

THIS NEWSLETTER IS PUBLISHED BY THE
PORT ELIZABETH AMATEUR RADIO SOCIETY

P.O. BOX 10402
LINTON GRANGE
6015

September
September 1996

NOTICE of MEETING

The monthly general meeting of the **PORT ELIZABETH AMATEUR RADIO SOCIETY** will be held on **Friday, 18 October 1996**, commencing at 20:00 (8pm). The venue will be the Municipal Disaster Management Centre in Westview Drive, Mill Park, Port Elizabeth (previously known as the Civil Defence Centre).

Some important matters will be dealt with, including our participation in JOTA and a possible final choice regarding the Society's new badge, but business will be kept short, as is usual. As QSX goes to press it is not known what will be on the program after the tea break, but an interesting talk is probable and, in any case, a pleasant evening is assured.

A rand or two will buy you a cup of tea or coffee and something to chew.

Technical Talk

Make a point of attending the tech talk on Wednesday, 23 October at the clubhouse. Mike Bosch ZS2FM will reveal all about the vagaries and certainties of VHF. Now's your chance to ask all those questions that have been bothering you.

If, like your stupid editor, you forgot and didn't attend the September one, you really missed out on sumpin'. There was an unbelievable array of home-constructed test equipment, which shows that our members are not lacking in enthusiasm for 'rolling their own' to keep costs down.

Among the gear on view, and their uses explained, were items from a simple absorption wavemeter through continuity and crystal checkers, field strength, SWR, capacitance, inductance and dip meters, diode and transistor testers, a noise bridge, signal injectors, tracers and generators, frequency counters and a variable voltage and current power supply.

The largest batch of equipment was brought along by Andries ZS2P of Uitenhage who, as a teacher, captures his scholars' interest with his home-brew gear.

I wonder if we can prevail on the okes to lay it all on again, but remind us about it a couple of hours before the show starts?

A Word from the Chair

The interim period in the life of our new Society has elapsed. The special general meeting is history and we are on track to our first AGM in May 1997.

To all intents and purposes things are back to normal and the committee, bolstered by the return of Beavan ZS2RL and Viv ZS2VM, is eager to tackle the day to day challenges of our hobby. Unfortunately Owen ZS2AZ and Bert ZR2USA were not available for re-election. My sincere thanks to both for their input.

Suddenly, at short notice, we were confronted by a Hobbies Fair scheduled for early in the month and the appropriate announcement was made on a bulletin. Who can blame members should they not take up the challenge? Four days is rather short notice.

However, later in the month the annual JOTA takes place. We have always put in a stout effort and hopefully this year will be no exception. For the second year running we will be facing the new onslaught of Internet, which for some unknown reason is being promoted during JOTA.

Several members have voiced reservations about this mode of communication during this event. Discussion is certainly invited. It undoubtedly detracts from the original concept of JOTA and, as the scouts can utilise this medium throughout the year, why should so much accent be put on it during the traditional radio operation period?

Perhaps next year JOTA can take place entirely via Internet and we can enjoy a relaxing weekend at home with family and friends. Food for thought?

73.

Dick ZS2RS

HAMNET NEWS

Hamnet General Meeting

Now that the dust from all the restructuring is settling, one can see what course to steer. Thus a very fruitful meeting was held on Wednesday evening, 2nd October, with several short talks and discussions relating to various aspects of disaster management.

Ken ZS2OC was presented with his somewhat belated certificate of appointment as Deputy Provincial Director, Hamnet East Cape.

Six of the ten Hazchem cards

received from the National Director were sold and two application forms to join Hamnet were received, this due to the new policy of allowing a maximum of 30% of Hamnet members who do not belong to the League.

It was decided that in lieu of the next meeting, a visit to the Western Districts Council Disaster Management Centre at Greenbushes would be arranged. Listen to club bulletins for further information on this visit.

Modules

It is planned to publish information on these modules in future issues of QSX. At least some of this has been published

before, but we have new members since then and anyway, it bears repeating.

