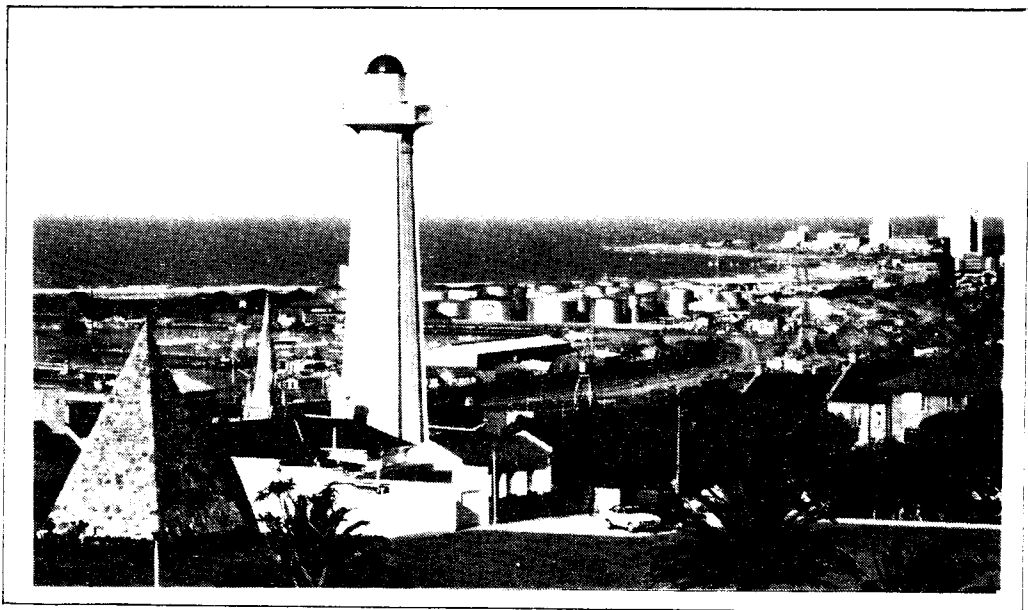




Q S X P E



**THIS NEWSLETTER IS PUBLISHED BY THE
PORT ELIZABETH BRANCH OF THE
SOUTH AFRICAN RADIO LEAGUE**

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10 / 9 8

NOTICE OF MEETING

Members are reminded that the next general meeting of the Branch will be held on Friday 19th October, 1990, at St. Martin's Church, Kabega Park at 20:15 (8.15pm). Trevor Scarr ZS2AE will tell us about repeaters, which should be of interest to all - especially with the PE-Cape Town 2 metre link in the offing.

Report: The BRANCH AGM

The Branch AGM held on 8th September was most successful - was that ever in doubt? - and the members inflicted a right motley committee on themselves; some new, some old, some both. Marge ZS2OB was unanimously re-elected Chairperson for the third successive year.

With YL Lynne ZS2MM as Secretary, we face the dubious honour of being perhaps the only branch with two women alone on the Bench at meetings. However, law and order should be maintained so long as they refrain from asking dumb questions about Uranus.

Congratulations to Hannes Vorster ZS2BE, who was awarded the VHF Trophy - sorry you couldn't be present to receive it personally, Hannes - and Bill Hodges, to whom the Ham Spirit Trophy was presented. Well done, chaps. Your activities in the interests of Ham Radio are greatly appreciated.

After the business, members enjoyed a braai and chinwag before wending their ways home. Thanks to Brian, Dick and the lesser pyromaniacs for preparing the fires.

FIELD STATION 17/18 NOVEMBER

The Branch will enter the Field Station contest over the weekend 17/18 November 1990 with a station at Lovemore Heights. As usual, assistance is needed with erecting it, operating, logging, rotating the beam, serving refreshments and many other exciting jobs. Contact Wolf ZS2WG at 30-1510 (home) for a lot of fun even if you can only spare an hour or so.

Even if you can't help on site, you can support the contest by getting on the air and giving points away.

**MINUTES OF GENERAL MEETING OF THE PORT ELIZABETH
BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT
ST MARTINS CHURCH, PORT ELIZABETH ON FRIDAY 17TH
AUGUST 1990**

PRESENT: 32 members and visitors

APOLOGIES: As noted in register.

