

BICENTENNIAL.

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# THE PROPAGATOR

## ILLAWARRA AMATEUR RADIO SOC. INC.

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOC. INC.  
 VOLUME - 88, NUMBER : 3 APRIL 1988.  
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MEETINGS ARE HELD ON THE SECOND TUESDAY OF EACH MONTH,  
 (EXCEPT JANUARY) AT 7.30.PM. AT THE STATE EMERGENCY SERVICES,  
 BUILDING, IN MONTAGUE STREET, NORTH WOLLONGONG.  
 VISITORS ARE MOST WELCOME TO ATTEND THE MEETING'S.

### PACKET DEMONSTRATION

John VK2 XGJ gave a very interesting talk and demonstration on Packet Radio at last months meeting.

John showed how cheap it would be to get into Packet if you owned a commadore computer.

John said that the small conversion board required would cost around \$60 plus the software disc or tape would cost another \$50.

So commadore owner could get up and running for a nominal cost of around \$110.00. At todays prices for amateur equipment this cost brings Packet into line for quite a few amateurs.

The news for other

computer owners is not quite so good, a TNC kit can be purchased for around \$250.00 and or though this is over double the price still keeps Packet within striking range for quite a few amateurs who are interested in this mode of communication.

It is definitely a far cry from the prices of around \$2000 to \$3000 dollars that was being banded around a couple of years or so ago.

Thank you John VK2 XGJ for not only giving a good easy to understand talk and demonstration to the meeting but also for the added bonus in the words that most amateurs love to hear, those words are cheap cost of equipment.

### ROB AND PETER VOLUNTERRED ?

The Illawarra amateur radio inc. committee meeting was held on 15th March 1988.

Items that were discussed on the agenda were:-

1. proposal to increase the club membership fee.

2. organising a guest speaker.

3. asking the radio inspector or his representative to give talks at our monthly meetings whenever time permits.

4. sending IARS delegates to represent our club at the conference of clubs to be held soon.

5. club T shirts.

Item 1. on the agenda was rejected by a majority against this proposal as it is hoped that those members who are not in our club raising fund will rally round and endeavour to join this scheme and so keep the club solvent (in the black).

CONTINUED PAGE 2



★ "GIVING her a credit card was like giving a cat its own fish market!"

# ROB AND PETER

CONTINUED FROM PAGE 1

Item 2.- on the agenda was left hanging whilst enquiries were being made, but in the meantime Keith VK2OB said he would give a talk and demonstration at the April monthly meeting on the subject of resonants.

Item 3.- on the agenda. This was left hanging whilst one of the committee members contacted the radio inspectors office to see if any arrangement could be made.

Item 4.- on the agenda Rob VK2MT and Peter VK2BIT volunteered to represent our club at the conference of clubs that are being held at Cambletown. One of the items they will be bringing up at this conference is the proposal to make the venue for the next conference of clubs to be held in Wollongong. Good luck Rob and Peter, let us hope you can pull



\* "I DON'T know about you, sarge, but I'm finding it hard coping with the whole concept of computer crime!"

this one off for the club.

Item 5.- on the agenda getting of club T shirts for interested members. It was proposed

that if interested parties supplied their sizes and cash the club would then put an order in for these members.

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SAT-SUN: 9.30 AM. - 9.00 PM.

# CLUB SHACK SHAPING UP

There was a good attendance at the March monthly meeting of the Illawarra Amateur Radio Club.

The meeting started with the usual club business which included such items as:- club T shirts, club windjackets, the FRL 4 club lotto fund raising scheme and the clubs new radio shack room.

The president stated that anyone interested in buying a club T shirt (price \$9.50) or a club windjacket (price \$21.00) should bring their sizes and MONEY to the next meeting so that an order for the above can be placed as soon as possible with the company concerned.

The subject of the FRL 4 lotto scheme was discussed and it was brought to members present that this scheme

is the clubs way of keeping financial and helping to keep the club viable and on a sound financial footing. It is in the interest of ALL CLUB MEMBERS to try and support this scheme as its proceeds help to stop such things as increases in yearly subscriptions etc. So dont leave it to a set few, get in and do your share of keeping your club in the financial state that it needs to survive.

The clubs new radio shack is now operational, thanks to various club members who have donated equipment. These are:- Keith VK2OB a siemens 100 printer also a ST 6 modulator demodulator for R.T.T.Y. Ian VK2EXN donated a home brew antenna tuner and a ST6 modulator and demodulator for R.T.T.Y.

Rob VK2MT supplied carpet and various members held a working bee on saturday 27th February to clean up and knock into shape the beginning of our own

club station. Well done fellas, all of you.

Also at the meeting was a face we have not seen around for the last few months in the shape of Dave VK2 VAV. Treasurer Dave (or old money bags as he is affectionately known) has arrived back in Oz from his tour overseas. Dave visited China, India, Russia, Finland, Denmark, Sweden etc. before coming back home.

Sounds like you had a very interesting holiday Dave and glad to see you back home and at our club meetings again.

John VK2XGJ gave an interesting demonstration and talk on the subject of Packet Radio and the meeting closed with the usual tea and biscuits and chinwag in the canteen.