73

Al Akers,
Provincial Director,
Hamnet East Cape

Horrible thought: Does one find worms in pears? I *have* seen a club with woodborers, a computer with bugs and even army officers with pips. Pears may also have pips, and you can can pears, but you can't pip PEARS and you can't can it, can you? [Read that again, this time with a *long*.]

FOR SALE ★ WANTED ★ SWOP

FOR SALE

- ★ Atlas 210X HF **transceiver** in excellent condition – contact Gary ZR2LG (04457) 4 8660.
- ★ Kit for **multiband Quad beam**. great quality fibre glass support arms. Detailed assembly instructions – Vic ZS2VP (0464) 8-1928

Packet Changes

TOFF SCARR, ZS2AAW

A number of changes have been brought about on the packet scene recently.

Users of ZSONTP, the Port Elizabeth Amateur Radio Society's Packet Bulletin Board System, will have noted that the 144.675 MHz access port has been discontinued. This is due to the introduction of a UHF backbone channel for direct comms to the Grahamstown digipeater, and also to the forwarding station.

The VHF user access frequency is now 144.600 MHz only. It is impossible, RF-wise, to have two VHF ports on the BBS anyway, since with only 75 kHz separation, one will kill the other when it transmits, as they would reside on the same site.

These changes were made when the BBS computer was relocated to Lady's Slipper, on a trial run basis. The reason for the move was to provide improved VHF user access to the PE, Uitenhage, Despatch and Humansdorp areas, which the Lady's Slipper site achieves.

The 9600 baud user port will be located at the same site, giving experimenters a chance to run 9600 packet to ZSONTP.

An HF channel is also proposed, probably in the 80m band, to allow rural packeteers access to ZSONTP, using the HF rig already located at Slipper and currently used for bulletin purposes only.

It must be stressed that the operation of the BBS on Slipper is strictly in the trial phase, and user frequencies are by no means fixed - i.e., they may need to be changed if interference is caused or

suffered. (An expected change is a shift from 144.600 to 144.625 due to intermodulation interference, but this will be announced when it happens).

To investigate the various ports on Lady's Slipper, connect to the ZSONTP-2 node. This provides a gateway to the other ports installed on the ZSONTP BBS. Type "PORTS" to get a list of those available. You will see that port 1 is the UHF backbone to Grahamstown, port 2 is the HF port (proposed, not available yet... -and for ZS callsigns only!), port 3 is the local 144.600 MHz access port, and port 4 is the High Speed 9600 Bd access port, on 434.875 MHz.

All is Rosy in the PEARS

Some may be asking "what is all this about roses?" Well, a ROSE switch is the product of a group of American Amateurs who call themselves the Radio Amateur Telecommunications Society, or RATS! They have spent a lot of time and effort in developing networking software for Packet Radio, and this work has been based on the international Open Systems Interconnection model (OSI Model).

This model spells out how various data protocols can be transported on standard levels of interconnection. They have named their developments the RATS Open Systems Environment - or ROSE, and hence the packet "switch" - another name for a "node" is called the ROSE Switch.

This switch has unique features that make it very user friendly, since users do not

have to know all the in-between switch callsigns to route their connections from one end of a large packet backbone network to the other. So if there were a network of switches from here to JHB or CT, users would only have to know near which switch in the route the other BBS or user resides, and NOT all the node callsigns along the way, as would be the case with digipeaters etc.

Obviously we do not have such a large system at present, but at least are starting out on the right foot....

The other benefit of a rose switch is that it allows the connection of backbone UHF links between sites, which are transparent to the users. Traffic between switches and from switches to BBS's can be carried by these channels, leaving the users channel free for other traffic.

The UHF backbone channel of ZS0NTP will also be used for mail forwarding as and when the radio equipment is available for the forwarding station (soon, soon...)

The Grahamstown Digipeater site has been upgraded to such a switch. Phil, ZS2PP kindly brought the Digipeater in to PE at the SGM, to allow the upgrading of EPROMs, and the unit to be tested. A UHF link radio was added, to link to Lady's Slipper on the UHF backbone channel, thus providing a separate channel for traffic between ZS0GHT and ZS0NTP.

This also meant that ZS0GHT could remain operating on 144.675 MHz, even though ZS0NTP no longer has a 144.675MHz port, since they do not communicate to each other on VHF, but on the backbone UHF channel.