The Chairman welcomed all to the meeting, especially Glyn ZS2AAE, Shaun Allen and Bill ZS2BY.

Before the business of the meeting, the Chairman pointed out that the date of the AGM is to be 8th September and not 22nd.

MINUTES: The Minutes of the July meeting, having been published and circulated in QSX-PE were taken as read, proposed by Colin ZS2CTR and seconded by Lynne ZS2MM.

ARISING: (a) Marge said she was going to put the DF hunt rules in QSX, but due to lack of space they had been omitted. They had however, been included on a loose leaf for several local members.

(b) Marge gave details from HQ regarding the Novice Licence. Vic ZS2SZ said that the regulations did not state that the CW test should be done first, but HQ announced that was the case, although the regulations are not clear. Garth ZS2HB said that the PMG could decide in which order the tests should be done.

CORRESPONDENCE: (1) Letter re JOTA - will consider later.

(2) Letter accepting Morse examiners, ZS2HB and ZS2U.

(3) Letter explaining oral examination for quadraplegics. A Doctors certificate would exempt them from the Morse test.

FINANCE: Colin ZS2CTR reported that the branch finances were healthy and the balance stood at R7126.49. 90 members had so far renewed their subs. A donation of R55 had been received from ZS2PL, for which the branch was very grateful and thanks were expressed to Peter.

GENERAL: (1) The AGM would take the form of a Bring and Braai at the Kabega Scout Hall in von Plettenberg Street. Members should bring their own meat, salads and liquid refreshment and the Branch would provide the fires, rolls, cold drinks and icecream.

(2) Several of the present Committee were standing down and new members would be required. Members were asked to give some thought as to whether they would be prepared to stand for Committee.

(3) Colin ZS2CTR and Beavan ZS2RL were thanked for their relay from Cape Town on the Technical Net. Garth asked whether as Amateurs we should be using telephones - why not

radio? He felt sure the phone patch had been arranged with the proper authorities. Chris ZS6GM said that the next time it would be done by radio possibly on 20m on a Saturday or Sunday

(4)Marge said that a new Editor was needed for QSX-PE. Raphy ZS2SP said that the standard was very good, but did we need such a good quality newsletter? Is there anyone who would take on the job? Marge said she could not carry on as she was too busy. Owen ZS2AZ suggested a 3-4 person Committee to get material together. Stoffel ZS2C suggested a reduced issue, perhaps only the essential information every 2 to 3 months. Viv ZS2VM said that he like to read the minutes when he had not been able to attend the meeting, the rest was nice but not important. It was decided to set up a committee at the AGM.

(5)A Mrs. Rudman had an FRG 7700 receiver left to her by her husband and she would like someone to show her how to use it. Vic ZS2SZ volunteered to contact her.

(6)New repeater guides were available at R5.50 each.

(7)Trevor ZS2AE said that if the weather was favourable he would be going to Kareedouw on Saturday to put in the repeater. Anyone interested in going along should contact him

(8)Marge read out the notice to Scouters re new JOTA regulations. There appeared to be a problem regarding the venue for JOTA and the Hartslief Hall, Perridgevale was suggested as a site. Raphy offered to have troops of Scouts, etc visit him at his shack.

(9)Viv ZS2VM said that as a ZU licensee would be able to operate on 70cm, we should possibly put up a 70cm repeater!

(10)Marge read a letter which had been brought along by Lionel ZS2DD. This letter had been sent to his father ZS2D questioning his right to have aerials at his QTH in 1919.

(11)Garth ZS2HB said he had been listening on 30 m and had heard commercial stations on 10,127MHz. The GPO apparently licensed them but arrangements should have been made to keep commercials out of the bands. The PMG says the band was primarily commercial and secondarily amateur. Could we take this up with HQ? Bill ZS2BY said there was a footnote re moving commercial operators out of the band in 5 years or so. We should make approaches through HQ but Bill will be going to Pretoria next month and he will check the regulations. Vic said there were fishing boats on 160m which was not a shared band.