## F.R.L.4...Winners:-

Week No:	1. T.MOWBRAY
Week No:	2. J.TAYLOR
Week No:	3. G.PARSONS
Week No:	4. R.BALL
Week No:	5. V.HEE
Week No:	6. R.BALL

## DEDICATED TO THE MOLLYMOOK MASHER

There once was a very keen ham operator and golfer who one day landed his golf ball in the sand trap of Mollymook Golf Club.

His ball landed on top of an ANTS NEST, and whilst attempting to get out of his predicament he killed 5000 ANTS in the nest, that was all of them excepting two.

One of the survivors took one look at the massacre of his fellow ants and shouted out to the other survivor, "quick Fred, hurry up and get on that flaming ball, its our only chance of survival.



## IBBS. HISTORY

I FIRST BECAME INTERESTED IN TELECOMMUNICATIONS WHEN AN ARTICLE IN ONE OF THE ELECTRONIC MAGAZINES ON HOW TO CONSTRUCT A MODEM WAS PUBLISHED, SOMEWHERE AROUND MID 1981. AS THERE WAS LITTLE OR NO FURTHER INFORMATION I HAD TO RELY ON BOOKS AND MAGAZINES FOR GUIDANCE.

I TOOK THE PLUNGE IN FEBRUARY 1983 AND BOUGHT A D.S.E. 300 BD MODEM AND FOUND OUT LATER THAT A COMPUTER PLUS A MODEM PLUS A TERMINAL PROGRAMME EQUALS A VERY LARGE PHONE ACCOUNT.

I WAS IN CHAT MODE TO ONE OF THE SYDNEY SYSOP'S AND ASKED IF IT WAS DIFFICULT OR EXPENSIVE TO OPERATE A BBS. HIS ANSWER STARTED THE IDEA OF RUNNING MY OWN BBS.

AFTER GETTING A LOT OF USELESS AND CONFLICTING INFORMATION ON MODEM TYPE AND SOFTWARE TO USE I SPLURGED AND BOUGHT AN AVTEK - MULTI-MODEM AND THE SOFTWARE FROM CHRIS HATLELID AS WAS RUNNING ON THE COMM-BOARD BBS IN SYDNEY AT THE TIME, ALSO AN EXTRA 1541 AS I DIDN'T EXPECT THE IDEA TO TAKE-OFF DUE TO THE LITTLE INTEREST OR KNOWLEDGE I FOUND IN THE LOCAL COMPUTERISTS.

THE SYSTEM WENT UP ON A TRIAL BASIS OVERNIGHT FROM 8:00PM TILL 6:30AM FROM AROUND FEBRUARY 1984 AND WAS ONLINE 24HOURS FROM MAY/JUNE OF THAT YEAR.

I SOON FOUND THAT THE TWO 1541'S WERE TOO SMALL AS THE USERS STARTED TO COME OUT OF THE WOODWORK SO A LARGER DRIVE IN AN SFD 1001

PLUS A COMMODORE IEEE INTERFACE AND A PET TO IEEE CABLE INSTALLED. (COST?? AROUND \$600) THE SPEED AND AMOUNT OF STORAGE WAS A JOY TO BEHOLD! 1MEGABYTE! WHO WOULD NEED MORE?

THEN CAME THE TIME WHEN EVEN THE SFD1001 WAS FULL AND STILL THERE WERE USERS WANTING TO UPLOAD/DOWNLOAD, SO ANOTHER SFD1001 PLUS A BUSCARD(SO THAT I CAN HAVE SERIAL AND PARELELL DRIVES ON AT THE SAME TIME) WAS PURCHASED.

COST AROUND \$800 ALL UP. NOW I STARTED TO REALISE THAT I HAD A FAIR AMOUNT OF MONEY TIED UP IN THIS THING AND SEVERAL USERS HAD SUGGESTED THAT I CHARGE A FEE SO AFTER A FOUL-UP OR TWO BY SO-CALED TECHNICIANS, THE SYSTEM WENT TO SOFTWARE CONTROLLED MODEM AND JANUARY 1985 I STARTED TO SET A FEE OF \$15 / USER / YEAR.

IT WAS SLOW GOING AS THIS SYSTEM WAS ALWAYS OPEN SLATHER AND ONE OR TWO USERS WERE

SIMPLY MILKING THE SYSTEM AND CONTRIBUTING NOTHING.

THEY DIDN'T LIKE IT WHEN THEY LOST THEIR FREE ACCESS TO ALL THE SOFTWARE ETC.. I FEEL THE PEAK OF THE IBBS WAS WHEN WE WERE FEATURED IN THE AUSTRALIAN COMMODORE REVIEW WITH A TWO PAGE

SPREAD OF THE OFF-WORLDS BOARD AND FEATURED SUCH NOTABLES AS ICEMAN, SCHNUFF AND CAPTAIN CURSOR.

SINCE THAT TIME THERE HAS BEEN A STEADY DECLINE IN THE AMOUNT OF USE THE IBBS HAS BEEN GETTING TILL IT STRUCK AN ALL TIME LOW OF THREE LOG-ONS IN A 24 HR SESSION (AND ONE OF THEM WAS ME!).

SO WHERE DO WE GO FROM HERE? I WILL BE STARTING UP AN AMATEUR RADIO PBBS IN THE NEAR FUTURE (PRE XMAS 1987) AND I WONDER IF IT IS POSSIBLE TO INTERCONNECT THEM?? TIME WILL TELL.

SO YOU ARE UP TO DATE ON THE HISTORY OF THE IBBS.