The Cradock amateur fraternity have been investigating the feasibility of erecting a digipeater on the Cradock repeater site, so

already the possibility of further expansion of the Rose network exists.

The Old Digipeater

The Rose switch at Grahamstown still operates as a digi, on 144.675MHz, and with the old digi callsign of ZS0GHT. Using it like this will not provide the benefits of separate-hop acknowledgement, which is an advantage of a level 3 switch.

But to connect *via the Rose Switch*, the callsign is ZS0GHT-3. Each port on the switch has its own address, made up of the local area telephone dial code plus an identifier - in this case 0461 plus 01 for VHF and 02 for UHF. To connect through the Rose switch, the rose callsign where you are entering the network must be the first digi-field, and the address of the point of exit the second digi-field. So to go in and out on VHF use:

```
C <call> V ZS0GHT-3,046101
```

To go in on VHF and connect *to the BBS* via the UHF backbone (i.e. out on UHF), you must use the UHF address as the point of exit, so type:

```
C ZS0NTP V ZS0GHT-3,046102
```

Now if Cradock were connected into the network, to illustrate how easy the system is to use, the only difference would be to use the Cradock address as the exit point, and the network would take care of the routing for you, e.g.:

```
C ZS2BW V ZS0GHT-3,048101
```

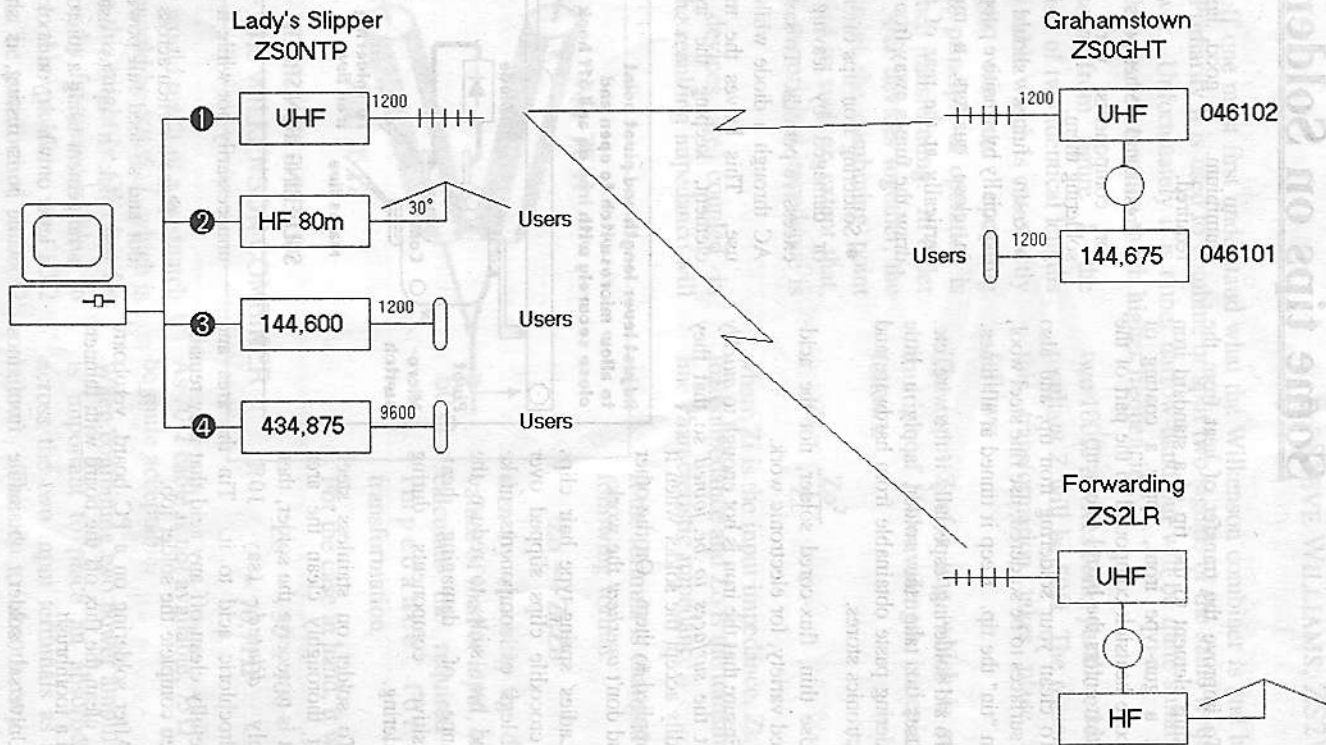
(don't try this yet - it's only an illustration!)

