HWL	G3HWL			
No.27 G3ZFZ	MP4TDA/	MP4TDA/			
No.28 G3YBT	G3EKL	G3EKL			
Europe Special	**Europe CW**	**Europe VHF**			
No.7 G3JVD	1. MP4TDA/	G3YSK			
No.8 GW3ASW	G3EKL				
	2. G3YSK				

There must be many more qualified contenders and I look forward to adding them to the Ladders in the near future.

As the result of a couple of queries from members who read the "Outline Information in support of Proposition 2" (part of the AGM minutes printed on page 9 of the Autumn '72 "Mercury") I wish to stress that it is not the intention of your Council to introduce such a scheme at present nor in the foreseeable future.

I regret to report that yet a further five cases of lost QSL cards have come to light since the AGM. Whilst suitable action has been taken to allow such claims to be accepted against certified Log extracts, it is not the intention of the Society to deviate permanently from the Award rules, para.7. It is again stressed that the safest way of making a claim (short of persuading 'Yours Truly' to visit!) is by Recorded Delivery, or by having two independent amateurs, as per rule, certify that the claimant is in possession of the QSL cards.

Please remember to supply sufficient return postage for cards and also that the check lists are required in NUMERICAL MEMBERSHIP NUMBER ORDER - NOT Call-sign sequence.

And that's that - the rules for the Anniversary Contest are slowly taking shape, as simple as possible compatible with a fair chance for everybody. So, until next time, from Netherayon, A Merry Christmas and a Happy and Prosperous New Year.

73 de Ray (G3EKL/RSARS 046)

R.A.I.B.C. STAMP SCHEME.

96 George Street,
BASINGSTOKE,
Hampshire.
14 Nov 72.

The Editor,
"Mercury".

Dear O.M.,

A somewhat abbreviated list of R.A.I.B.C. stamp donors this time, due, perhaps, to an early deadline date, G2IO, G3DPS, G3YSK, G5FG and ROSE 751. All stamps received by me up to and including 14th November 1972 have now been acknowledged via "Mercury". Twenty-four members have contributed, several of them many times.

Almost 60,000 of the commoner U.K, stamps have been handed over to the Guide Dogs for the Blind Association. The Club has been unable to find a market for them (as was mentioned in last Winter's "Mercury") and it was felt better to give them to a body which could make use of them than to let them go to waste. They were collected from me by the daughter of G2CAJ, whose wife is herself blind and a member of the Bedfast Club.

Unfortunately, apologies have to be made to both 9H1BX and the RSARS on behalf of the R.A.I.B.C. for stamps sent and not acknowledged (the Society itself passed on over 20,000!). This was in the days before I took over the scheme and, if there are any others who donated and have not been thanked, then please accept my sincerest thanks.

The Bedfast Club Stamp Scheme is not closed but there are still many ways in which you can assist and encourage our members. Mrs Frances Woolley, G3LWY, will be pleased to send you full details in return for a stamped-addressed envelope. Her address is : Woodclose, Penselwood, WINCANTON, Somerset.

Can I look forward to you joining us?

73 Allan Herridge,

G3IDG/RSARS 024

R.A.I.B.C. Supporter.

(Editors Note - Allan has long been a R.A.I.B.C. supporter and I would like to thank him, and Nobby, for handling the stamps for them. To every RSARS member reading this - why not send that SAE to G3LWY with an offer of help to those less fortunate than ourselves. There are many ways that help and encouragement can be given both locally and nation-wide. Having had the pleasure of meeting Frances, I can assure all members that few more dedicated people exist - but the massive amount of work on hand cannot be done by "the few". I hope, that as a result of this letter from Allan, the 'In-tray' at G3LWY is filled to overflowing with offers of help from RSARS members.)

REPRESENTATION

An interesting point in a letter from G3IDG that accompanied the above letter to the Editor. Allan says : "..…I am all in favour of ex-Service representation on the committee. In fact, I suggested this very thing, which was brought up at the 1963 AGM. The proposal was "....not understood", the records say. Perhaps no-one wanted to understand....."

FOOD FOR THOUGHT

(The following is an extract from a letter received from G3JBA/RSARS 749. Jim is a member of FOC and TOPS, and, apart from giving us a pen-picture together with a little 'history', he raises some very interesting points which may well be worth thinking about, or even discussing through the "Members Letters" Section of "Mercury" - Editor).

".....As I am a keen CW man perhaps a few ramblings about CW might give you some ideas, Jack. I love QRQ working and I wish we had more QRQ men among the 'G' stations. I prefer to work fast CW but I always drop my speed down to the other fellow's CW speed. In the old days in the Signals you sent as fast as you could copy! I still stick to this principle, although, of course, it is somewhat old-fashioned. Many Old Timers can copy double the speed they care to send on their straight keys. Also, quite a few operators, using electronic keyers can send faster than they can copy. It's a problem. I wonder why we don't like sending "Pse QRS 12"? I think we should use QRS and QRQ more often, No point in sending at 25's to someone who can just copy 12's, or sending 15's to someone who can copy 35's. Why do some of us send 'R' or 'Solid' when we have perhaps missed 50% of the over? I suppose we are all a bit dishonest in our QSOs at times. But this is the wonderful thing about 'ham' radio, you can always become a better operator even after 50 years you can still improve, and you get the opportunity of working the finest CW men in the world, be they Russian or American CW man - and they are not all Old Timers - I could name quite a few 16-year-olds working solidly at 50 wpm. One of the things that drives me round the bend is the station that sends 'CQ' 10 or 20 times before sending his own call - the three-plus-three 'CQ' call repeated no longer than it takes another listening operator to search the CW section of the band in use, is long enough I reckon.