WHICHEVER WAY YOU LOOK AT IT  
YOU CANT GO PAST

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# TELEVISION CHANGES ANNOUNCED FOR WOLLONGONG & SOUTH COAST

This was taken from Department of Transport and Communications 22/1/1988.

\*\*\*

Most people in Wollongong region of New South Wales will be able to receive all of their television services on UHF channels before the end of 1988.

Affected residents will have adequate time in which to prepare for changes, as existing services will be simulcast on the present VHF and the new UHF channels during a changeover period lasting several months. However simulcasting by the local services is scheduled to cease in January 1989.

Wollongong's local commercial station, WIN, and city's main ABC-TV transmitter, ABWN, currently operate on VHF channels 4 and 5A respectively.

The SBS television service has the advantage that it already operates on a UHF channel in Wollongong, and the ABC and WIN are due to change over to UHF by January 1989.

The new commercial services are also due to be introduced in Wollongong on UHF channels in 1989, as part of the Government's regional television equalisation program.

The operation of all these services on UHF channels will require some rearrangement of the existing UHF services. The SBS main station on Knights Hill is to move from channel 59 to channel 53, while the SBS translator at Brokers Nose will move from channel 44 to channel 32. Similarly, the ABC's UHF translator on Brokers Nose will change from channel 50 to channel 35.

Viewers with clear line of sight to Knights Hill will require an outdoor UHF antenna, designed too receive signals on Band 5 television channels. These antennas should point towards Knights Hill, with their elements mounted horizontally.

A single Band 5 UHF antenna will be capable of receiving all five UHF services that are due to be broadcast from Knights Hill.

UHF channels have also been set aside for new translators to serve residents of Stanwell Park and North Wollongong.

Viewers wishing to utilise signals from Stanwell Park or Brokers Nose translators, should purchase UHF antennas designed to receive signals on both Band 4 and Band 5. These antennas should also have their elements mounted horizontally. A Band 4/5 antenna for North Wollongong should point towards the Brokers Nose translators site, while Band 4/5 antennas for Stanwell Park should point towards the Bald Hill translator site.

Those people with television sets which can only tune to VHF channels, can adapt them to receive UHF signals. Video cassette recorders or a separate piece of equipment known as a 'downconverter' can be used for this purpose.

Viewers wishing to enquire about UHF antennas or the tuning of television sets to receive the UHF services can ring the UHF Hotline on (008) 077 361 for the cost of a local telephone call.

## UHF CHANNEL ALLOCATIONS FOR NSW SOUTH COAST

### Knights Hill (Horizontal Polarisation)

Existing	Proposed
4	53
5A	56
59	59
	62
	65

### Brokers Nose (Horizontal Polarisation)

Existing	Proposed
3	32
44	35
50	41
	44
	47

### Batemans Bay (Horizontal Polarisation)

Existing	Proposed
9	52
11	55
	58
	61
	64

### Bega (Horizontal Polarisation)

Existing	Proposed
6	6
	28
	31
	34
	48

### Eden (Horizontal Polarisation)

Existing	Proposed
1	54
3	57
	68
	63
	66

### Narooma (Horizontal Polarisation)

Existing	Proposed
8	29
3	32
	35
	41
	44

### Stanwell Park (Horizontal Polarisation)

Existing	Proposed
39	38
	33
	39
	42
	45

### Mittagong (Horizontal Polarisation)

Proposed
38
33
39
42
45

### Ulladulla (Vertical Polarisation)

Proposed
38
33
39
42
45

### West Nowra (Vertical Polarisation)

Proposed
29
32
35
41
44

These are the CURRENT ALLOCATIONS for the N.S.W. South Coast. there could be changes made later...