Try the Rose switch out - it is there for all to use. Any comments or suggestions would be appreciated - contact the PEARS repeater working group.

A diagram of the packet network appears on the next page. Ω

PACKET RADIO NETWORK

PORT ELIZABETH AMATEUR RADIO SOCIETY



Fiddlers' Corner

Some tips on Soldering

- To improve the transfer of heat from the heating element to the tip of a standard iron (not a gun-type iron), apply a coating of silicone heatsink compound to the part of the tip that enters the barrel (element).

- To clean your soldering iron tip, and also the surfaces to be soldered, use fine steel wool, then "tin" the tip. Keep it tinned at all times.

- To aid soldering, especially if the wire, etc. refuses to take the solder, apply a little soldering paste obtainable from hardware and electronics stores.

- Use thin, flux-cored solder, not the acid-cored variety, for electronic work.

- Ensure that the iron is hot enough to *quickly* heat the *surfaces to be joined* so that they readily accept the solder when it is applied to them. On the other hand don't *overheat* the work.

- Ladies' spring-type hair clips or crocodile clips slipped over the legs of components make good heat sinks to reduce the chance of damaging heat-sensitive components during soldering.

- To solder on stainless steel, first thoroughly clean the area that is to receive the solder, then apply *diluted* (say 10%) hydrochloric acid to it. Tin the area and carefully clean off any acid that may remain. Then complete the solder job.

- After soldering on a PC board, veroboard etc., clean the flux off the board with thinners and a toothbrush.

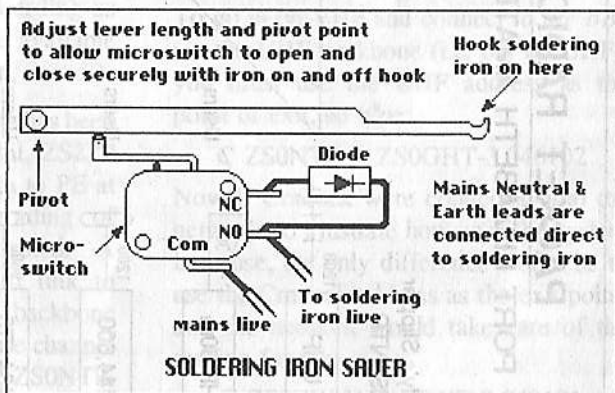
- Universal solder, obtainable from most hardware stores, enables you to solder

aluminium. A good, hot soldering iron is required.

- Prestik and clothes pegs make handy holders for components, wire etc. while you're soldering them.

- Rosin fumes should not be inhaled, especially by sensitive people. When soldering in close quarters, a muffin fan mounted vertically at the rear of the workbench will draw the fumes away from the soldering iron.

- Soldering iron tips often become destroyed or damaged by leaving the iron on for excessive periods. To save your tip, feed the AC through a diode while it is not in actual use. This halves the mains power to the element, keeping the iron warm but not



unnecessarily hot while it is in standby mode.

Place a switch across the diode to short it out and so feed full power to the iron when you pick it up to use it. A suitable arrangement using a microswitch activated by a lever on which you hook your soldering iron while it is resting, is shown in the above figure. Q

The Wilkinson Combiner

BY STEVE WILLIAMS, ZS2WS

To start off one must first understand what the Wilkinson combiner is and how it works. Primarily it is used to combine or split two signals of the same frequency and power. Unfortunately it is rather narrow-band but will be quite suitable for 6m, 2m and 70cm, not to mention much higher frequencies.

