

THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

PO BOX 1838 WOLLONGONG NSW 2500

VOLUME 83, NUMBER 5

JUNE 1983

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MEETINGS ARE HELD ON THE SECOND MONDAY OF EACH MONTH (EXCEPT JANUARY) AT 7.30 P.M. IN THE CONGREGATIONAL HALL, CORNER OF COOMBE AND MARKET STREETS, WOLLONGONG. VISITORS ARE WELCOME TO ATTEND MEETINGS.

NOTICE OF MEETING:

Because of the forthcoming long weekend, the next meeting of the Illawarra Amateur Radio Society will be held on JUNE 6th 1983, the first Monday in the month, instead of the usual second Monday. It is hoped to show the WIA video tapes on 'Amateur Radio'.

LAST MONTH'S MEETING:

This was held on Monday 9th May 1983, and despite the lack of a reminder due to delay in delivery of the Propagator, there was a pleasing turnout of some 60 members. Several visitors, among them Brian VK2AXI, former Propagator Editor, received the usual warm welcome. President Dave VK2DFL explained the reason for the late printing of the Propagator, and informed us that the possibility of getting it printed commercially would be discussed at the next Committee meeting.

Paul VK2ZQT will be in charge of the Bass Point site for the Jamboree on the Air (JOTA) weekend in October - please discuss details with Paul at the next meetings.

QSL cards - any not claimed have been sent back to the bureau.

Peter VK2XAN would like to reactivate discussion on WICEN - please see Peter or contact him on Channel 5.

Geoff VK2ZHU has WIA car badges for sale at \$10 each.

First prize in the raffle was a Kambrook retractable mains lead, won by Ray VK2XCC. Second prize of a 5-way power point block was won by Dave VK2DFL. No significance should be placed on the fact that both winners were Committee members!

Guest speaker for the evening was Bill Martin VK2EBM of the WIA, his subject being 'The Intruder Watch' of which he is State Co-ordinator. His basic message was "Send in any reports on any intruders you may hear, and keep a record." Intruders are commercial, governmental, and military stations, not pirate stations or CBers who should be reported to the Radio Inspector. The Intruder Watch net is on Thursdays at 1030 Zulu on 3540 kHz.

As well as giving a very interesting talk, Bill played us a tape giving examples of signals in various modes - RTTY, CW, FAX, FSK, SSTV, AMTOR, and jamming - which should help sort out which are intruders and which are not. Elsewhere in this Propagator we publish the old and new designations of 'Radio Modes of Emission', and 'Allocation of the Frequency Spectrum', both of these supplied by Bill and for which we thank him.

SOME ODDS AND ENDS

Brian VK2AXI

Robert Goddard's Rocket Research:

"That Professor Goddard with his "chair" in Clark College and the countenancing of the Smithsonian Institution does not know the relation of action to reaction, and of the need to have something better than a vacuum against which to react - to say that would be absurd. Of course he only seems to lack the knowledge ladled out daily in high schools..."

New York Times editorial, 1921.

"I would much prefer to have Goddard interested in real scientific development than to have him primarily interested in more spectacular achievements which are of less real value."

- Charles A. Lindbergh to the Guggenheim Foundation, 1936.

The Least Successful Vet:

In the course of his duties in August 1977, a Dutch veterinary surgeon was required to treat an ailing cow. To investigate its internal gases he inserted a tube into that end of the animal not capable of facial expression and struck a match.

The jet of flame set fire first to some bales of hay and then to the whole farm causing damage estimated at \$90,000.

The vet was later fined \$280 for starting a fire in a manner surprising to the magistrates. The cow escaped with shock.

-from the Book of Heroic Failures.

Some Definitions:

- Bacteria: the rear entrance to a cafeteria.
- Minimum: a very small mother.
- Ig: an eskimo house without a loo.
- Meatball: a dance at the abattoir.
- Copper Nitrate: overtime for a policeman.
- Coincide: what people do when it rains.
- Thongs: things the Theekers thing.
- Buttress: a female goat.
- Debate: what attracts de fish.
- Wok: something you frow at a wabbit.



