IARS The IARS
PROPAGATOR

The monthly newsletter of the Illawarra Amateur Radio Society Inc.
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Meetings are held on the second Tuesday each month (except January) at 7.30 pm in the State Emergency Services building in Montague St, North Wollongong.
Visitors are most welcome.

Number 11 Volume 92 November 1992

Editorial

Remember back in the 'good old days', we were 'in the groove'? These days, a lot of us are still 'in the groove'. The only problem is that the groove has become deeper and we're now in a rut! I've just had a short 4 day break in Port Macquarie. Ever notice how much better you feel after a holiday, a new job, a change of routine, a new car? Why not try things you wouldn't normally do? Been for a walk in the bush? Taken the wife out? Been to a rock concert? Visited a museum? Why not try it? You might not enjoy yourself, but at least you will have opened your mind and taught you something. There is nothing more boring than a closed mind. Even the person who has nothing important to say is capable of teaching us something. You might find out that the grove of life has become deeper without you noticing it.

Are you in a rut or a groove? The only difference is the depth!

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Program

November

This will be our usual auction night.
BRING YOUR MONEY WITH YOU

December

A change from our usual family Xmas night. This will be a general meeting with a talk. We'll celebrate Xmas at a picnic the week-end after the meeting.

January

Time for a break! You can have the month off, unless you are on the committee, in which case we'll have a committee meeting on the usual day and make plans for the rest of the year.

February

Barry Sullivan our local RI from DOTC will be talking about RFI.

March

We hope to have a talk by Dale Woodside VK2TZ on Antennae. I'm told he's very good. I'm really looking forward to this night.

April

John VK2XGJ will be running a packet demo, not just talking about it.

****** Chore! ******

I still don't like washing my car, but I was getting used to a clean car, and had almost convinced myself to go out and do it 'tomorrow'. Fortunately, 'tomorrow' happened to be Fathers Day and #1 daughter was short of cash so she decided to detail the car as part of my present.

** Science Centre Roster **

Sat	7/11	VK2DSH	VK2TSB
Sun	8/11	VK2GNV	VK2GMC
Sat	14/11	VK2XGJ	VK2FPN
Sun	15/11	VK2SRB	VK2ALU
Sat	21/11	VK2KWG	
Sun	22/11	VK2JRH	VK2DSH
Sat	28/11	VK2XGJ	VK2FPN
Sun	29/11	VK2TSB	VK2JRH
Sat	5/12	VK2GMC	VK2GNV
Sun	6/12	VK2ALU	VK2KLH
Sat	12/12	VK2FPN	VK2XGJ
Sun	13/12	VK2KWG	VK2JRH
Sat	19/12	VK2GID	VK2DSH
Sun	20/12	VK2JRH	

Pretty full roster! Just a few more starters and all will be ok. Had a look at our room today. All the wood work has been completed, and Glen expects that the painting will be done this week, so hopefully we can start moving in next week. Might be worth putting that in the Propagator, and seeing if anyone has any good ideas about how we can set up the room. I have tentatively booked a speaker from Telecom to give us a talk on the 'History of Telecommunications' for the meeting of 8/12. I am waiting to receive further details from them, should hear next week. That's about it from me.

73 de Dale vk2dsh

***** Jokes *****

Why couldn't the Irish farmer win the Nobel Peace prize?
Because he wasn't outstanding in his field.

Do you know Santa Clause is an Irishman.
Anybody who comes down the chimney when there are plenty of doors and windows just has to be Irish.

What do you call a Pygmy that works underground?
A Mini Minor.

Did you hear about the brilliant Australian?
No, neither has anyone else!

***** Thank you *****

Each month I'm going to feature one member who has done something for our Club.

This month I'm going to feature the Propagator. There have been numerous positive comments passed about how good it is and what a good job I am doing. For them I say thanks a lot, but I only put it together. Please direct your thanks to the people who are doing the writing. Lyle VK2ALU does the historical segment and I think this is one of the best sections in the Propagator, I really look forward to reading it each month. How about John, VK2XGJ. His knowledge on packet is exceptional and the assistance he provides is without limit. His articles don't always appear because I am short of space. Rob VK2MT does a fantastic job with his repeater reports. How he finds time to do the reports as well as spending hours (with Ken VK2TKE) on the repeaters is beyond me. Dale VK2DSH, while not writing a lot, gives me a lot of information to keep you informed about the Science Centre. Our Secretary, Ron VK2JRH, keeps me well informed on the club, and his minutes are indispensable. Our President Brian VK2KLH has just started an article that will help maintain the standard. Last, but by no means least is that prolific writer Graham VK2GID. I never know what Graham is going to write about, but he always comes up with several articles on different subject to make this Propagator more interesting.