I am not keen on points-chasing, certificates or bothered about working rare DX. I think contests are good because it improves ones operating skill; not that I have done much Contest working myself. I like a good old rag-chew and to learn something about the other fellow behind that call-sign, and to make friends over the air. To add interest in working other stations I keep an index book on rag-chewing stations I have worked. It is a very tatty book now, I'm afraid - it needs re-organising. Perhaps I will change over to an index card system. I have a "Rotadex" index card thing for my overseas rag-chewing QSOs, for stations that send a little more than just the RST-Name-QTH in a QSO. I never send QSL cards first, but ALWAYS QSL any card or piece of paper! If I get a card via Air-Mail I QSL by the same method - although I don't really like doing it because it's about 1/6d in old money - HI! It seems to me that the 'W' stations like to know "more about the other bloke on the key - they will ask you your age, what you do for a living, about the family, etc. I think it is much nicer to get a mental picture of the chap at the other end, whether he is a student at College, or some retired Old Timer, they all have something interesting to say. I would like to see more of this kind of spirit with hamming! More mutual help among 'hams'. Wouldn't it be nice to pass on some piece of equipment, that we ourselves do not want, but which some other genuine ham would like but, perhaps, cannot afford. What we want to hear about is the little fellows - not the giants with their beams and superduper rigs .....

,.....But perhaps something else can be done to increase activity among Society members. Perhaps it would help if we had a spot frequency for calling on any band. Say, for example, 30 KHz inside each band. If we were not calling 'CQ' or working some other station, we could leave the RX tuned to ...30 KHz. Another suggestion is that we could have Activity-Band-Periods. For example, Month 1, Week 1 = 160 Metres, Month 1, Week 2 = 80 Metres etc., a sort of chart affair which one could refer to when one was going to have a spell of key-bashing. I am not suggesting that we should restrict ourselves during any one hamming session. But we could take a look and call on the CURRENT RSARS Activity-Band-Period, before going our own way on the bands.....

Some personal history for any old friends that may be reading this ; Catterick Camp 1933/34, North Ireland Signal Company around 1934/35/36. Egypt Command Signals 1936/40, 2 Wireless Company, Palestine 1940?/43, 'Y' Service, Douglas, Isle of Man, Queen Ethelburgers Harrogate, etc. etc., 1943/46, American Embassy 1946/71, Redundant 1971, BBC Monitoring Service 1971-??

73

'Jim' Maddox, G3JBA/RSARS 749
(Ex 2323241)

SILENT KEY

G3WPW

Once again it is the sad duty of the Council to report the passing of a RSARS member. Walter Moorcroft, G3WPW/RSARS 278, died on the 21st August 1972. G3WPW was well known to many members of the Society and was active on most bands, and, at one time, was a 'regular' member of the RSARS 80 Metre nets. Walter joined the Royal Warwickshire Regiment at the age of 15, by adopting an 'Army' age to satisfy recruiting requirements. He remained justly proud of his Regimental connections to the end and just prior to his death expressed a wish to visit the site of Budbrooke Barracks (which has now been redeveloped) where he first enlisted many years ago. In true military tradition he "followed his fathers footsteps" who was also a member of the Royal Warwickshire Regiment and who is buried at Budbrooke Church. Walter recently visited his father's grave and saw a commemorative plaque inside the Church. G3WPW will, no doubt, be sadly missed by his personal friends and also by the many 'ham' friends he made in the past. To those friends, his family, and, in particular, his daughter, Mrs, June Delaney, the President, Council and all members offer their sincere condolences.

OSCAR 6 in Orbit.

Fancy grasping your 2-metre mobile microphone and talking to an amateur in Canada - or nearer home France or Germany? Yes it is possible via OSCAR 6. The up-link frequencies are 145·9 to 146 MHz and down-link frequencies from 29·45 to 29·55 MHz, Satellite transit times and azimuth angles are available from the Station Manager (John Worth) at G4RS.

FOR SALE

KW VESPA MkII + PSU - very good cndx. Cost £135 - selling at £80.
KW 200OA + PSU. Well used but reliable - ask around the net! Bargain £120.
Both sets air-tested by arrangement.
Offers to John Worth G3ZKA/G4RS Station Manager.

Have YOU paid your annual subscription yet?

FORTHCOMING ATTRACTION.

A new call-sign list is in the course of preparation. We hope to be able to programme a computer to do this job for us.