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170 PRINT "THE TRAP WILL THEREFORE BE CONSTRUCTED AS FOLLOWS:"
180 PRINT
190 LPRINT "WIND ";N;"TURNS OF WIRE OF ";G;"INCH DIAMETER ON THE ";D;"INCH DIAMETER FORMER. THE TURNS SHOULD BE DISTRIBUTED EVENLY OVER ";L;"INCHES."
200 LPRINT
210 LPRINT "A CAPACITOR OF ";C;"PICOFARADS SHOULD BE WIRED IN PARALLEL WITH THE COIL, PREFERABLY IN ITS CENTRE."
300 END
500 PRINT "THIS CONSTRUCTION IS NOT POSSIBLE. TRY USING EITHER A LONGER COIL, A WIDER DIAMETER FORMER, A SMALLER GAUGE OF WIRE OR A COMBINATION OF THESE."
510 PRINT
520 GOTO 85
530 END

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THIS PROGRAM WILL ALLOW YOU TO DESIGN TRAPS FOR DIPOLE ANTENNAE
OPERATING FREQUENCY OF 14.215 MEGAHERTZ

WIND 14 TURNS OF WIRE OF .0519685 INCH DIAMETER ON THE .748032 INCH DIAMETER FORMER. THE TURNS SHOULD BE DISTRIBUTED EVENLY OVER 2 INCHES.

A CAPACITOR OF 100 PICOFARADS SHOULD BE WIRED IN PARALLEL WITH THE COIL, PREFERABLY IN ITS CENTRE.

Mounbounce Report - June 1983.

The shelving units in the operating room have been cleaned down and given an undercoat of paint by Morry 2EMV and assistants. The finish coat should be applied shortly.

The latest working day at the dish finally took place on 14th May, having been delayed by weather and sickness. The dish declination limit switch safety system and declination readout selsyn were installed and wired up.

Adjustments were made to reduce stress in the feed tripod tubes and the feed platform mounting position was established. Checks showed that there is little distortion of the feed mounting system over the total range of movement of the dish.

The 1296MHz transmitter drive chain is now complete and adjusted for maximum output.

Lyle VK2ALU.

SMILE AWHILE:

Paddy was driving at a pretty furious rate through the outer suburbs of Sydney, towing a very smart-looking two-horse float.

The Highway Patrol picked him up and he was asked what the great hurry was all about.

"Tis me trainer who wants these two horses at Randwick for the first race and I'm running late!" The officer went back and had a look at the float; came back to Paddy and told him that the float was empty: no horses in the float at all.

Quick as an Irish flash Paddy replied: "He's a divil of a man, me trainer; sure and begorrah he's given me the two horses he scratched!"

"Oxtales"



*** AMATEUR RADIO EQUIPMENT ***
STOCKTAKING SPECIALS
JUNE 1983.

KENWOOD	TR8400	VHF Mobile.....	\$350.00
KENWOOD	TR250	Tuning unit/SWR/PWR Meter.....	\$220.00
KENWOOD	TR230	Extension Speaker.....	\$65.00
KENWOOD	TR130	Tuning Unit.....	\$120.00
KENWOOD	PC1	Phone Patch.....	\$50.00
KENWOOD	TR4	Headphones.....	\$25.00
KENWOOD	VF38-c	CB Filter to suit $\overline{28120/130/430}$	\$50.00
KENWOOD	MA5	Mobile dip. set for 10-15-20- 40-80 Metres.....	\$95.00
ICOM	IC4E	VHF Hand-Held TCVR.....	\$295.00
DAIWA	GN630	S/R/PWR Meter Needle 140-450 MHZ....	\$49.00
DAIWA		Automatic antenna tuner CNA1001....	\$220.00
DAIWA		Rotator DR-7500.....	\$250.00
TONO		VHF Amplifier UC-70 10 Watts in 50 Watts out.....	\$250.00
UHF		16 Element log periodic fed Yagi....	\$49.00
SCAN-X		Discone antenna 65-520 MHZ(receive).	\$40.00
J.I.L.	SX200	5X200 Scanning receiver.....	\$520.00
PALOMAR		Impedance matching TFR. from 3-50 OHM. (Ideal for mobile use)....	\$39.00

Most of the above items represent considerable savings on normal prices, and are available while stocks last.

(New designations came into force on January 1st., 1982.)