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***** Badges *****

If you are called Chris Webb, VK2CO or Pat Jordan, VK2GPJ or Richard Pettit VK2WRP, call in and see out Secretary since he has the badges you ordered.

I'm going to have to order a third! I have one in my car so I can't forget it. One at home in case I don't go in my car. Trouble is, I forget to take it so I'm going to have to keep one at the Club!

* How Packet Radio Works *

Part Three

Welcome to the third part of our Packet radio tutorial. Hopefully those of you interested in how this new mode works are able to follow what is going on, also hopefully there are some of you out there who are finding this series informative. Last month we looked at the AX.25 protocol, which is the rules for moving information across a link between two stations. This month we will consider some limitations with AX.25 when used over long distances, and some solutions or improvements that exist to get around these limitations.

Firstly, what does "long distance" mean here? Remember from last month that using AX.25 rules, we can digipeat from one station to another to establish a data link over a greater distance than our radio's range. If we try to string more than two or three digi's in our path from end to end, then generally AX.25 starts to have problems.

What sort of problems? When a packet is sent between two stations, there is a chance that it won't be received correctly. This might be because some noise changed the sounds that the info is made up of, or because someone transmitted on top of us and our signal wasn't even heard at the other end. For a packet to be sent correctly from one end of a chain of digi's to the other, the info packet has to hop all the way up the chain, and the acknowlegement packet has to hop all the way back. When there are more than a couple of digi's involved, the percentages multiply together to give a very small chance indeed of a successful transmission.

So how can we send stuff over long distances? So far we have been using a modified link level protocol, which you may remember is designed to shift data along a link between two stations. What we need is something a bit more intelligent, something that is designed to hook a bunch of stations together so we can shift info from one side of that to the other. The something that does this is called a Network Level Protocol. The only new word that we have here is "network", which simply refers to a bunch of stations (of which each one can hear at least one other).

We get to use another of Peter VK2FPN's buzz words here: a Node is one of the stations that makes up a network. From the outside, a network looks like a bunch of nodes that have the ability to pass traffic to each other no matter what the distance, with total reliability. From the outside viewpoint, what we have here is the solution to the AX.25 digipeating hassle.

How does the network work? Let's say that I want to talk to my friend in Adelaide. I would make an AX.25 connection to my local node, then ask this node to pass traffic to a node somewhere near Adelaide, then ask the Adelaide node to make an AX.25 connection to my friend's station. What happens is that information gets sent from my station to the local node, which acknowledges it straight away. Then the local node sends the info to the next node, who ack's it and then sends it on, and so forth. Instead of treating the chain to Adelaide as one link, which means having to get the info all the way to Adelaide and the ack all

the way back without an error (almost impossible), we only have a heap of normal one hop links, which are fairly easy to get info across. If a packet is lost somewhere along the way, the two nodes that lost it worry about resending it, rather than the whole string of stations doing it. As a result, reliability is better.

There are two disadvantages in using a Network Level Protocol. In a chain of digipeaters, a digi only has to remember the packet that is being repeated at this moment. A network node has to remember both the incoming and outgoing packets at the moment, and also where the incoming packets are coming from, and where the outgoing ones are going to. It also has to remember how to get traffic from itself to any other node in the network. As a result, a network node station must be quite a bit smarter than a digipeater.

The other disadvantage is that the nodes also have to send some network information as well as the information to be sent, and so there is slightly more traffic on the channel than before. However, the added reliability means that there is less mucking about with lost packets, and so the channel normally ends up better off on long hauls.

So far, you may notice that I haven't given a name to the Network Level Protocol. In Packet radio, there is only one Link Level Protocol in use, that is the AX.25 that I have mentioned so often. There are two (or three, depending on who you talk to) Network Level Protocols in use, the common ones are "NetROM" and "ROSE", which are two more of Peter VK2FPN's buzz words.

That's about all I have room for again this month. Next month I could say a bit about how NetROM and ROSE work, but I feel that would be getting ahead of things. I think instead I will write something about how to actually do things with Packet radio, instead of gibbering on with theory.

Maybe you have some questions that you would like dealt with - contact either me or Peter VK2FPN, and I will have a go at explaining. See you next month, de Graham VK2GID (042) 294170.

C.S.I.R.O.