As can be seen from figure 1, the combiner consists of two identical lengths of 75Ω coaxial cable which is cut exactly 1/4 wavelength for the operating frequency. The principle of operation is that of impedance transforming. In order to couple two 50Ω devices together, the impedance seen at the combining point must be modified to such an extent that, once combined, the original impedance is achieved.

If two 50Ω devices are coupled in parallel, then the resulting impedance will

two 100Ω devices being paralleled and the resultant Z will be 50Ω. The reason why this transformation takes place is as follows:

The input Z of a line, which is an odd multiple of 1/4 wavelength, is depicted as follows:

$$Z_i = \frac{Z_o^2}{Z_L}$$

where Z_i is the input impedance, Z_L is the load impedance and Z_o is the transmission line characteristic impedance.

If the formula is changed to the following format:

$$Z_o = \sqrt{Z_i \cdot Z_L}$$

then by choosing the desired values of load or input, one can calculate the required cable impedance for the transformation.

For the case in hand, it will be:

$$\begin{aligned} Z_o &= \sqrt{50 \times 100} \\ &= 70.71 \Omega \end{aligned}$$

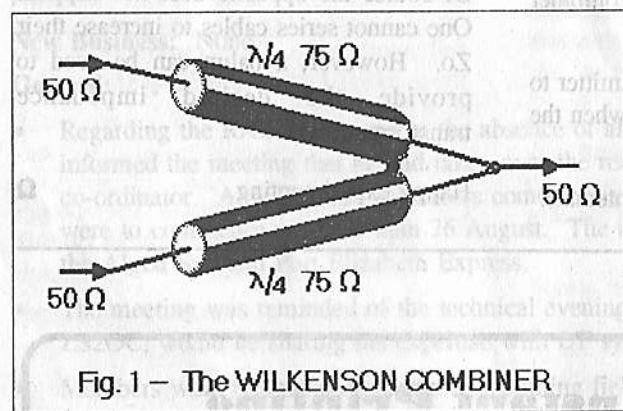


Fig. 1 – The WILKINSON COMBINER

be 25Ω. This would result in a mismatch and the SWR would be 50/25 :1, which is 2:1. For some this might be OK, but for most of us it is by far unacceptable. In order to solve this problem, the 50Ω impedance must be transformed to 100Ω at the combining point. This will result in

As 70Ω cable is not available, 75Ω would be quite acceptable.

When combining two power amplifiers, it is important to place an absorber load across the two input terminals as shown below. This is to absorb any power imbalances and, should one of the inputs

become open circuit, the working amplifier will not see a short circuit due to the open ended $1/4$ wavelength of line connected to it. This load resistor must be pure resistance and must have a power rating greater than $1/4$ of the total combined power.

The isolation between the two input ports is high as they are 180° apart. If the combiner was to be employed as a splitter, the loss through the device would be 3dB. (i.e. half power).

Some uses for the Wilkinson combiner are:

- Splitting the power of a transmitter to feed into two dummy loads when the power rating is lower.
- Combining stacked dipole antennae.

- Splitting and combining within amplifiers.
- Plus more.

The easiest way to make a Wilkinson combiner is to use a BNC or N-type T-piece with two $1/4$ wavelengths of 75Ω cable.

It must be appreciated that two co-axial cables can also be placed in parallel to halve the Z_0 of the original cable, i.e. two 75Ω cables in parallel

will produce a cable of 37.5Ω .

Of course the opposite does *not* happen. One cannot series cables to increase their Z_0 . However, a balun can be used to provide the desired impedance transformation.

Happy experimenting. Ω

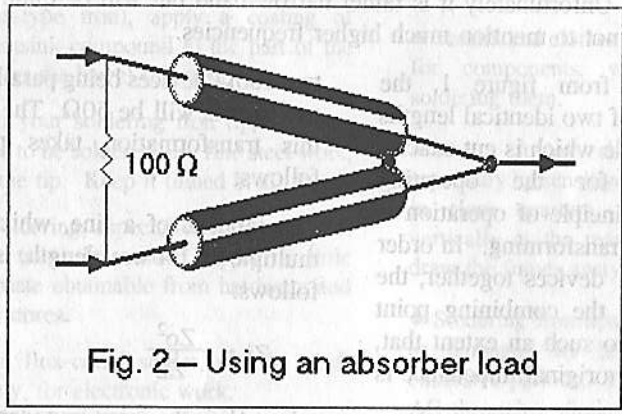


Fig. 2 – Using an absorber load




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MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH AMATEUR RADIO SOCIETY HELD AT THE MUNICIPAL DISASTER MANAGEMENT CENTRE, MILL PARK, PORT ELIZABETH ON FRIDAY, 16 AUGUST 1996