<u>OLD DESIGNATION:</u>	<u>NEW DESIGNATION:</u>	
AØ	NØN	Carrier only.
A1	A1A	CW (for aural reception)
	A1B	CW (for automatic reception)
A2	A2A	MCW (For aural reception)
	A2B	MCW (for automatic reception)
A3	A3E	Amplitude-modulated broadcasting
A3H	H3E	Single-sideband, full carrier TELEPHONY.
A3A	R3E	Single-sideband, reduced (or variable level) TELEPHONY.
A3J	J3E	Single-sideband, suppressed carrier, TELEPHONY
A3B	B8E	Independent sideband, two or more channels, TELEPHONY.
A4	A3C	Double-sideband, single channel, FACSIMILE. (FAX)
A4A	R3C	Single-sideband, reduced (or variable level) single channel, FACSIMILE (FAX)
A5C	C3F	Vestigial sideband, single channel, TELEVISION (VIDEO).
A7A	R7B	Amplitude-modulated, reduced carrier, voice-frequency TELEGRAPHY.
A9B	B9W	Multi-channel transmissions not already covered. eg. combination of telephony & telegraphy.
F6	F7B	Four frequency diplex TELEGRAPHY.
F1	F1B	RTTY- Also FSK Morse.
PØ	PØN	Pulsed carrier without any modulation intended to carry information . eg. Over-horizon radar (The 'Woodpecker').

DONATION FROM DICK SMITH ELECTRONICS

WE WISH TO ACKNOWLEDGE WITH THANKS THE CHEQUE FOR \$100 RECEIVED BY US FROM 'DICK SMITH ELECTRONICS PTY. LTD.' TO HELP IN FUNDING OUR REPEATERS.

THE CHEQUE HAS ALREADY BEEN SPENT AT DICK SMITH'S WOLLONGONG STORE ON COMPONENTS FOR THE TWO BATTERY CHARGERS FOR THE MT. MURRAY AND SUBLIME POINT REPEATERS.

DOI DOINGS - DT 600 Kit Review.

The DT 600 is an RTTY demodulator with quite impressive specs., and following indifferent results from the E.A. demodulator circuit (see DOI DOINGS, March Propagator), I ordered a DT 600 kit from A.N.A.R.T.S. at a price of \$72. Unfortunately, it took several weeks and several phone calls before I received it.

The kit consisted of an etched but undrilled double-sided p.c. board, an assortment of components, pot cores (some with windings on), circuit diagram, layout diagram and several pages of instructions. The test set-up diagram was missing. It would have helped had there been an itemised component list to indicate just what was included in the kit.

In spite of careful packing one pot core arrived broken and although I did get another one sent, it turned out to be the wrong type so I repaired the broken one with Superglue and it seems to be all right. Pot cores of different materials are used for the discriminator coils and the input filter coils, and it seems that top and bottom halves are different too.

Upon perusing the instructions I realised that I had let myself in for more than I'd thought, the tuning alone requiring use of an Audio Signal Generator, frequency counter, VTVM or DVM, while the demod. itself requires a case, plus and minus 12 volt supply, mains relay, switches, connectors and, optionally, tuning and mark/space meters. Also the circuit diagram took some working out and a block diagram would have been helpful. I found a discrepancy between the marking on the p.c.b., the layout diagram and the circuit diagram of the position of the loop keyer transistor which baffled me, and there is an error on the layout diagram of which side of the board connector the audio input is. An edge connector for the board to plug into was not provided and as I could not get one to suit I've soldered ribbon cable directly to the board.

The first job was to drill the board, which proved to be a long job because of the many holes required. My method is to attach the board to a piece of wood with drawing pins at the edges and drill (No. 80) with a portable electric drill slowed down with a speed controller. As the board is double-sided and the holes obviously could not be plated through, I found I was unable to use i.c. sockets because of the impossibility of getting a soldering iron to the tracks under the socket, so I had to solder the i.c.'s in directly. I just hope that I don't have to replace any!

The wire for the coils had to be unwound off the pot cores and rewound bifilar several hundred turns. This also proved to be a job not to be undertaken lightly, the wire being very fine. Although the instructions state that "in practice if the coils have been wound correctly no turns will have to be removed or placed on the pot cores", I found I had to remove no less than 35 bifilar turns to get the discriminator coils to resonate at the correct frequencies with the capacitors provided.

And that's about as far as I've got. I'm now working on the power supply and interconnection circuitry, and I'm still hazy about the exact function of some of the facilities provided. The DT 600 is obviously not a kit for the beginner, and it seems to me to be very over-priced for what is in it. Comments would be welcome, for publication in the Propagator, from anyone else who has built this kit.