Well, the visit is over and those who said they didn't want to go, I extend my deepest sympathies. It was BLOODY FANTASTIC. You'll have to excuse any ambiguity in this story. I had every intention of taking copious quantities of notes and telling you about it, but I was so enthralled, I forgot! We started off with a general talk on the C.S.I.R.O., it's history and some of it's past achievements. A talk about the Parkes and 6km long telescopes. I thought LAN's were just connecting a series of computers together but didn't realise the problems that can crop up when you want to improve the system. Next we went to see the antenna's. VK2XGJ's head was spinning around so much trying to look at everything I thought it would drop off!! Their mobile antenna system is only about 3" high yet picks up all the satellites. Fascinating, as was the car they used for testing it. What I really enjoyed was the multi beam antennae. One antenna can receive up to 20 satellites! Simultaneously! How? Simple when you think about it - multiple feed horns! The anechoic chamber was an experience. This is an echo free chamber and I'm told that if your hearing is reasonable, you can hear the blood rushing around your body. My hearing is terrible and there were 10 of us in there so it sounded like Niagara Falls! Some of the equipment they have is incredible! Naturally, all the usual comments were there - 'turn your back for 2 minutes' - 'put it in the boot'-' you don't want that do you'-'when does Cavion get here'-'can I keep all I can carry'. We had lunch in the canteen and surprise surprise, there was a table full of sandwiches, chocolate cake and drink. The sandwiches were beaut and I must admit I had a touch more than my fair share (Well, you never came did you, so I had to eat your share so it wouldn't got to waste!) We had a chance to sit down with some of the researchers and talk about the problems they come across, but they were also very keen to find out about us and what we did. It was great talking to such brilliant people. They have developed the 'A4' chip. This was terrific. It's an audio chip that makes a $7 pair of speakers sound better than a $300 pair! Aimed at the car industry, it should make a great deal of money for the C.S.I.R.O. How does an 100 gHz amplifier work at -250 degrees? I don't know, but we were shown some of the problems that can occur. Part of the problem was seeing it! Thankfully, we were only a small group and could go into the facility. We had to dress up with special overshoes and coats to prevent dust getting into the system. The funniest sight of the day was John VK2XGJ! They have sticky mats on the floor to collect the dirt before you go into a room and 6' 4" John was walking around like Donald Duck. 'Now I know how a fly feels on fly paper said Dale VK2DSH.' We were shown how they make chips. First you get your potato and peel it. No fool, not that kind of chip. A $1,000,000 spray painting machine is used. You cool the inside to -250 degrees, heat the Ga and As to 1,000 degrees, create one hell of a vacuum, and spray on a layer 1 atom thick! We went through the lab where they test these chips. It was incredible!

I could have spent hours and hours there. Now for the high frequency testing centre. HF? Yes, 100 gHz high! Here Lyle VK2ALU was like a kid in a lolly shop. I sure hope they checked his pockets before he went out! The researchers couldn't do enough to help and even asked Lyle to keep in touch. Lyle had an 10db attenuator he had constructed and wanted testing. Lyle unfortunately found out it wasn't 10db, only 9.97db! Unfortunately, time passes, we were running 45 minutes past our schedule and most of the staff had gone home so we also had to depart. Thanks to Brian VK2KLH our president for organising the trip and I want to express one hell of a thank you to the C.S.I.R.O. staff for a magnificent day.

***** What a wife! *****

Vic VK2KVH who was goint to migrate to Qld has now decided not to, something about not wanting to put his watch back . Anyhow, I picked Vic up at the Picton Rd turnoff and gave him a lift to the CSIRO. I asked him how he was going to get home and he said his wife would pick him up. Now most normal people would have arranged to phone home and arrange a time when it became clearer how we were going for time. Unknown to me, Vic had arranged to be picked up at 4.30 and at that time, I was in Broadway dropping off Brian VK2KLH! I raced as fast as I dared, to make up time but it wasn't until 6.10 we arrived there. There was *(blast, I forget her name)*, waiting for Vic. Personally if I was her, I'd have left him to walk home! Hope you bought her some flowers Vic!

*** SCIENCE CENTRE ***

As this report was written on 25th October, the IARS display room has been built, but is yet to be painted. This will provide us with a (secure) home for our equipment, and the ability to develop a permanent display which will still work, even if we are not present.

Probably you already know about the satellite TV installation, this being the newest addition to our display. Something to be done in the short term is to determine what sort of permanent display will be suitable for our purposes.

So are YOU helping out at the Science Centre? Have you even seen the display lately? You really should come down and have a look, and add your ideas to our "Public Image" project for the year. Here is your chance to Be Seen to Be Doing!

This was written at the Science Centre, while I am sitting here watching live TV from the USA, typing on my computer, and fiddling about with a permanent display (something with pictures and sound coming from a computer, which should provide quite an eye-catching display). It is such hard work, talking to all of these people and playing around with some high-tech gear that I could never afford to have at home.

73 de Graham VK2AMW/VK2GID.