aem project 4506

# Computer frequency counter interface unit

Roger Graham VK2AIV

CONTINUED FROM LAST MONTH....  
CONTINUED PAGE 10

## WOLLONGONG ALUMINIUM CENTRE

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```

10 HOME
20 PRINT " *****"
40 PRINT " * AUDIO FREQUENCY METER *"
60 PRINT " *****"
80 PRINT
100 PRINT " REQUIRES SMALL INTERFACE BOARD"
105 PRINT " PLUGGED INTO GAMES CONNECTOR SOCKET."
110 PRINT
120 PRINT " PROGRAM ACCEPTS AUDIO INPUT E.G. FROM"
122 PRINT "VOICE COIL OF LOUDSPEAKER, AND DISPLAYS"
124 PRINT "FREQUENCY ON SCREEN. UPDATES RESULT"
126 PRINT "AT 1 SECOND INTERVALS."
128 PRINT
130 PRINT "UPPER FREQUENCY LIMIT APPROX 14-KHZ"
135 PRINT
145 PRINT
150 PRINT "FOR DETAILS OF PC BOARD SEE AUSTRALIAN"
152 PRINT "ELECTRONICS MONTHLY DECEMBER 1986."
155 PRINT
157 GOSUB 300
170 PRINT : HTAB 10
180 INVERSE : PRINT "ANY KEY TO CONTINUE";: NORMAL
190 GET Z$
200 D$ = CHR$(13) + CHR$(4): REM RETURN+CTRL-D
210 PRINT D$:"BRUN FREQUENCY METER MACHINE CODE"
300 PRINT "TO SAVE MACHINE CODE TYPE BSAVE"
310 PRINT "FREQUENCY METER MACHINE CODE,A#6000,"
320 PRINT "L#4C3"
330 RETURN

```

# \* APPLE II+ FREQUENCY METER

6000- A9 70 85 E8 A9 61 85 E9  
 6008- AD B1 C0 20 D8 F3 A2 03  
 6010- 20 F0 F6 A9 01 85 E7 A9  
 6018- 32 85 FF A2 18 A0 00 20  
 6020- 11 F4 A2 00 20 47 60 A2  
 6028- 64 85 FF A2 A0 A0 00 20  
 6030- 11 F4 A2 10 20 47 60 20  
 6038- 3D 60 4C 84 60 A5 FF A2  
 6040- 48 A0 00 20 11 F4 60 8A  
 6048- 48 BD 53 61 C9 00 F0 09  
 6050- 20 5B 60 68 AA E8 4C 47  
 6058- 60 68 60 86 1E 3B E9 2F  
 6060- AA 20 30 F7 A9 00 A6 1A  
 6068- A4 1B 20 01 F6 18 A9 10  
 6070- 65 E0 85 E0 90 02 E6 E1  
 6078- A5 FF A6 E0 A4 E1 20 11  
 6080- F4 A6 1E 60 A9 20 85 1C  
 6088- A9 90 85 1D A9 00 85 08  
 6090- 85 09 EA EA EA EA EA EA  
 6098- EA EA EA AD 61 C0 29 80  
 60A0- F0 1D E6 1C F0 03 4C 92  
 60A8- 60 E6 1D D0 E8 4C F2 60  
 60B0- 48 68 EA EA EA EA EA EA  
 60B8- AD 61 C0 29 80 D0 0B E6  
 60C0- 1C D0 ED E6 1D D0 E8 4C  
 60C8- F2 60 E6 08 D0 12 E6 09  
 60D0- E6 1C D0 07 E6 1D D0 C3  
 60D8- 4C F2 60 EA EA 4C 9B 60  
 60E0- EA EA E6 1C D0 07 E6 1D  
 60E8- D0 B1 4C F2 60 EA EA 4C  
 60F0- 9B 60 A2 00 20 F0 F6 20  
 60F8- 3D 60 A2 13 20 47 60 A2  
 6100- 03 20 F0 F6 20 3D 60 48  
 6108- 8A 48 A2 04 A9 00 85 06  
 6110- A9 30 85 07 38 A5 08 FD  
 6118- 49 61 48 A5 09 FD 4E 61  
 6120- 90 0A 85 09 68 85 08 E6  
 6128- 07 4C 14 61 68 A5 07 E0  
 6130- 00 F0 0A C9 30 F0 02 85  
 6138- 06 24 06 F0 03 20 5B 60  
 6140- CA 10 CD 68 AA 68 4C 84

6148- 60 01 0A 64 E8 10 00 00  
 6150- 00 03 27 3A 3B 3C 3D 3E  
 6158- 3C 3F 40 41 46 42 3C 43  
 6160- 3C 3B 00 44 45 00 47 47  
 6168- 47 47 47 00 00 00 00 00  
 6170- 18 00 32 00 5D 00 75 00  
 6178- 97 00 86 00 06 00 FA 00  
 6180- 1E 01 36 01 5B 01 81 01  
 6188- 9E 01 C7 01 EC 01 13 02  
 6190- 33 02 58 02 75 02 8C 02  
 6198- 82 02 C9 02 EC 02 0A 03  
 61A0- 0C 03 12 35 37 35 37 35  
 61A8- 37 20 35 3F 37 35 77 31  
 61B0- 25 35 25 35 25 0C 25 27  
 61B8- 25 67 FF 3B 2C 4D 25 3F  
 61C0- 27 2D 25 27 E5 3B 3F 3F  
 61C8- 2C 2D 2D 05 00 49 29 3E  
 61D0- 15 3F 37 2D 35 37 35 37  
 61D8- 35 37 35 37 75 39 3F 3F  
 61E0- 2E 2D 2D 05 00 12 2E 64  
 61E8- 2C 2E 2C 2E 2C AE 35 37  
 61F0- 35 F7 3E 3C 3E 8C 32 27  
 61F8- 97 37 35 37 2D 2D 2D 2D  
 6200- 25 3F 3F 3F 3F 00 00 2E  
 6208- 2C 2E 2C 2E 2C 2E 2C 35  
 6210- 37 35 F7 37 35 3F 37 2D  
 6218- 75 35 37 35 F7 3E 3C 3E  
 6220- 3C 3E E4 27 25 00 89 92  
 6228- 35 FF 2A 3E 36 25 35 25  
 6230- 35 25 35 36 36 25 24 2C  
 6238- 25 3F 3C 2C 3C 2C 3C 3F  
 6240- 2C 2D 3C 2C 05 00 2D 2D  
 6248- 2D 2D 35 3F 3F 3F 37 37  
 6250- 35 37 2E 2C 2E 2C 2E 2C  
 6258- 2E AC 2A 3E 2E 3E 2E 3E  
 6260- 1E 3E 3C 3E 3C 3E E4 27  
 6268- 2D 00 49 29 2D 2D 3E 3F  
 6270- 3F 1E 37 F5 3B 2E 3E 2E  
 6278- 3E 2E 3E 2E 0E 2E 2C 2E  
 6280- 2C 2E 2C 25 27 25 E7 3F  
 6288- 3F 27 2D 2D 2D 00 2E 2C  
 6290- 2E 2C 2E 2C 2E 2C 35 37  
 6298- 35 F7 37 F5 3B 2E DE 37  
 62A0- 35 37 35 37 2D 00 12 35  
 62A8- 37 35 B7 2A 3E 2E 3E 4E  
 62B0- 2E 2C 2E 2C 2E 64 25 27  
 62B8- 25 E7 3F 3F 27 2D 2D 65  
 62C0- 25 27 25 E7 3F 3F 27 2D  
 62C8- 2D 2D 00 12 35 37 35 87  
 62D0- 92 12 2E 2C 2E 2C 2E 64  
 62D8- 25 67 29 3C 0C 3F 3F 3F  
 62E0- 27 2D 2D 2D 25 27 25 27  
 62E8- E5 3B 3F 3F 2C 2D 2D 05  
 62F0- 00 2D 2D 2D 2D 35 3F 3F  
 62F8- 3F 3F 37 35 37 35 37 2D  
 6300- 2D 2D 35 3F 3F 3F 37 35  
 6308- 37 35 37 35 27 00 2E 2C  
 6310- 2E 2C 2E 2C 2E AC 2A 3E  
 6318- 2E 3E 17 3E 3C 3F 37 2D  
 6320- 35 37 75 35 77 29 3E DF  
 6328- DB 23 24 24 24 24 24 37  
 6330- 36 36 36 36 36 05 00 2D  
 6338- 2D 2D 2D 35 3F 3F 3F 3F  