Ken VK2DOI

TRAP BUILDING FOR BEGINNERS.

There are many things that you learn when you are studying for your licence that seem sensible but when one tries to put them into effect, the theory is either very different to the practice or the information available is either not true or not applicable. One of these areas is building traps. Most operators whether novice or full call understand the basic principles involved in traps but if you try to build some then either the "recipe" doesn't work or there is no "recipe" to be found. Don't despair, here is the VK2DMR road to happiness in trap design and if you have a home computer there is even a little program to save the tedium of calculation.

Traps are only parallel tuned circuits tuned to the required resonant frequency. A bit of a wander through the pages of the ARRL handbook will show that to build effective traps with the right Q then the reactances must be about 100 to 300 ohms. That is the inductive reactance must equal the capacitive reactance and be between this range.

now even if you never learned that:

$$X_c = \frac{1}{2\pi f C}$$

~~$$X_c = \frac{1}{2\pi f C}$$~~

it is in the ARRL handbook.

Using this formula you can determine the capacitance value required to give an inductive reactance of about 200 ohms.

Then you need to determine the value of inductance which has an inductive reactance of the same value. Again from the ARRL

handbook (great little volume isn't it?) you will find a formula for the calculation of the inductance of single layer coils (just what the doctor ordered).

My advice is to put a few more turns on the former than is required so you can trim to the final value.

By the way use capacitors with as high a voltage as is possible (10 KV is not too high!!!!).

Now you are ready to build the trap. You must have a GDO (if you don't, see my article in the propagator about building a GDO or see the ARRL handbook). The most reliable way to get an accurate readout of the GDO frequency is to lightly couple a digital frequency meter to it; NEVER rely on the scale on the GDO whether it is homebrew or commercial!!!!!!!

Look for the dip frequency and if it is too low in frequency remove a turn off the coil. If the dip frequency is too high you didn't put enough turns on the former (maybe your maths was wrong).

Using the trap is a matter of common sense, and to give an idea of the procedure here is how I built my trapped inverted V for 40 and 80 metres.

I originally had a short inverted V (which didn't work too well so I decided to make it into a 40 metre V and then to add traps for 40 and extend the V to cover 80 metres. I built 2 traps which were resonant on 7.100 MHz using formers made from a toy (actually they were Star Wars laser wands (thanks Dave)). I calculated the length of wire in each coil and subtracted this from the calculated length for a dipole (again from the ARRL handbook). I pulled the antenna into the air with just random lengths of wire after the traps and BINGO an SWR of about 1.2:1 on 7.1

MHz and usable across all of 40 metres- score one to Denis.

I then proceeded to calculate the length required for 80 metres (not forgetting to subtract the length of wire in the trap coil. After a little pruning again a very low SWR at 3.600 MHz and a pretty good spread across the band.

So that is how I did it and all with the ARRL handbook (and my trusty calculator). To make it even easier I have written a little program in BASIC so that you can do the calcs. if you have a computer. A printout of the program is given as well as a sample of the results.

Best of luck with the traps and good DX.

de VK2DMR.

For Sale: FRG-7000 \$350 Contact DAVE - VK2VAV 843884

THIS PROGRAM WILL ALLOW YOU TO DESIGN TRAPS FOR DIPOLE ANTENNAE
OPERATING FREQUENCY OF 7.1 MEGAHERTZ

WIND 19 TURNS OF WIRE OF .0519685 INCH DIAMETER ON THE .96063 INCH DIAMETER FORMER. THE TURNS SHOULD BE DISTRIBUTED EVENLY OVER 2.99213 INCHES.

A CAPACITOR OF 200 PICOFARADS SHOULD BE WIRED IN PARALLEL WITH THE COIL, PREFERABLY IN ITS CENTRE.