***** Poem *****

Are you an active member, the kind that would be missed,
Or are you just contented that you name is on the list?
Do you attend the meetings and mingle with the flock,
or do you stayy at home and criticise and knock?
When you pay your dues so you say "This makes me sick",
and leave the work to just a few and talk about 'the clique'?
Don't be just another member but take an active part,
go to your meetings and help with hand and heart.
Think this over brother, you know the right from wrong,
are you an active member, or do you just belong?

From an old edition of EMDRC Newsletter.

The Ultimate Power Supply

After the heady visit to the CSIRO Division of Radio Physics on Monday, writing about Power Supply Units (PSU's) brings me back to earth.

Following the discussion of Peter VK2KHE's design at our October meeting, it was suggested that something along the lines of 'The ULTIMATE PSU' be produced and that I be nominated to write it.

What I have in mind is that this be a 'multi-issue' project run more as a workshop. This means is that I will suggest broad headings for each month's issue of the Propagator. I will then look forward to your experience, practical hints, theoretical comments, wishes, spec sheets and application notes. From this vast mass of material, I hope to synthesise 'best practice'.

Rather than produce a PSU for all seasons - about which huge test books have been written-let's narrow the field. In this early stage I suggest we aim at :-

* RF applications and thus RF proof.
* low voltage DC and variable.
* fairly high current
* modular rather than integrated PCB.
* budget conscious
* fail safe
* attended and unattended operation
* primary cell recharger/reformer

At this stage I wait for your suggestions to go into the modular building blocks. My plan would be broadly:-

1. Specifications. e.g. voltage output, current output, SOAR regulation, ripple, noise, output impedance vs frequency, input voltage range, input frequency, input waveform, number of phases (your Class A linear amplifier's planned output divided by Class A efficiency may exceed single phase GPO specifications).
2. Alternative design architecture for achieving the specs.
3. Voltage control, current control, power dissipation and their management - hence SOAR, heat sinking, fan cooling, regulators, pre-regulators, choice and source of components.
4. Converters and inverters (AC-DC, DC-DC) choice adn source of components.
5. Construction, safety, alignment, troubleshooting adn maintenance; equipment required.

*** Commmittee Meeting ***

Here's a rough translation of the minutes of the October committee meeting.

All the usual preliminary stuff was done the way it should have bee done.

We then discussed the Club budget including Propagator, repeater, fees, insurance and licences costs. We've lost Wollongong Aluminium as an advertiser. Morse keys and construction kits for Science Centre. Roster for mid week Science Centre. *(If I don't mention it elsewhere, we need members to be available for 2 hours during the week when schools visit.)*. Thank you letters to the CSIRO. WIA meeting in September. Thanks from Glen Moore for Ron VK2JRH's work and presentation at the Science Centre. Our Club balance is fairly healthy.

Rob VK2MT reported we still have the pager problem at Sublime Point.

In General business we discussed the auction, December meeting, Telecom talks, Xmas party/picnic on Sunday 13th December at a local dam or park, membership nomination forms are required, business cards would not be produced due to limited appeal, field day, 2m net and visits similar to the CSIRO one.

Meeting closed at 21:30.

Just a reminder to all members, you are all invited to the committee meetings to put your two bobs worth in. These committee meetings are often better than Our Club meetings!

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** Beg Fido!!! Woof!!! **

I received this message on my packet system last month!!!

Slot:1P To:VK2FPN From:VK2KWG 10/04/92 12:35:37 GREETINGS

Hello there Peter. I have just realised that the publicity officer who relies on his copy of the propagator to make up something for the WIA broadcast immediately preceding the monthly IARS meeting is not in fact dare I say financial. This precarious position brought upon himself will in fact cause heart ache as he looks into his crystal ball and only sees much QRM and really won't know what to submit to the WIA broadcast. Peter could you be a dear old friend (this is the point where I try to butter you up after playing with your heart strings) and send me this months propagator on the promise I will forthwith pay my subscription at the next meeting.

Thanks old mate ken VK2KWG

***** For Sale *****

John, VK2ZDM wishes to dispose of an item that would be suitable for propagator advertising space, said item being: One AEA PK-232 MBX multi mode controller + IBM combatable software to drive said beast. Basically it is AEA's version of the MFJ 1278, so that should give you a few clues Peter. John is asking $400 but is open to negotiation. VK2ZDM can be contacted most days on the VK2RIL repeater 147.275. I am afraid his phone number eludes me. Cheers Peter and thanks on behalf on John. Le Phil.

***** VK2KWG *****

I guess we all owe Ken a great debt. If it wasn't for him, someone else in Our Club would have been the recipient of the Leather Tongue Award this month! Ken looked quite 'cute' wearing it all night! Suits you Ken!