There being no further business the meeting was closed and tea was taken.

sgd: M.T. Weller ZS2OB
Chairman

B.A. Weller ZS2AB
Acting Secretary

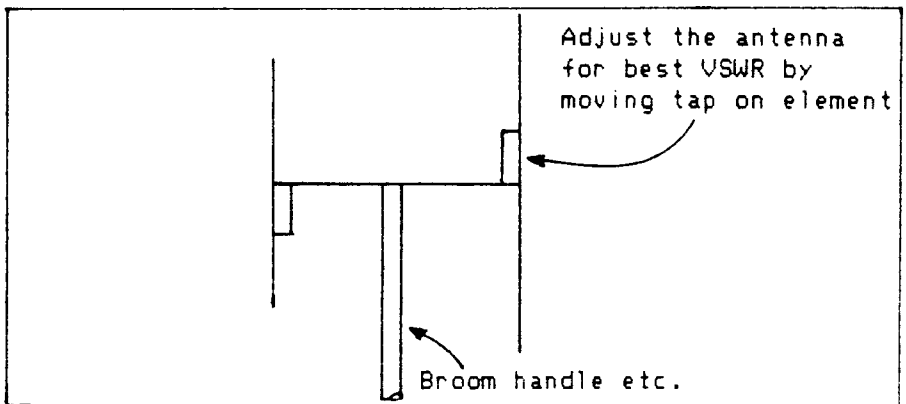
DIRECTION-FINDING ANTENNAE for 2 m & 70 cm

Fox-hunting fiends will find the following letter to Vic, ZS2SZ, from John Williscroft, ZS6EF, of interest. John says: "May I suggest that your Branch invests in a book 'The Transmitter Hunting Handbook' published by the ARRL or borrows it from the Johannesburg Branch Library. It gives a complete insight into, and many options with different ways of running, a fox-hunt (i.e. time based, distance based etc.). The book also gives many designs for antennae, equipment and various gadgets as well as useful operating hints." John writes:

"The following are details of the HB9CV direction finding antenna used in the first instance in SA by Gerald, ZS6BTD. It is now also used by many others. The antenna is fitted to the car and turned from the driver or passenger position to give the direction of the fox. A bracket (piece of tube) is screwed to the car roof rack, or a piece of wood is cut to the shape of the door window of the car and a hole made in it to support the vertical mast.

"The antenna is designed to give a notch in the direction of the transmitter and a peak on the opposite side. In practice, Gerald reports that it was very difficult to obtain a notch but it was very effective using the peak. Judging from the results of people winning fox-hunts with this antenna, some of your people may wish to make it."

The antenna is constructed of 4mm or nearest brass or aluminium rod, soldered together with the correct flux. Space the 190mm sections approx. 3mm from the relevant elements. These 190mm sections are the feed match to the antenna. The final antenna mounted on an upright (such as a broom handle) looks like this:



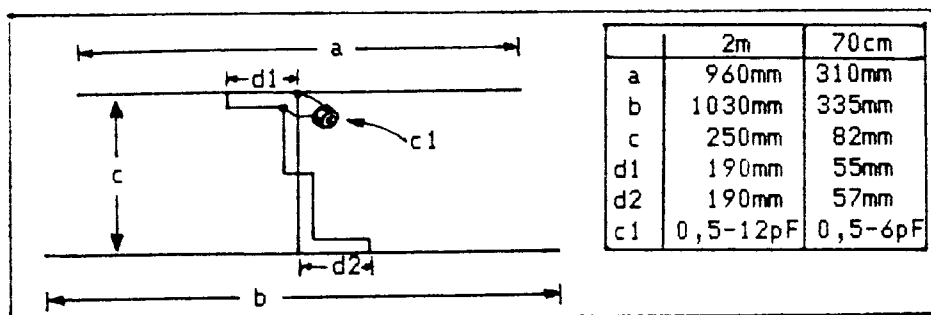
THE "HB9CV" AERIAL FOR 70cm

(From "The Transmitter Hunting Handbook")

"Particularly during contests and periods of favourable propagation conditions there has been a marked increase in 70cm activity from exposed locations since portable transceivers for SSB and CW appeared on the market. The light-weight HB9CV aerial has gained considerable importance in this context.