10 REM TRAP DESIGN PROGRAM

11 LPRINT"THIS PROGRAM WILL ALLOW YOU TO DESIGN TRAPS FOR DIPOLE ANTENNAE"

12 PRINT

20 INPUT "DESIGN OPERATING FREQUENCY IN MHZ?"; F

25 PRINT "YOU MAY USE A CAPACITOR IN THE FOLLOWING RANGE"

30 LET S=INT(10000/2/3.1414/F)

40 LET T=INT(10000/2/3.1414/F/3)

50 PRINT T "PICOFARADS MINIMUM TO ";S;"PICOFARADS MAXIMUM."

55 PRINT

60 INPUT "WHAT CAPACITANCE DO YOU CHOOSE?"; C

70 PRINT "NOW WE NEED TO CALCULATE THE RESONATING COIL DIMENSIONS."

75 INPUT"WOULD YOU PREFER TO WORK IN IMPERIAL OR METRIC SIZES.(I OR M)?"; A\$

80 PRINT

85 INPUT "WHAT DIAMETER OF FORMER DO YOU WISH TO USE?";D

90 IF A\$="M" THEN D=D/25.4

100 INPUT "WHAT DO WISH TO BE THE EFFECTIVE LENGTH OF THE COIL?";L

105 IF A\$="M" THEN L=L/25.4

110 PRINT

120 INPUT "WHAT IS THE DIAMETER OF WIRE YOU WISH TO USE FOR THE COIL?";G

125 IF A\$="M" THEN G=G/25.4

130 LET XC=1000000/(2*3.1414*F*C)

136 LET XL=XC

140 LET L1=XL/(2*3.1414*F)

150 LET N=INT(SQR((L1*((4.50)+(10*L)))/(D*0/4)))

160 IF L<1.1*G*N ;GOSUB 500

165 CLS

168 LPRINT TAB(15);"OPERATING FREQUENCY OF ";F;"MEGAHERTZ"

169 LPRINT TAB(15);"

REPEATER REPORT

MT. MURRAY

THE NEW BATTERY CHARGER WAS INSTALLED ON 7TH OF MAY. ALSO ANOTHER 45 AMP-HOUR BATTERY WAS PARALLELED WITH THE EXISTING ONE, GIVING AROUND 150 AMP-HOURS OF STORAGE. THE MAXIMUM CHARGE RATE IS 1 AMP, AND THIS REDUCES AS THE BATTERY VOLTAGE RISES TO 14 VOLTS. THE CHARGER IS DESIGNED FOR A MAXIMUM CHARGE RATE OF 5 AMPS, BUT THIS CANNOT BE ACHIEVED BECAUSE OF THE LOSS IN THE LANDLINE. HOWEVER, THE ONE AMP RATE IS ADEQUATE IF THE REPEATER HAS AN AVERAGE RECEIVE TO TRANSMIT DUTY CYCLE OF 6 TO 1 OR BETTER. THE WEEKEND DUTY CYCLE IS USUALLY AROUND 4 TO 1 BUT THE WEEKLY AVERAGE IS 10 TO 1.

THE BATTERY HAS SUFFICIENT CAPACITY TO RUN THE REPEATER CONTINUALLY FOR 24 HOURS AT 100% DUTY CYCLE --- A SITUATION THAT SHOULD NEVER OCCUR. AT NORMAL DUTY CYCLE, THE REPEATER WILL RUN FOR OVER A WEEK ON BATTERY POWER IF THE MAINS FAILS --- ALSO A SITUATION WHICH WE HOPE WILL NEVER HAPPEN.

THE REPEATER WILL SEND A HIGH PITCHED IDENT IN THE EVENT OF LOSS OF CHARGING CURRENT, AND THIS IS A SIGNAL FOR US TO 'GO EASY' ON USING THE REPEATER UNTIL POWER IS ON AGAIN.

THE REPLACEMENT LOADING COIL FOR THE 6DB GAIN AERIAL WHICH WE PURCHASED LAST YEAR HAS ARRIVED FROM JAPAN, AND THE AERIAL HAS BEEN RE-ASSEMBLED. WE ARE CONSIDERING USING THIS AERIAL TO REPLACE THE RECEIVING DIPOLE, AND TO FIT NYLON GUYS TO THE TOP ELEMENT TO PREVENT THE WIND FROM CAUSING ANOTHER DISASTER.

THE NEW TRANSMITTING-AERIAL (AN ARRAY OF 4 DIPOLES) IS STILL BEING MADE UP BY STAN VK2KSS. WE HAVE PURCHASED 10 SPECIAL WEATHERPROOF PL259 CONNECTORS FOR THE PHASING HARNESS.