*** JOTA Report ***

Greetings Mr Peter. More stuff for your magazine:

The weekend of 17th/18th October saw the running of the 35th Jamboree on the Air, where Scouts and Guides get onto amateur radio and talk to each other all about the place. The IARS and local amateurs were well and truely into it, with quite a few stations around the place.

Helensburgh had VK2THG, run by John VK2ZLJ, Vic VK2KVH and friends. Keiraville had VK2SCK, run by Graham VK2GID and Tony VK2ENX. Beaton Park 2WL expo had VK2XIC, run by Rob VK2XIC and friends. Mt Keira had VK2GGW, run by Jim VK2EJH and friends. Warilla had VK2DAN, run by Ian VK2DAN. Huskisson had VK2EMI, run by Reg VK2EMI, Dave VK2BDJ and friends.

Quite possibly there were others, but they were the ones that we worked at Keiraville. We were running HF, 2m voice, 70cm voice and VHF packet. For once the HF bands were (reasonably) kind to us on what is traditionally a pathetic weekend for propagation. The winds on Friday night didn't help setting up at all. Packet has come quite a way in a year - last year it was almost useless but this year things were better, with a few contacts in the VK2SCK log.

Many thanks to the patience of the local amateurs, allowing the Scouts and Guides to almost totally consume the IARS repeater system for the weekend. Ken VK2TKE was heard on site at VK2RAW, doing the rounds to ensure that the system could take the punishment being dished out. After all, if we are going to get some new blood into the hobby, we have to let people see/use it in action. One of the girls down at VK2SCK (Vanessa from Tahmoor) is becoming quite an addict and I think a ticket for her won't be too many years off; doubtless there are more.

***** Club Net *****

Well! John VK2XGJ held his premier, first, initial, inaugural Club Net on Monday 12th Oct. On the net we had Peter VK2FPN, Ron VK2JRH, Reg Vk2EMI, Merv VK2UMC, John VK2ZDM, Michael VK2GNV and Dale VK2DSH. Not a bad start, and more to the point, I enjoyed it. I usually don't like waffle sessions, but it was quite interesting and some good comment came out. The only problem was volume! Merv and Ron were 60 over 9 and John was about 60 under 9! It necessitated altering the volume control every time a different operator came up to speak. Our net is officially planned for once a month before Our Club meeting, but I expect it'll be a semi-regular Monday evening happening if we can find sufficient net controllers - it'll be a hassle for John if he has to do it every Monday evening. Why don't you join us on VK2RIL

The Story of Digipeter Rabbit

A No Code Fable

By Frank Terranella, N2IGO

Once upon a time, in the far-away kingdom of Radio, there was a peaceful valley called Hamville, inhabited by a group of rabbits. Hamville was originally settled by the Whiskey family, and the patriarch of that family was an old hare called Charlie Whiskey.

Charlie Whiskey was a farmer by trade. He came to the beautiful valley of Hamville when it was all open meadows. He saw the potential for farming the vacant land and over time he developed a thriving carrot plantation. Charlie Whiskey's carrot plantation was the envy of all the inhabitants of the kingdom of Radio. He succeeded year after year in producing a bumper crop of carrots. All the other residents of the kingdom came to Charlie for advice on planting carrots. Charlie would always tell them, "The secret's in developing a good ear." No, Charlie didn't have superior hearing, but he had developed a very special skill. You see, Charlie picked his carrots with his ears.

In fact, Charlie had worked hard at perfecting this skill and was able to harvest at better than 20 carrots a minute. All of Charlie's family learned to pick carrots with their ears. Soon they were all picking at better than 20 carrots a minute. Charlie was so proud of his special skill that he insisted that everyone who came to work at Hamville first show that he could pick carrots with his ears. Charlie would not give new settlers any land unless they could demonstrate to his foreman, Victor Echo, that they could pick at least 5 carrots a minute with their ears. When they could pick 13 carrots a minute, Charlie gave them more land to work. When they were able to pick carrots by ear at the rate of 20 a minute, Charlie made them full citizens of Hamville.

This process of learning to pick carrots with your ears went on for some time. In other parts of the kingdom of Radio, other rabbits began to pick carrots by ear. However, there were some noisy ducks, known as the Quackers, who lived in the community of Good Buddy. They used their mouths to pick their crops instead of their ears. They had much larger mouths than the rabbits and saw no need to use their ears. The rabbits all looked down on the Quackers. "We must always require ear harvesting skills for entry into Hamville," they said. "That way we will keep out those noisy Quackers." So everyone who came to Hamville had to learn how to pick carrots by ear if they wanted to stay. Charlie Whiskey was adamant about that. "If you don't want to learn the skill of ear harvesting then go work in Good Buddy with the Quackers," he would say.