Present & Apologies: As per attendance register (\pm 29 members)

Welcome: In the absence overseas of the Chairman, Vice Chairman Al Akers, ZS2U, welcomed the members.

Minutes of the Previous Meeting: The minutes of the meeting held on 12 July 1996, as circulated in the August issue of QSX-PE, were taken as read. The adoption was proposed by Clive, ZS2RT, and seconded by Peter, ZS2PF.

Matters Arising: None.

Finance: Treasurer Clive, ZS2RT, reported a healthy balance in the bank account of R14 680 excluding the generous cheque of R3 500 from the VW Rally organizers.

Correspondence: Al started to read a letter received from an official of SATEPSA about that body's intervention and diversion of redundant radio equipment from Spoornet that had actually been offered earlier to a PEARS member for disposal by the Society. At the suggestion of Chris Scarr ZS2AAW, the meeting agreed that the matter should be held over for the next general meeting when the member would be present.

New Business: None.

General:

- Regarding the RAE exams and in the absence of any other volunteer Al, ZS2U informed the meeting that he had taken over the reins from Gerhard, ZS2UM as co-ordinator. Al asked that volunteers come forward to assist with classes, which were to commence not later than 26 August. The usual article would be placed in the Algoa Sun and Port Elizabeth Express.
- The meeting was reminded of the technical evening on 21 August. Ken Victor, ZS2OC, would be sharing his expertise with DF systems and other antennas.
- Members were reminded about the forthcoming field day contest on 7 and 8 September and Al called for volunteers to assist with the erection and operation of a Society station.
- Garth ZS2HB reminded members that more designs for a new badge were required for consideration at the SGM.

The meeting closed at 20:27 to enable those present to view a video covering the NASA space shuttle program from 1981 to 1986, which Owen, ZS2AZ acquired on his US visit. Q

PEARSTALK

JOTA - Can you help?

The event takes place over the weekend of 19/20 October, but the Society has decided to put on a station on the Saturday only, the 19th, due to a seeming apathy on the part of the scouts and the late hour at which they made contact with us to participate.

Erecting of the station - at the Gilsands Scout camp on the Schoonies road - will start at about 08:00, and actual operating probably from 09:00. All are welcome to help or just look in at the special event station.

Is This Your Last QSOX?

Yup, if you haven't paid both the R10 to tide you over from 1 July to 30 September and your current half-year subs, you will regretfully have to be dropped from the distribution list after this issue goes out. We'd hate to lose you.

Subscriptions for the period 1 October to 31 March for erstwhile paid-up and new members are now due as follows and should be paid or posted to the Treasurer ASAP please:

Full member	R25
Family or Student	R15.

Special General Meeting

PEARS has now well and truly taken root, with the initial SGM behind us, a Constitution finally ratified with minor amendments and the financial year determined.

For the record, rules 2.4, 3.1.3 and 7.8 of the Constitution were deleted, their having

been needed only for the transition from Branch to Society. Rule 5.1 was amended to read "The Treasurer shall operate an account..." (instead of "open").

Rule 6.1 was amended to "The Society shall, prior to each annual general meeting..."; Rule 7.2.1 now reads "The members may decide as to the size of the committee and whether to elect members to specific posts or allow the incoming chairman or committee to designate the various functions at the first meeting of the Committee."

In view of the minor nature of the amendments and in order to avoid printing and postage costs, fresh copies of the Constitution will not be posted to all members. However, anyone wanting a copy may apply to the Secretary.