SUBLIME POINT

NEGOTIATIONS ARE BEING CARRIED OUT TO CLARIFY THE ARRANGEMENTS FOR PAYMENT OF POWER AT THE SITE.

WORK IS STILL BEING DONE ON THE UHF REPEATER CHANNEL 8725. A NEW RF AMPLIFIER MODULE HAS BEEN BUILT AND THE MIXER AND IF MODULES HAVE BEEN MODIFIED TO THE EXTENT THAT THE RECEIVER SENSITIVITY IS AROUND 0.5 MICROVOLTS FOR 12DB SINAD, WHICH IS THE INDUSTRY STANDARD.

BOTH TRANSMITTER AND RECEIVER ARE SATISFACTORY AND THE IDENT BOARD IS BUILT UP AND WORKING. A CONTROL BOARD WITH THE T/R SWITCHING AND TIMERS IS STILL TO COME BEFORE THIS REPEATER IS READY TO BE PUT TO AIR.

DESIGN WORK HAS STARTED ON THE RTTY MODULATOR AND DEMODULATOR BOARD FOR CHANNEL 7275. ALSO WE HAVE PURCHASED 3 CMOS UARTS, TYPE AY-3-1015D WHICH WILL BE USED IN RTTY TELEMETRY SYSTEMS, ONE OF WHICH WILL BE FITTED TO EACH OF OUR REPEATERS, AND WILL ENABLE ANY ONE WHO HAS RTTY FACILITIES AND WHO KNOWS THE APPROPRIATE CONTROL CODES TO REMOTELY SHUT DOWN THE REPEATER'S TRANSMITTER (IN THE EVENT OF MIS-USE BY UNDESIRABLES, ETC) OR TO SWITCH THE REPEATER RECEIVER TO RECEIVE THE WIA BROADCAST ON THE LINK FREQUENCY.

GRAEME VK2CAG

RED LINE MONTH

If this copy of your propogator has a red line under the postcode of your address, then it indicates that at the time this months labels were printed, we had not yet received your subs for this year.

We have attempted, with great difficulty, to retain membership at \$7.00 for this year. Unfortunately printing and posting of the propogator is one of our major expenses and unless we receive your subscription before the next issue is produced, we will unfortunately have to remove your name from the mailing list.

So keep those \$7.00 rolling in - we need your support to keep your club operating successfully.

Geoff VK2ZHU

WANTED

THE REPEATER COMMITTEE IS LOOKING FOR DONATIONS OF AWA DUPLEX RECEIVER FILTERS. THESE FILTERS ARE FOUND IN THE BACK OF THE AWA DUPLEX RECEIVERS SOLD BY CAVIONS, AND ARE A HEAVY BRASS OR COPPER BLOCK FITTED WITH 2 BNC SOCKETS.

THESE FILTERS WILL NOT TUNE DOWN FAR ENOUGH TO WORK ON 2 METRES, AND EVEN IF THEY DID THE BANDWIDTH IS TOO NARROW TO PASS MORE THAN ABOUT 300KHZ. THEY ALSO HAVE AN INSERTION LOSS OF 2.5DB, SO THERE IS NO POINT IN RETAINING THE FILTER IN CIRCUIT IF THE CARPHONE IS TO BE USED ON 2 METRES.

THEIR NARROW BAND CHARACTERISTICS MAKE THEM PARTICULARLY USEFUL AS REPEATER AERIAL FILTERS.

WE WOULD LIKE AS MANY AS WE CAN GET, AS THEY ALSO HAVE POSSIBILITIES FOR MODIFICATION TO WORK AS DUPLEXERS ON 70CM.

ALL DONATIONS WILL BE GRATEFULLY ACCEPTED AT THE MEETING OR ANY TIME BY MYSELF OR ANY OF THE REPEATER COMMITTEE.

GRAEME VK2CAG

GEEVES, SYDNEY MORNING HERALD, MONDAY SEPTEMBER 20, 1982.

Topical anniversary. This week in 1918 Australia received its first direct wireless messages from Britain.

They were the culmination of months of experiments which Ernest Fisk had arranged with his former chief, Guglielmo Marconi. Both men hoped to prove that Britain and Australia could communicate by wireless without using intermediate relay stations.

By modern logic, the experiment should have failed. The short-wave principle hadn't yet been discovered and the transmitting station was in Wales, with its aeriels pointing across the Atlantic to North America.