"When constructing such an aerial a BNC connector (or equivalent) is installed at the feed point. Using a rigid inter-connecting cable with plug connectors installed at either end it is possible to mount this aerial directly onto the transceiver. While standing on a rock or tree stump the transceiver will act as base. The aerial shown in the photograph (not suitable for reproduction - Ed.) was constructed from 4mm diam. brass rod. After soldering, a layer of protective varnish is applied. Alignment requires a VSWR meter to be inserted into the feeder line and C1 is then adjusted for best signal strength (which corresponds roughly to best VSWR).

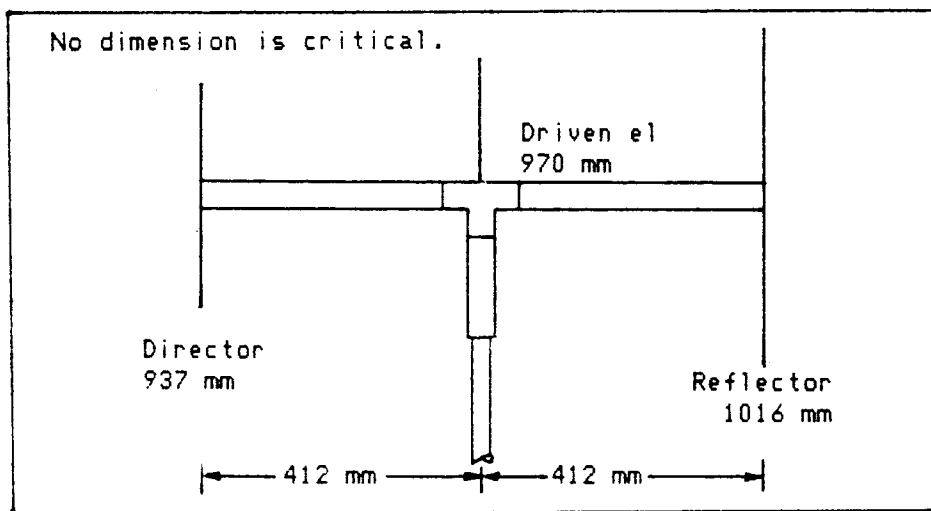
"Spacing between feed system and aerial elements is approximately 3mm. There must not be any other contact apart from the soldered points. The aerial must stand free and is quite useless during rain, snow or - even worse - icing conditions."



Another idea from John: an ordinary 3-element beam, with the bottom of the driven element made from tube in order to support the beam and rotate it. He has used it on his car

with great success. The beam is small enough to detach from the car mount and walk with the handy talky when the fox is away from the road.

The co-ax cable is run inside the bottom of the driven element and down the broom handle into the car. The boom is made from plastic water pipe fittings and the elements, which are made from aluminium welding wire, are insulated.



USEFUL HINT- When soldering copper pipe, use lemon juice if you run out of flux.

PE-CAPE TOWN 2 METRE LINK

Over the weekend 22/23 September, Trevor ZS2AE conducted tests from the Knysna Forest site for the repeater that will link Port Elizabeth and Cape Town through the Kareedouw and George repeaters. Although the path to Kareedouw proved OK, and signals from the George repeater came in at S7, Trevor was unable to access the latter repeater. He did relay some incoming signals from the Cape, which you may have heard here via Kareedouw.

Andre ZR2AAS, who maintains the George repeater, will check out the equipment in the next few weeks whereafter Trevor will visit the area again. Thank you, Andre, for your help and co-operation.

NOW LISTEN HERE! . . .

Ever thought about what QSX actually means? Like me, you have probably forgotten - or perhaps never knew - what that Q-code group means and, since I had to look it up, so can you. As a Branch organ, QSX PE means a lot to you, the members. You would all be the poorer without it. It not only informs and educates but also binds us all together.

In spite of her many other Branch tasks, Marge has set a standard that we, your QSX Committee, will try to maintain. But we need your support with contributions - technical and other relevant articles, operating hints, humorous stories, etc. Even short items are useful as gap-fillers. You can provide it in readable form (hand-written is fine) and we'll tidy it up if necessary. (Someone wunce tole us if you dont spel krekt you kant rite proper but he was rong).