 6340- 37 35 37 35 37 2D 2D 2D  
 6348- 35 3F 3F 3F 37 35 37 35  
 6350- 37 2D 2D 2D 2D 35 3F 3F  
 6358- 3F 3F 27 00 09 2E 2C 2E  
 6360- 2C 2E AC 2A 3E 2E 3E 2E  
 6368- 3E 2E 3E DF 3C 76 29 3E  
 6370- 4E 35 FF 23 37 27 37 E4

NEWTEK-

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VK2KWN WAYNE NEWPORT

6378- 24 24 24 24 3C 36 36 36  
 6380- 36 36 00 35 37 35 37 35  
 6388- 37 35 37 35 37 35 77 31  
 6390- 25 35 25 35 25 0C 25 27  
 6398- 25 27 25 27 25 27 25 27  
 63A0- 25 3F 00 35 37 35 37 36  
 63AB- 36 36 36 2E 24 24 24 24  
 63B0- 2C 35 77 29 3E 4E 35 77  
 63B8- 31 36 25 24 24 24 24 24  
 63C0- 24 37 36 36 36 36 06 00  
 63C8- 09 2D 2D AD 0A 3E E4 3F  
 63D0- 3F BF 37 35 37 35 37 35  
 63D8- 37 35 37 75 2E 2C 2E 2C  
 63E0- 2E 64 25 27 00 35 37 35  
 63E8- 77 29 3E 4E 36 36 36 2E  
 63F0- 24 24 24 64 25 67 29 3C  
 63F8- 2C 3C 07 00 35 37 36 36  
 6400- 36 36 36 2E 24 24 24 24  
 6408- 24 2C 35 6F 32 36 25 24  
 6410- 0C 2C 2E 36 36 36 36 36  
 6418- 25 24 24 24 24 24 24 37  
 6420- 36 00 2D 2D 2D 2D 35 3F  
 6428- 3F 36 36 36 36 36 36 27  
 6430- 24 24 24 24 24 3C 3F 37  
 6438- 00 36 36 36 36 36 36 2E  
 6440- 24 24 24 2D 2D 2D 35 36  
 6448- 36 2E 24 24 24 24 24 24  
 6450- 3C 36 36 36 3F 3F 3F 27  
 6458- 24 24 2C 00 92 32 25 35  
 6460- 25 35 25 35 25 2D 3E 1E  
 6468- 37 F5 3B 2E DE 37 35 3F  
 6470- 37 2D 2D 2D 2D 25 3F 3F  
 6478- 3F 00 01 00 2D 2D 2D 2D  
 6480- 35 3F 3F 3F 3F 37 2D 2D  
 6488- 2D 2D 35 3F 3F 3F 3F 37  
 6490- 2D 2D 2D 2D 35 3F 3F 3F  
 6498- 3F 37 2D 2D 2D 2D 35 3F  
 64A0- 3F 3F 3F 37 2D 2D 2D 2D  
 64A8- 35 3F 3F 3F 3F 37 2D 2D  
 64B0- 2D 2D 35 3F 3F 3F 3F 37  
 64B8- 2D 2D 2D 2D 35 3F 3F 3F  
 64C0- 3F 27 00



# BRAINTEASER

## COUNTING THE HOURS

At school the other day, little Johnny was working with one of those boards with twelve clock-points regularly spaced round a circle against which should be put twelve counters showing the hours.

He was, in fact, in a bit of a daze about the whole thing and the only hour he was

absolutely dead sure of was 12 whose counter he correctly placed. As for the eleven others, if the truth be told, he just put them around at random.

But Jill, his teacher, spotted some curious things. She first noticed that, however she chose a quartet of counters

which formed the corners of a square, their sum was always the same.

Next, she saw that if she formed numbers by multiplying together the counters at the corners of each square, one of those numbers was more than six times one of the others.

She also observed that the counters in each quartet were, starting at the lowest, in ascending order of magnitude in the clockwise direction, and that 12 was not the only correct counter.

In the break, she reported all this to her colleague, Mary, adding 'if I were to tell you, in addition, how many hours apart from the 12 Johnny had got right, you could tell me which they were'.

WHICH WERE THEY ?

## ELECTRIC RIP OFF ?

It was revealed in State Parliament today that some electricity consumers are being ripped off by unscrupulous County Councils. This apparently is being done by charging premium prices for low grade electricity.

The Electricity Commission produces two different grades of electricity. Thermal electricity which is produced by burning coal and Hydro electricity which is produced by using water. The electricity produced from coal is of a much lower standard than that produced from water. This is due to a large amount of coal residue which is left in the electricity and can cause problems such as

(1) Blackening of the ends of fluorescent tubes, thus reducing tube life.

(2) Reduced incandescent bulb life also due to blackening.

(3) Electric heaters run less efficiently due to the coal residue being deposited on the element.

(4) A black edge appears on television screens which gradually gets larger and can, in extreme cases, blot out the picture completely.

(5) Electric stoves become extremely difficult to clean.

(6) Reduced motor life for refrigerators, freezers and airconditioners.

(7) Electric irons leave black marks on clothes.

Hydro electricity has a small amount of water residue which causes absolutely no problems at all with electrical appliances. This water residue is actually beneficial when combined with thermal electricity to produce domestic grade electricity.

The electricity supplied to County Councils is usually in the proportion of 75% Thermal and 25% Hydro.