TREASURERS REPORT

ROYAL SIGNALS AMATEUR RADIO SOCIETY

Statement of Accounts for the 12 months ending 30 June 1972

Auditors: President : Capt J. Dawe, BEM Royal Signals
Member : WOII R. Vasper, G3VIY
Member : Sgt. J. Brown-Greaves, G3NOL

Auditors observations: A fine example of account keeping. A difficult account to maintain but one which is well presented.

BALANCE AS AT 30 JUNE 1971			30 JUNE 1972
47.49		Cash in Hand	29.58
188.50		Cash at Bank	138.37
131.15		Deposit Account	684.74
	667.14	Total Cash	852.69
137.05		Stock	152.19
	804.19	Total Current Assets	1004.88
873.49		Property	962.31
	873.49	Total Fixed Assets	962.31
	£1667.68	Total Assets	£1967.27

GENERAL PURPOSE FUND

EXPENDITURE/LOSSES	1972	1971	INCOME/GAINS	1972	1971
Society Maintenance	62.51	84.78	Profit on sales	48.91	75.39
HQ Maintenance	21.72	42.02	Deposit Account	238.00	100.00
Stock	387.25	- - - -	Deposit Account interest	15.59	25.65
Subscriptions	8.99		Corps Grant	90.00	50.00
Awards	12.60	7.50	Sales	283.97	
Special Events	4.01	23.07	Subscriptions	334.44	316.97
Sundries	.99	1.45	Donations	5.50	53.43
Mercury	26.00	94.64	Property to A/C	65.00	250.50
Property Depreciation	89.31	90.23	Debtors		40.55
Property Purchased & Brought to account	178.44		Creditors		17.98
Property write off		29.92			
Grant to RMARS		40.00			
Creditors		92.02			
Nuffield Equt to QM		135.00			
Total Expenditure	791.82	640.63	Total Income	1081.41	930.47
Excess of income Over expenditure	289.59	289.84			
	£1081.41	930.47			

Percentage profit on trading accounts	1972	1971	1970
Royal Signals Amateur Radio Society Stock Account	11%	18%	5.8%

Certified true copy of the AFN1514 signed Capt. J. Dawe, BEM, Royal Signals
WOII R. Vasper, G3VIY
Sgt J. Brown-Greaves, GENOL

1.The year 1971/72 has again been a successful one for our affairs, our audited accounts show an increase in assets over last year.

2. There have been suggestions that we should increase subscriptions, or alter the life membership rules. Looking at our accounts over the last two years I see no reason that we should do either. The amendment to the Society rules limiting life membership to those who have been annual members for at least three year has limited applications to more manageable proportions.

3. I am sure that you will endorse my thanks to the auditors for their efforts on your behalf.

Subscriptions

4.There are still 80 - 90 members who have not paid their annual subscriptions for 1972. Published herewith is a full list as a final reminder. Any queries to me please (We all make mistakes).

137 194 220 223 318 323 337 341 346 351 382 385 388 404 419 422 440 450 466 497 516 518 551 560 561 587 597 601 609 618 622 623 637 662 677 678 679 484 685 693 695 698 699 701 711 716 725 753 754 760 761 762 764 765 767 775 774 775 780 783 785 788 790 791 793 796 797 800 801 809 810_812 813 814 815 816 817 819 830 835

This list was taken from the subscriptions book on the 1 Nov 72. If you have paid your subscription since that date it will be acknowledged in the next issue of 'MERCURY'

1972 subscriptions paid (as at 2 Nov 1972)

101 105 109 (re-allocated) 111 149 (re-allocated) 151 152 and 153 (re-allocated) 161 (re-allocated) 225 269 271 312 392 453 484 490 494 495 528 557 562 599 612 615 616 629 630 642 655 667 670 688 708 719 728 744 751 763 766 778 779 781 786 789 818 821 829 834 840 848 921 to 960 inclusive.

1973 subscriptions paid (as at 2 Nov 1972)

101 109 111 131 149 152 153 161 165 225 232 342 453 484 489 495 517 557 562 630 655 667 670 708 744 766 781 829 851 858 872 876 878 883 896 907 918 932 933 952 to 960 inclusive.

1974 subscriptions paid (as at 1 Nov 1972)

342 517 557 918 955

Life members

103 671

WISHING ALL A VERY HAPPY NEW YEAR FROM THE PRESIDENT, MOD SECRETARY, BILL (G3KPQ) GENERAL SECRETARY, GORDON TREASURER, AND THE RECENT ARRIVALS AT HQ STATION : JOHN (G3ZKA)(HQ STN. MANAGER), JOHN (G3NOL), LES (G3VYZ).

LATE NEWS

Gary Thomas (407) ZL2AZT is now earning his living in Singapore. He has written in to say that he has been allocated a new call-sign 9V1RJ, he sends his best wishes to all members and hopes to work a few under his 9V1call, so how about it chaps!

ROYAL SIGNALS AMATEUR RADIO SOCIETY

Applicants Name ______________ Call-sign ________ RSARS No. ________

Address: ____

____

Award Claimed : ____________________________ Sheet No. : ________

Contact No.	Call-sign	RSARS No.	Date worked	Band	Mode	

I confirm that the above contacts were made in accordance with the current Award rules and licence conditions.

Signed : ________________________ Date : ________