And so the years passed, and new methods of farming were developed. These new methods were easier to learn than ear harvesting, especially for the animals who didn't have the big ears that the rabbits had. What's more, the new methods were just as efficient as ear harvesting. As time went by, fewer and fewer of the young animals were willing to learn the skill of ear harvesting. The population of Hamville began to dwindle. All the residents of Hamville were getting on in years. To make matters worse, there were new neighbors nearby who coveted the beautiful open farmland of Hamville. They wanted to come in and turn it into commercial uses like shopping centers. And worst of all, the pollution from the Quackers, the other Rabbits, and the Mice (known in Hamville as the QRM group) was having an adverse effect on farming in Hamville. The future looked bleak indeed.

Then, one day, a stranger called Digipeter Rabbit came to Hamville. He was an educated rabbit who had studied at the School for Scientific Bunnies (SSB). He had majored in Farm Mechanics and knew all of the latest scientific agricultural methods. But for all his education and know-how, there was one thing that Digipeter could not do. He could not master the skill of picking carrots with his ears. And since he already new how to pick carrots more efficiently with new scientific methods, he was not interested in learning.

Charlie Whiskey was outraged. "What do you mean you won't learn to pick carrots with your ears? Why, we in Hamville have been picking carrots that way for 75 years. It's a tradition here. It shows that we're special and that we're better than the Quackers. If you don't have the desire to develop a good ear, then we don't want you here in Hamville." But Digipeter was adamant. He saw no reason to learn an obsolete skill just to stay in Hamville and he refused to even try. Charlie Whiskey took the matter to the Ancient Royal Rabbit League, which he had founded. The ARRL decreed that everyone in Hamville must learn to pick carrots with his ears or be banished. And so Digipeter Rabbit left Hamville

and founded his own village called Techietown. Soon, all the young animals in the land of Radio were flocking to Techietown. But Digipeter had his own entrance requirement. A good ear and a good memory were not enough for him. No one could stay in Techietown unless he could demonstrate technical knowledge, understanding and ability, and the desire to contribute to the advancement of Techietown.

Digipeter encouraged all the residents of Techietown to experiment in the cultivation of new unexplored lands, never before farmed. Digipeter showed them how to overcome pollution problems. He showed them how to use the land they had more efficiently. Digipeter even perfected a method of farming which allowed a number of rabbits to farm the same land at the same time. And while the residents of Hamville were picking 30 carrots a minute on a good day, in Techietown, harvests of 300 carrots a minute were possible. Using Digipeter's methods, and those developed by the other bright, young residents, Techietown soon became the most prosperous village in the kingdom of Radio. This did not escape the notice of the Field Carrot Council, which governed the kingdom of radio. To reward the residents of Techietown for their contributions to the kingdom, the Field Carrot Council gave Techietown more and more land to work, until its borders touched those of Hamville.

Meanwhile, Hamville was still plodding along as it always had, oblivious to the revolution in farming occurring around it. The old hares still picked carrots by ear. The Ancient Royal Rabbit League complained bitterly to the Field Carrot Council about all the new land it was giving to Techietown, but the population of Hamville continued to drop. When the Field Carrot Council gave 2 acres of Hamville property to Techietown, the residents of Hamville began, for the first time, to be genuinely concerned about their plight. Some even dared to ask the Ancient Royal Rabbit League to change its mind about the need to learn to pick carrots by ear to live in Hamville. "We need new blood here to fight off the Field Carrot Council," they said. Charlie Whiskey, now in his nineties, was furious. "We have to maintain our standards. We don't need those smart young bunnies, we need rabbits skilled in our time-honored harvesting techniques. We need rabbits who are dedicated enough to the principles of Hamville to want to learn our methods. If a rabbit really wants to live here, he'll learn our ways. If he doesn't, we don't want him. You don't want those Quackers to move here, do you?"

But by now the residents of Hamville had seen the writing on the wall. Although they genuinely enjoyed picking carrots with their ears, they realized that there were now other ways which yielded just as many carrots. And though they would probably continue to pick carrots by ear as they always had, they could no longer shun those bright young rabbits who chose a more modern method. A group of rabbits, led by an elder statesman rabbit named Elmer, who had once served in the government of the kingdom of Radio, asked the Ancient Royal Rabbit League to change its policy. The League agreed and issued a decree that henceforth ear harvesting skills would not be required to become a resident of Hamville.

When Digipeter Rabbit heard of the decree, he sent envoys to Hamville with all the latest scientific discoveries, which he shared freely with the residents. The residents of Hamville seized upon the new knowledge and soon Hamville became revitalized. Its population began to increase as young rabbits were attracted to its bountiful open farmland. The Field Carrot Council, impressed by the renaissance in Hamville, did not take away any more of its land, but actually gave some new territory to Hamville. Everyone was amazed at the new vibrancy of Hamville.