The Council is then supposed to blend these two different grades to produce domestic grade before selling it to the consumer. A good blending plant costs \$50,000 and when installed and used correctly, the coal residue is flushed out of the Thermal electricity by the water residue in the Hydro electricity.

This combination of water and coal is then pumped into an evaporation tank where the water is evaporated and the coal reclaimed for later use.

As the demand for electricity increased over the last ten years most blending plants were too small to handle the increased requirements and had to be replaced.

Some County Councils cut costs by not installing larger blending plants and gradually phased out their old ones. This has led to the situation where they are supplying 75% of their customers with low grade electricity and 25% with premium grade. The customers receiving premium grade are getting a bargain but the ones receiving low grade are being ripped off as they are both paying the same price per unit.

How then can you tell if you are being ripped off and what can you do about it?

(1) Check all your electrical appliances and lights for any of the previously mentioned systems. If you find any, contact your local County Council immediately and demand to know what kind of electricity you are being supplied with.

(2) Contact your local member and demand that an investigation be carried out immediately.

(3) If these measures produce no result, convert to gas.

## ON THE NET

6th March 1988

VK2MT-ROB, Co-ordinator  
VK4BBG-JIM, AX2ENX-TONY,  
ZL2NAE-DENNIS, VK1FWV-BARRY,  
VK2EBI-KEVIN,  
VK2BIT-PETER, VK2BHO-JOHN, VK2EMV-MORRY.

13th March 1988

AX2ENX-TONY, Co-ordinator  
VK2MT-ROB, VK3CMH-MARTEN  
AX2DFL-DAVE, VK2EBI-KEVIN

20th March 1988

VK2KGI-DAVE, Co-ordinator  
VK2PJS/4-MERV, VK2EBI-KEVIN,  
VK2EMV-MORRY,  
AX2DFL-DAVE, VK2DVB-ANDY  
VK2EJH-JIM, VK2IU-RALPH,  
and last VK2PHD-RAY.....



# 3M GOES FOR NEW SPACE RECORD..

The Minnesota Mining and Manufacturing Company could soon be making sound and video recording components in space. The company, which trades widely as 3M, has signed a deal with NASA for a series of six experiments of the space shuttle.

The experiments are designed to study the advantages of manufacturing products such as magnetic recording tape, in a vacuum and without gravity.

The first experiment should take flight before the end of the year 84. The Minnesota Mining and Manufacturing Company began life in 1902. One of its first products, which established it as a leader in the technology of coating materials, was "wet and dry" sandpaper - in which an abrasive layer is stuck on to paper. The name, like the abrasive coating, still sticks.

After the Second World War 3M used its experience in coating technology to make the first magnetic recording tape, outside Germany. The "old groaner" Bing Crosby recorded his winter season of radio shows in 1947/48 on these tapes.

In 1956, 3M made the first video tape, which was 50mm wide, compared to today's 12.5mm, for a video recorder, which was manufactured by Ampex.

The evolution of recording technology has depended entirely on increases in recording

density. The first German audio tape in the 1930's and 1940's could store a wavelength of 100 micrometres, at best. The first video recorders could capture a 10 micrometre wavelength.

Modern domestic video recorders can resolve a wavelength of around 1 micrometre. The only way to pack information more densely is to deposit a very thin coat of pure metal, by evaporating in a vacuum.

All the promises of better audio and video tape rely on evaporated metal coatings of this type. The same technology can also be used to coat magnetic discs for high-density storage.

Although this technology has yet to reach commercial production, engineers are already working on the next step forward. This is to align all the magnetic particles vertically, rather than horizontally. This can increase recording density by a factor of five, or ten, in much the same way that it is easier to cram more people into a room if they stand up rather than lie down.

To deposit a coating of vertically aligned needs not only a vacuum but also some compensation for the effects of gravity.

These problems can be overcome on Earth, but in space there is a convenient vacuum and the absence of gravity.

No one yet knows what happens when a metallic coat is evaporated in space. Clearly different density materials would not settle out at different rates, as they do on Earth. So it may prove possible to create a homogeneous mix of materials with different specific gravities.