Despite those impediments, telegrams from two Australian Cabinet Ministers were transmitted from Britain by wireless telegraphy and successfully received at Ernest Fisk's Wahroonga home. A street monument commemorating that 1918 achievement can still be seen outside Fisk's old residence.

THE ILLAWARRA AMATEUR RADIO SOCIETY - P. O. Box 1838 Wollongong 2500

Meetings: Second monday of every month except January at 7.30 P.M. in the Congregational Church Hall, Cocambe Street, Wollongong. Committee meet 3rd tuesday of each month.

Repeaters: VK2RAW - 6850 VHF Mount Murray. VK2RIL - 7275 VHF Sublime Point.

VK2RUM - 8225 UHF Hill 60 Port Kembla. VK2~~RUM~~^{RIL} - 8725 UHF Sublime Point.

Broadcasts: Club news - RTTY on 6850 VHF repeater at 7.00 P.M.; Voice on 6850 VHF, 8225 UHF and by relay on 3562 KHz and 28460 KHz at 7.15 P.M. on Sunday night prior to Club meeting. Call backs after the W.I.A. relay at 7.30 P.M.

W.I.A. relays - on 6850 VHF at 11.00 A.M. and 7.30 P.M. weekly on Sunday.

Club Nets: 3562 KHz SSB on Sundays at 8.00 P.M. and slow morse net on 3562 KHz on Tuesdays at 8.00 P.M.

Newsletter: "The Propogator", published monthly to reach financial members in week prior to meeting. All articles, ads etc to the editor, Leo Kleeborn, VK2YJK at 33 Lombard Avenue, Fairy Meadow 2519. Telephone 84 97 51. Copy deadline 3rd tuesday each month.

Membership: The Secretary, I.A.R.S. P. O. Box 1838, Wollongong 2500. Full membership is \$ 7.00 per annum; students and pensioner concessional members \$ 4.00 per annum.

QSL's : For financial members who are also financial members of the W.I.A. ONLY.

Inwards: Mike Keech VK2VXS, QTHR ; Outwards: Ian Callcott VK2EXN QTHR.

Awards: The award of the I.A.R.S. is "The Lawrence Hargrave" award. Vh stations require 10 contacts with I.A.R.S. members; overseas stations require 5 contacts with I.A.R.S. members or contact with the Club station VK2AMW is sufficient in itself for the award.

Send details - time, day, date, frequency, station worked + \$ 2.00 or 4 I.R.C.'s to Awards Manager, I.A.R.S., P. O. Box 1838, Wollongong 2500. No QSL cards required.

Store: The Club store operates at each Club meeting.

Committee: President - DAVE MYERS VK2DFL, 78 HIGHLANDS P.DE, BULLI

Vice President - KEITH CURLE VK2OB, 24 BEACH DVE, WOONOMAH

Secretary - MURRAY M'CONNELL VK2KER, 62 RAMAH AVE, MT. OUSLEY

Treasurers - GEOFF CUTHBERT VK2ZHU, 2 NIOKA AVE, KEIRNVILLE.

RICHARD FOX VK2ERF, P.O. BOX 1120, WOLLONGONG.

REPEATER CHAIRMAN - GRAEME DOWSE VK2CAG,

REPEATER COMMITTEE - MIKE KEECH VK2DFK, MORRY VAN-DE-VORSTENBOSCH VK2EMV,
IAN CALLCOTT VK2EXN, DAVE COLLESS VK2EZY

Broadcast officers - DENIS MCKAY VK2DMR, PAUL GARDINER VK2ZQT

QSL's - Mike Keech VK2VXS & Ian Callcott VK2EXN.

Propogator Editor & staff: Leo Kleeborn, Editor VK2YJK, Ken Frost VK2DOI, cartoonist Brian Wade VK2AXI.

STORE PERSONS - KITTY AND KEL SMITH VK2PSI, VK2PSK

GENERAL COMMITTEE - MIKE KEECH VK2DFK, IAN CALLCOTT VK2EXN, RMY BALL VK2XCC,
MORRY VAN-DE-VORSTENBOSCH VK2EMV, JIM MEAD VK2EJM, JOCK TAYLOR VK2JT,
ROY PARTON VK2KO

LIFE MEMBERS - GRAEME DOWSE VK2CAG KEITH CURLE VK2OB.