Charlie Whiskey, though sad that his beloved harvesting method was no longer in vogue, saw that his people were prospering and was glad. And to show that there were no hard feelings, Charlie Whiskey sent Digipeter Rabbit a packet of 73 carrots which he had picked himself -- with his ears.

The residents of Hamville rejoiced and declared a festival to celebrate their new prosperity. And over the front door of the Hamville Festival they put a banner, which read: "A bunny's worth is measured not by the skill of his ears, but by what lies between them." The residents of Hamville had learned an important lesson.

-THE END-

73, John de VK2XGJ

*** John's Column ***

Well another month has rolled around. Soon be Christmas. I wonder how many spotted the "deliberate" error in the BBS freq's last time I was in the Propagator. They should have read 147.575 MHz, 144.700 MHz and 439.075 MHz. If you are having any problems getting data to/from the VK2XGJ BBS give me a call either on 146.850 VK2RAW or 437.500 MHz Simplex and we'll see how to assist.

Some Users feel that they may have a problem and don't want to broadcast the fact, OK, my phone number is on the back page of the Propagator. Give me a call, within reasonable hours, ie not after 2100K as I consider all calls after this time as EMERGENCIES only. And if you do call and it is not what I'd call an Emergency, you had better believe that you will have one the next time I see you!

I have had one of the 9600 Baud TNC's running at my QTH for the last week or so and had it sending out a rather large beacon of approx 120 characters and all it sounds like is: Phhhhhhttttttttt! just like a burst of white noise. At two Watts it just opens the squelch at Vk2TKE's QTH so with a little more gain it will be operational, then onto the second one to complete the pair.

Speaking of Beacons, I often wonder why some Users have all that garbage in their beacons! I feel that if you are not at the terminal then why send out a Beacon at all. If you must send one then make it short ie PMS on VK2XGJ-1 or Dapto 2530. If you are in the shack send it out once each 30 minutes and if you are not in the shack, once every two hours is sufficient, not every ten or twenty minutes as some Users are doing, it really does clutter up the freq. Over the last few weeks I've been playing with AO-21, in other words it is a Voice repeater in the sky. A fast traveller, access time is approx ten to fifteen minutes but you can still make contact to a stn or two with seven or eight minutes of voice access time on each pass.

I first started to use it when VK2KHE and I made a voice contact on 28/05/92. You still owe me a QSL card for that one Peter! Since then just about everyone and their Auntie with a 2Mx/70Cm FM tranceivers has access to it. I remember reading a msg on LO-19 by some VE saying he had heard it on his Handietalkie (that's a Hand held to us) and that he was going to try a Full-Duplex contact using his dual-band Handie. I haven't found out if he was sucessful, tho I tried it with no luck, perhaps I didn't press the PTT button hard enough.

Note that the freq's below on the Voice repeater are FM.

The freq's for AO-21 are:

Uplink	435.016 FM
	435.155 FM
	435.193 FM
Downlink	145.952 FM
	145.983 FM

There are other freq's but these are the main ones. The Up/Downlink freq's marked are the main voice pair. The satellite always comes from the South so VK3, VK6 and VK7 feature and you will have to be a little patient sometimes as some of them do tend to waffle.

I had a visit from VK2GNV Michael on Thursday 10/09/92 and in the middle of

an AO-21 contact gave him the microphone and he had his first satellite contact to VK3ZBB Bob, just a few words but next time you'll probably hear him on AO-13. It really is a fascinating mode as it is virtually a Voice repeater in the sky. Over the last few weeks I've managaed to contact: VK6VV, VK7KP, ZL2TAL, VK3TGR, VK2AHJ, VK4AUK and VK4SBD a JOTA stn over the JOTA weekend. Today for instance, 28/10/92 at the "lunch-time" pass, I had contact with VK6VV and VK7KP, so there we had a cross-the-nation round-table chat for ten minutes. If you are interested in coming over for a look at what can be done you know where I am!

There will be more Amateur Radio satellites launched in the near future, one in November, one in December and at least one other in January/February 1993. It really is a fascinating side to our hobby and I wish a few more in the Illawarra area would try them out. But then again if more do come onto the satellites then maybe I won't have the free rein {*Since you're king of the Packeteers, shouldn't that be reign?.... ed*} that I have at the moment!

Well, by the time that you read this VK2KHE Peter will have gone to VK7. He was the instigator for me actually going for my Amateur Radio licence. We first met on the IBBS, a phone line BBS that I run and we made friends from there. As my first love at that time was RTTY, Peter would come over to my QTH in Corrimal so that I could Tx and join in the Friday nite RTTY net on VK2RIL. Other times VK2YKQ would come over and when I could prise his fingers off the key-board I would be "on RTTY".