Similarly, magnetic fields could control the alignment of the coating particles.

Magnetic recording depends on the movement of tape past heads which read or write a signal. Engineers dream of a recorder with no moving parts, therefore no wear.

## WOLLONGONG GOES NORTH..

There were quit a few members who participated on the field day held at Gosford.

Stations heard :-

VK2XGJ-JOHN, VK2EXN-IAN, VK2EJH-JIM, VK2DWR-DAVE, VK2BIT-PETER, VK2MT-ROB, VK2XIN-PETER, VK2KEY-PAT, VK2OE-WOJCIECH, VK2NNJ-JOHN, VK2FCP-FRED, VK2JTB-TOM, VK2APG-JERRY.

Comments were made from VK2AXK-Lee that it was the first time she heard the cartoon caricature of yours truly TOM & JERRY. on the band ..... on there way to Gosford.

# 3M GOES FOR

## NEW SPACE RECORD

CONTINUED FROM PAGE 9....

They look to the microchip to provide the solution. Although a microchip can record sound and vision, even the largest circuits available, with millions of bits of memory, can at best hold only a few seconds of high quality sound, and not even a signal TV picture.

The hope for solid state recording rest on recent work by IBM on storage in pentacene crystals. These are irradiated with a laser which can be switched between a thousand different light frequencies.

At each frequency the laser burns a discrete hole in the crystal structure, with each hole having a characteristic optical effect. This creates a three-dimensional memory store, which can hold up to 10<sup>10</sup> bits of information per square centimetre.

This is one thousand times denser than memories such as laser discs.

IBM's idea is still in its infancy, and 3M has been watching its progress with undisguised interest. One of the main sticking points so far has been the difficulty of growing crystals.

Growing crystals is easier in space. Without gravity, there

is no convection. Materials which will not crystallise on earth, or will produce small crystals, grow large and with perfect symmetry in space.

The 3M laboratory has designed six experiments, in two phases. The first two experiments to be conducted in the crew's middeck lockers, will attempt to grow large unflawed organic crystals.

The third experiment, in the shuttle's bay, involves the deposit of a thin coating. The second phase of experiments will continue the work on crystal growth, and is scheduled to start in 1985. James Beggs, who is the administrator of the project at NASA, believes this research

will lead to the full-scale production of materials in space.

American industry will one day be as comfortable with their manufacturing facilities in space as they are to day with more familiar factories and research and development laboratories they have on earth.

The 3M company says it will be the first non-aerospace company to carry out experiments in space. The foundation of this research was laid by President Reagan in his State of the Union message early that year.

He told NASA that it had to develop a permanently staffed space station and to encourage initiatives by the private sector in space.

Two weeks after this speech, NASA and 3M signed their deal.

NASA is not char-

ging for space on the shuttle, but the experiments will be expensive to set up. However, in return 3M will not be allowed to sit on any new development, simply because it might undermine a lucrative existing market.

Under the terms of the deal 3M must market any saleable product that it develops from its space research. If it fails to market the product it must sign the development rights over to NASA.

The timescales will depend on the products, but in general, NASA is giving companies about five years' grace. If nothing has been sold by then, and the products are worth selling, then NASA will do the job itself - and reap the financial reward.

In addition NASA will not allow the commercially sensitive research results to be suppressed. NASA expects general scientific principles, discovered in space, to be published.

This may well create some conflict in the future over the precise borderline between general principles and proprietary knowledge.

Moreover, while the research flights in space are free, NASA itself is more down to earth. If 3M does not succeed in producing a heavenly looking and sounding video recorder it will have to pay for it.

For once the research stage is over and production starts, 3M will have to pay for its space.

Taken from N.S. 23/8/84.

THIS REALLY SAY'S DISTANCE OF COMMUNICATION IS UNPREDICTABLE  
AND DON'T WE ALL KNOW THAT.



Q. How far does a signal reach when transmitted over a sea or lake?