Garth, ZS2HB

Celebrations

Congrats to those who celebrated, or will be celebrating, during October and November:

Birthdays - October: Colin Ashwell ZS2A0 (6th); Frank Roberts ZS2HE (7th); Peet van Heerden ZS2BX (13th); Pat Elliott (17th); Neil Holmes ZS2AI (23rd); Kathy Gerstle (24th); Stoffel Carr ZS2C (26th); Noel Staples ZS2AAS (29th); November: Ian Mackenzie (2nd); Viv Moore ZS2VM (6th); Dot Clarke (14th) John St. Clair ZS2JR (21st)

Anniversaries - October: Mike ZS2FM and Susanna Bosch (3rd); Breda ZS2DR and Annalene Dreyer (6th); Kay ZS2JS and Fred Strutt (9th); Eric ZS2CV and Iona Gartenbach (9th); Al ZS2U and Jo ZS2W Akers (24th); November: Ron ZS2MF and Dot Clarke (3rd); Beavan ZS2RL and Mel Gwilt (20th); Stoffel ZS2C and Shirley Carr (20th).

PACKET BBS operational soon

It is expected that the Bulletin Board System will be installed on Lady's Slipper in the next few weeks, says Lionel ZS2DD.

JOTA ENTERS A NEW ERA

Jamboree on the Air - the 33rd such event - takes place over the weekend 20-21 October 1990. The Branch will run a station at Gilsands from about 08:00. All who can help with erecting or manning the station, providing or demonstrating interesting equipment and generally keeping the young people involved are asked to contact Dick ZS2RS at 55-2244 (home).

In South Africa, Scouts and Guides will be allowed for the first time to take the microphone and personally convey messages to other stations. This is an exciting development and we hope it will generate a real and lasting interest in Ham Radio among the young people. All too often, however, JOTA runs out of steam early because of propagation conditions and/or a dearth of new jamboree stations to contact. Interest quickly wanes.

Please help to keep the activity alive by contacting jamboree stations, whether or not you have scouts or guides in your shack.

WIN R500 with a HOMEBREW PROJECT

The South African Amateur Radio Development Trust has arranged a construction competition with main prizes of R500, R200 and R100 as well as a number of consolation prizes. Home-brewed projects must have applications of relevance to amateur radio or shortwave listening and may be constructed from contestants' own designs or from published ones.

Entries, together with your circuit diagram and an official entry form (the latter available from your Projects Manager, Viv Moore ZS2VM) must reach SAARDT in Johannesburg by 31 December 1990. All entries will be displayed during the SARL Convention from 8 to 10 March 1991 and the prizegiving will be at the AGM Dinner on 9 March.



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BORN-AGAIN VALVES?

Most of us consider 'the valve' to be part of history, and younger engineers will think of it as an artifact of their fathers' generation. But research undertaken in the last five years or so is promising a reincarnation of the valve and, as with all reincarnations, the valve will return in a completely different body.

This was the subject of a recent Institute of Physics lecture in London - "Vacuum microelectronics: the valve born again" - by Prof. Cyril Hilsum, director of research at GEC and President of the IoP.

The valve had many disadvantages: it was fragile, bulky, sometimes slow to start and hot in operation. We have all seen pictures of the early computers that filled a whole room but did less than the budget desktop PC. What is not so evident is the heat they generated which, as Prof. Hilsum said, made them very difficult to work with.

In 1949 the invention of the transistor was the death knell for the thermionic valve; the transistor was small, efficient and cool, required a low voltage and was easy to stack together or 'integrate'. The introduction of the integrated circuit (IC) in 1962 led to an explosion in worldwide sales and, as they say, the rest is history.

In fact, the valve didn't really die; it went underground and grew bigger, adapting itself to high-power applications that the transistor could never hope to address. The magnetron used for radar, the klystron in TV transmitters and the travelling wave tube used, among other things, as a satellite high-power amplifier are all examples of the 'overgrown valve'.

The main problem with the thermionic valve was its hot cathode. If hot emission could be replaced by cold emission, a number of problems would be solved. Indeed, it has been known for some time that a high electric field will 'pull' electrons out of a metal, but the early attempts at producing a 'field-emitting vacuum device' were largely unsuccessful, according to Prof. Hilsum, because companies were unwilling to spend the time and the money required.