Subs for the six months from 1 October 1996 to the end of our new financial year on 31 March 1997 were fixed at R25 for full membership. [The committee later set the subs for Family and Student members at R15 for this period]

Trophies were awarded as follows:

- Ham Spirit Trophy - Vic Olivier ZS2SZ, particularly for his morse training programme
- DX Trophy - Lambert le Doux ZS2LL (Cradock)
- Constructor's Trophy - Fanie Swiegers ZS2EM

Certificates of Merit were awarded to:

- Jim van Loggerenberg ZS2LR for his great help with the BBS forwarding,
- Toff Scarr ZS2AAW for his dedicated development and maintenance of our repeater and packet network;

- Garth Laaks ZS2HB for his production of QSX-PE every month.

Your new Committee was then elected and Dick Schönborn ZS2RS was re-elected unopposed. Other committee members are Al Akers ZS2U, Chris Scarr ZS2AAW, Clive Fife ZS2RT, Trevor Scarr ZS2AE, Viv Moore ZS2VM and Beavan Gwilt ZS2RL. We surely couldn't have a stronger committee.

From a set of specimen badge designs, a variation on the SARL badge theme, with a centre motif suggested by Clive ZS2RT, was voted in as favourite with minor modifications. A final OK will be sought at the October general meeting.

The business was followed by a bring and braai, giving the large turnout an opportunity to meet especially the several out-of-towners who graced the occasion with their presence. Except for a cool wind, the event was the great success that it always is. **Our thanks go to the ladies who provided snacks, and to all who helped with the organisation.**

Your Personal Data

From time to time we learn that we have omitted to greet someone on a birthday, anniversary or other event. If *your* special day has not been mentioned, please let the Editor know so that he may update his data base.

Sometimes he *does* update it but forgets to *save* it thereafter. We can't *always* be perfect!

Please also report to the bulletin reader and/or the Editor, as appropriate, any other happenings of interest or concern to other members, e.g. hospitalisation, travelling etc.

RAE Looms Near

The minimum *aggregate* pass mark for the RAE is now 60% (it has been only 50%

in the past). Also, the minimum mark required for a pass in the individual papers has been raised from 40% to 50% for the *technical paper* and to 60% for *regulations and procedures*.

My feeble arithmetic (I'm worse at maths) tells me that, if you get the minimum of 50% in the technical, you must get at least 70% in regs and procs. In fact, *if you get less than 80% in R&P you should get a darned good hiding anyway!*

This means that you need to brush up just that little extra before the RAE date. We wish all candidates for the forthcoming RAE good luck.

I wonder when the 600 questions that the League promised to produce some years ago will be available.

Cover photos


I got another blast for putting shiny objects in the foreground to the cover photo last month. In any case, the photo was rather dull, but they say the camera doesn't lie, so I'll have to stop snapping the members if they don't get a bit brighter.

By the way, Owen still has his hair – and nary a grey one among it – but he's taking special care of it since glimpsing the future on page 8 last month.

Funny how my spelling checker failed to pick up the misspelled word in the caption to last month's cover photo. A few eagle-eyed readers picked it up. Think I'll stick to the Donkin photo in future.

President, SARL on Packet

You can send packet messages to the SARL or League President Chris Turner ZS6GM by packet. Send them as personal bulletins (offer them as SP) to:

ZS6SRL @ZS0WTE (for the SARL) or
ZS6GM @ZS0WTE (for Chris). 

Congratulations

on your birthdays:

October

- 23 Neil Holmes ZS2AI
- 24 Cathy Gerstle XYL of Wolf ZS2WG
- 26 Stoffel Carr ZS2C
- 27 Iris Hayes ZS2AA
Ria de Vos XYL of Paul ZS2ABY
- 29 Noel Staples ZS2AAS

November

- 2 Ian MacKenzie ZR2IM
- 3 Jack Moolman ZS2KU
- 6 Viv Moore ZS2VM
- 11 Louis Terblanche ZS2KT
- 14 Dot Clarke XYL of Ron ZS2MF

on your anniversaries:

October

- 24 Jo & Al Akers ZS2W & ZS2U
- 30 Patricia & Ron Fitzmaurice

November

- 1 Soekie & Jack Moolman ZS2KU
- 3 Dot & Ron Clarke ZS2MF
- 5 Noeleen & Adriaan Snyman

on passing your CW test: Ewald Bouwer ZR2ABN, Dave Grunewald ZR2DCG and Shawn Hobson ZR2SCH. Hope to hear you on the key!

met jou prestasies in die SA Skietkampioenskappe André ZS2ACP.

on your new calls: Johannes Jorritsma ZS2JJJ (ex ZR2JJ), Elaine ZS2ELF (ex ZR2ELF) of EL and Sheldon ZS2SW (ex ZR2SW) also of EL. All were successful students in Vic ZS2SZ's regular CW lessons on the air. Congrats also, Vic.

Oops! We omitted to congratulate Chanel Layton ZS2CNL on her birthday on 22 September. Hope it was a happy one, Chanel. We now have you on record for next year.

Pick List: Sorry to hear that Royden Thompson ZR2ABF has been back in hospital. Our thoughts are with you, Royden. Hope you'll be fully restored to good health quickly.

Travellers: Maureen & Neil Fulton ZS2MG to Oz, Lynne ZS2MM to Malawi, Bernice & Bryan ZS1NQ also to Oz. Hope you'll all have fabulous trips.

Simone ZS2YL and Keith Olivier ZR2AAX are paying a visit to Simone's family in Germany.

We won't mention that Dick ZS2RS is planning *another* visit to the UK in December.

Break with Tradition: Lionel ZS2DD was *not* first in the queue for icecream at the SGM because he was visiting Sedgefield. Your loss was our gain, Lionel!

Your Society's Committee

Chairman; Special Events	Dick Schönborn ZS2RS	38-5070
Vice Chairman, Repeaters, Packet	Chris Scarr ZS2AAW	38-1344
Secretary	Beavan Gwilt ZS2RL	30-6968
Treasurer; Assets Control	Clive Fife ZS2RT	32-3203
assisting with Assets Control	Lynne Crothall ZS2MM	35-4671
Social, Awards	Viv Moore ZS2VM	30-4433
assisting with refreshments at meetings	Bill Hodges ZS2ABZ	51-2580
QSX Manager	Trevor Scarr ZS2AE	32-1746
assisting as QSX Editor/layout	Garth Laaks ZS2HB	38-1101
Technical Classes	Al Akers ZS2U	30-2983

PEARS' VHF & Other Services

REPEATERS

Town VHF	145,050/650	Kareedouw	145,125/725
Town UHF	431,050/438,650	Knysna	*145,050/650
Cockscomb	145,000/600	Lady's Slipper	*145,100/700
Cradock	145,050/650	Uitenhage	145,075/675
Grahamstown	*145,150/750		

* East London's repeater on 145,125/725 MHz is linked to PE's coastwise 2m repeater system.

OTHER SERVICES

Packet Bulletin Board (ZSØNTP)	144,600
Packet Rose Switch (ZSØGHT-3,046101/046102)	144,675
2m Beacon (ZS2VHF CW ID)	144,910
6m Beacon (ZS2SIX CW ID)	50,005
6m Link with Lady's Slipper 2m Repeater	51,400
Wefax Relay (Meteosat)	145,350

Sunday Bulletins

PEARS bulletins are transmitted on Sundays immediately after the SARL English transmission, i.e. at about 08:45, on 7098 kHz as well as the 2 metre linked network that provides coverage from East London to George and environs via repeaters on 145,750 MHz (Grahamstown), 145,700 (PE Slipper), 145,650 (Knysna) 145,700 (George) and East London's 145,725. PEARS' 7098 or 3640 kHz transceive facilities are also remotely linked as needed. Alternatively, the SARL's 40m transmissions on 7082 or 7066 kHz can be patched in for automatic relay to the 2m system.

Date	Prepare and Read on 145,750
13 Oct	ZS2RT
20	ZS2VM
27	ZS2U
3 Nov	ZS2AAW
10	ZS2AE
17	ZS2RS

DIARY DATES

OCTOBER

18 PEARS monthly meeting
19/20 JOTA
23 Technical Gathering

NOVEMBER

15 PEARS Gen Mtg

★ Now We Like Being Your Society! ★