A. For practical purposes, there is very little signal propagation beyond the line-of-sight range when using VHF frequencies.

In theory, the distance of possible communication between 2 stations is obtained using the following formula:

$$D \text{ (nm)} = 1.22 (\sqrt{h_1} + \sqrt{h_2})$$

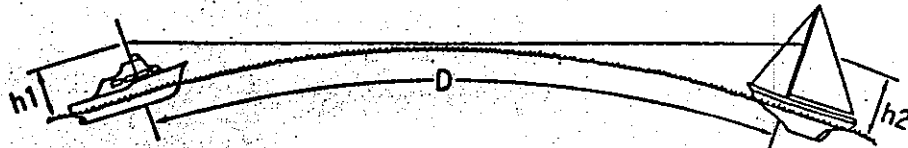
D : Distance

h1 : Antenna height (ft)

h2 : Antenna height (ft)

For instance, where h1=8ft  
and h2=8ft, the distance is:

$$\begin{aligned} D \text{ (nm)} &= 1.22 (\sqrt{8} + \sqrt{8}) \\ &= \text{Approx. 7nm} \\ &= \text{Approx. 8 miles} \end{aligned}$$



Depending on weather conditions and your location, some signals may not reach 8 miles and others may extend beyond 8 miles.

### WANTED

Philips Radar Alarm Modules - Type CL 8963.

These units are approx 4.1/2cm x 4.cmm x 1.1/2cm in size and comprise 2 compartments, each with a diode mounted in it.

### WANTED

### WANTED

2 METRES HAND HELD SSB Transceiver IC 202 To use as an IF channel for portable Microwave equipment.

### WANTED

Small ventilating fan unit, 12V.DC Operation size approx 70 mm x 70mm or smaller

( not a blower ) for a Microwave project.

Please contact:

LYLE PATISON, UK2ALU,

GTHR- Ph: (042)-296984.

If you can help.

TS's Lyle.

—FOR—  
COURTESY TO  
AMATEURS AND  
VALUE

IN  
OUR AREA

NOT USUALLY  
SEEN ELSEWHERE

WE RECOMMEND!!!!

CAUTIONS

11. MOLLOY STREET, BULLI.

PHONE: 042-84-6838

TO ALL OUR CLUB  
MEMBERS.

# THE ILLAWARRA AMATEUR RADIO SOCIETY. INC.

P.O. BOX. 1838. WOLLONGONG. 2500. N.S.W.

**MEETINGS:** Are held every 2nd Tuesday of the Month except January, at 7.30.p.m. in the S.E.S. Headquarters, Montague street, North Wollongong.

**REPEATERS:**

VK2RAW - 146.850. - (VOICE)	VHF Mt Murray.
VK2RAW - 147.575. - (PACKET)	VHF Mt Murray.
VK2RIL - 147.275. - (VOICE & R.T.T.Y)	VHF Sublime Point.
VK2RUW - 438.225. - (VOICE)	UHF Hill 60 Port Kembla.
VK2RIL - 438.725. - (VOICE & R.T.T.Y)	UHF Sublime Point.

**BROADCAST:** On Sunday evening prior to the club meeting, at 7.00.p.m. R.T.T.Y. Mode Transmitted on 147.275.VHF, and relay on 3.562.Mhz. +/- QRM. Callbacks taken immediately afterwards. The voice broadcast will be held straight after the WIA Broadcast on 146.850.Mhz < VK2RAW > and 3.562.Mhz +/- QRM.

**W.I.A. RELAY:** On 146.850. at 10.45.am. and at 7.15.p.m. each Sunday.

**CLUB - NETS:** On 3.562.Mhz. SSB +/- QRM on Sunday at 8.30.p.m.

**NEWSLETTER:** "THE PROPAGATOR", published Monthly to reach FINANCIAL-MEMBERS in the week preceeding the club meeting. All articles, adds etc, to the editor must be in, or try, by the 3rd Tuesday each month.

**MEMBERSHIP:** The Secretary, I.A.R.S. Inc, P.O.Box.1838. Wollongong. 2500. Full membership is \$10 per annum; students & pensioners concessional members \$5 per annum.

**AWARDS:** The Award of the Illawarra Amateur Radio Society. Inc. is the LAWRENCE-HARGRAVE-AWARD. VK stations require 10 contacts with I.A.R.S. members. Overseas stations require 5 contacts with I.A.R.S. members. A contact with VK2AMW is sufficient for the award. Band-details, date, frequency, station worked and \$2 or 4 I.R.C.'s to THE AWARD-MANAGER, I.A.R.S. Inc, P.O.Box. 1838. WOLLONGONG. 2500. No QSL-CARD is required.

**STORE:** The club store operates at each club meeting. by COMMITTEE-MEMBERS.

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<b>PRESIDENT:</b>	VK2DYU- BILL CHADBURN. 45 Beltana Ave, Dapto.
<b>VICE-PRESIDENT:</b>	VK2OB - KEITH CURLE. 24. Beach Drv, Woonona.
<b>SECRETARY:</b>	VK2JTB- TOM BROWN. 10. O'Keefe Cr. ALBION - PARK.
<b>TREASURER:</b>	VK2VAV-YKQ-DAVE HENDERSON. 8. Gladstone st. Bellambi.

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**REPEATER - COMMITTEE:** VK2CAG - GRAEME DOWSE, VK2EXN - IAN CALLCOTT, VK2EMV - MORRY .v .d. VORSTENBOSCH. VK2DFK-MIKE KEECH, VK2MT-ROB McKNIGHT, VK2BIT-PETER WOODS, VK2TPH-PHIL HOWCHIN, VK2XGJ-JOHN SIMON, VK2FCP-FRED BROWN.

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**QSL-CARD'S IN :** VK2BIT - PETER WOODS.

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**CARTOONIST :** VK2AXI - BRIAN WADE.

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**LIFE - MEMBERS :** VK2CAG-GRAEME DOWSE. VK2OB-KEITH CURLE. VK2ALU-LYLE PATISON

**SUNDAY - EVENING - CLUB-NET - ROSTER:** STARTING AT 8.30.p.m.

8.30.p.m. FIRST SUNDAY OF THE MONTH : VK2MT - ROB McKNIGHT.

2nd SUNDAY OF THE MONTH : VK2ENX - TONY MOWBRAY.

3rd SUNDAY OF THE MONTH : VK2PZY - DAVE CAPON.

4th SUNDAY OF THE MONTH : VK2PHD - RAY BALL.

5th SUNDAY OF THE MONTH : VK2EBI - KEVIN MURPHY.

And on stand-by : VK2DUP - GRAEME PARSONS.