It is only developments of the last 5 years that have made it possible to attack what Prof. Hilsum called 'the last unsolved problem of solid-state physics'. Although much of the current work is commercially confidential, Prof. Hilsum was able to describe the basis of the research.

There are two main ways to produce the high electric fields required to 'pull electrons': either shape the metal or semiconductor material into a point, a wedge or an edge using etching techniques, or construct junctions based on semi-conductors. The junction work is being done chiefly by Philips in Eindhoven and Canon in Japan, while the field-effect technique is being pursued by a large number of companies, including GEC in the UK.

GEC's research is based on the production of a very fine point which forms the cathode of the device, surrounded by a circular anode - a bit like the point of a retractable ball-pen in the retracted position. Using photolithography and etching techniques, a large array of these 'points in holes' can be manufactured on a chip substrate. The scale of the device, as we have come to expect with modern electronics, is mind-boggling: the points are $2\mu\text{m}$ high and $3\text{-}10\mu\text{m}$ apart, which means that there can be upwards of 10 000 of them in a square mm. The field near the point is around 10^6V/cm and at about 400V, the available current is at present up to about $60\mu\text{A}$. The finer the point, the higher the current density around it; and for the device to work at high frequencies - something the original valve could not do - the current density needs to be high. Values up to $8\ 000\ \text{A/cm}^2$ have so far been obtained.

When manufactured commercially the new device promises applications where solid-state devices cannot be used: in jet engines, reactor circuitry, cathode-ray tubes and fluorescent lamps to name but a few. They are also more than likely to find application in the space and defence industries, where the ruggedness and radiation hardness should prove beneficial.

(Taken from IEE NEWS, 29 March 1990 - Inst. of Elect. Eng.)

PORT ELIZABETH BRANCH COMMITTEE

CHAIRMAN	Marge Weller	ZS2OB	30-4597
VICE CHAIRMAN	Lionel Coombe- Davis	ZS2DD	32-1770
SECRETARY	Lynne Crothall	ZS2MM	35-4671
TREASURER	Colin Robertson	ZS2CTR	30-0570
SOCIAL	Marge Weller	ZS2OB	30-4597
SPECIAL EVENTS, AWARDS, CONTESTS	Bud Voortman	ZS2CA	34-2770
HAMNET	Al Akers	ZS2U	30-2983
PROJECTS, PUBLICITY, NOVICE LICENCES	Viv Moore	ZS2VM	30-4433
EDITOR: QSX-PE	Garth Laaks	ZS2HB	33-1532
QSX COMMITTEE MEMBER	Viv Moore	ZS2VM	30-4433
LIBRARIAN, DF HUNTS, IPHA	Vic Olivier	ZS2SZ	30-2440
PROJECTS, PUBLICITY	Viv Moore	ZS2VM	30-4433
PACKET WORKING GROUP CO-ORDINATOR	Lionel Coombe- Davis	ZS2DD	32-1770
REPEATER WORKING GROUP CO-ORDINATOR	Trevor Scarr	ZS2AE	32-1746

BULLETIN ROSTER

Bulletin readers please refer to your roster sheet.

SUNDAY BULLETINS

Bulletins are transmitted on Sundays at about 08:40
(after the Headquarters bulletin) on -

- 7,098 MHz (40 metre band SSB)
- 145,100 MHz (2 metre band FM - Lady's Slipper)
- 50,005 MHz (automatic link with 2 m Lady's Slipper)
- 14,130 MHz (20 metres SSB) when conditions require.

BRANCH VHF SERVICES

Town Repeater (PE Central)	145,050 / 145,650 MHz
Grahamstown Repeater	145,150 / 145,750 MHz
Lady's Slipper Repeater	145,100 / 145,700 MHz
6 Metre link with Lady's Slipper	51,400 MHz (simplex)
Cockscomb Repeater	145,000 / 145,600 MHz
Karreedouw Repeater	145,075 / 145,675 MHz
University Repeater	145,175 / 145,775 MHz
6 metre beacon (ZS2SIX CW ID)	50,005 MHz
2 metre beacon (ZS2PE CW ID)	144,910 MHz

BRANCH MEETINGS

20:15 (8.15pm) on the third Friday of the month at St. Martin's Presbyterian Church, Great West Way, Kabega Park.

**** We like being your branch ****