Peter, VK2KHE was my first "on-air" contact with the call VK2XGJ, organised, but then I felt he deserved it. My second and third contacts were VK2FE and VK2EXN. So if you want someone to blame for all the noise on Packet that I create, and the nattering on the voice freq's that I do when you want to use that freq, now you know who to really blame! Peter, VK2KHE. Have a good smooth trip to VK7 Peter, all the very best to you and your's.

Till next time, 73, John de VK2XGJ.

*** Claytons? ***

This is the repeater report you have when you're not having a repeater report. Double Dutch? Well Rob is not able to write the report this month so he has asked me as co-repeater person to fill in for him, so make the best of it.

VK2RAW 146.850.

Monday 5/10/92. Ken went to Mt. Murray to check the reason for loss of audio on the broadcast link. On the way up to the repeater site stopped and chatted (read Public Relations) with the farmer whose land we cross to get to the repeater site whilst waiting for Rob to arrive. After about an hour of public relations I went on to the repeater site and started work on the link rx. Rob soon arrived and between us we checked the link rx and interfacing to the main repeater, but with the limited gear on site could not pinpoint the exact fault, so we elected to remove the rx to the bench for further repairs. While on site I managed to get enough heat out of my gas powered soldering iron to resolder

the broken joint on the gamma match for the link antenna, no easy feat at Mt. Murray where it is almost always windy. While I was doing this Rob cleaned up the mess in the bottom of the cubicle caused by the battery acid bubbling out of one of the 200 a.h cells. The bottom of the cubicle has a sheet of conveyer belting on it, and when it was removed (because it was covered in acid) we found this soggy mess which we suspect used to be a sheet of pine board to make the bottom of the cubicle (an old u/g petrol tank) flat, it was so decomposed that it had to be shoveled out like mud, this revealed that the bottom of the tank was slightly rusty and a bit thin in places. Left the rubber conveyer belt outside so that it could get washed by the next rain shower (a common event up here) and also to let the cubicle floor dry out as it was still quite wet. Having done as much as we could we departed to Knights Hill for next lot of repeater work.

11/10/92. Travelled up to Mount Murray to reinstall link rx after repairs on the bench which revealed a number of resistors that were either o/c or gone high. Successfully reinstalled the link, only to have r.f. feedback problems through the link from the repeater tx., seems the repairs to the link rx had increased the sensitivity so much that the repeater tx. was now getting into the link rx. and causing feedback. Hurriedly installed the currently unused cavity for the packet system in series with the link rx. and tuned it by ear until the problem disappeared. The link must have had low sensitivity for some years as there has not been a cavity in series with the link for the repeater tx. since I have been doing the repeater for the last 3 years. Shows you how good the Mt. Murray site is. Left the site waiting for Murphy to strike, but he must have been on holidays. Repeater still running ok at time of writing this report.

VK2RIL 147,725.

30/9/92. Rob rang DOTC regarding the pager interference that we were still experiencing with 7275, DOTC had tuned up a bandpass filter for us to try in our feedline to see if it would eliminate the problem, so filter was picked up and duly installed.

10/10/92. DOTC filter had absolutely no effect so the filter was removed and returned and DOTC advised of the results. They indicated that they were very busy and would carry out further investigation as soon as possible.

13/10/92. Rob had a phone call from Pat Seeburg advising that as they could not see any interfering signals on their spectrum analyzer from their office he would be going up to the Telecom Crown Street Exchange (where the 148.1875 mHz pager is located) on the 19th to see if he could locate the problem.

21/10/92. Rob rang DOTC to find out results of investigations, only to be told that they could not find any fault with that pager, however it was a different story when they went to the Knights Hill tx. on arrival they set up their spectrum analyzer, but could not see anything even though 7275 was still being triggered by this pager, however as the pager was getting busier, a small spike appeared out of the analyzers noise floor and got bigger as they watched it,

guess where it was centered, right on 7275's input frequency. The spurious signal came and went as they watched, but it verified our observations that this pager was the source of the interference that we have been experiencing for the last 6 months. Telecom were informed of the problem and advised that they would have a repair crew down within a few days to fix the problem, however as I write (29/10/92) the problem has still not been fixed, so much for Telecoms motto "good better best", I wonder how long we would have lasted if we were interfering with a Telecom service!
VK2RUW 438.225.
30/10/92. Still off air undergoing major surgery, rebuild of the control board and the interfacing of a new Phillips 747 link transceiver kindly donated complete with crystals by Ian VK2AIJ in Goulburn.
5/10/92. After working on VK2RAW at Mt. Murray, Rob and myself arrived at Knights Hill to reinstall the rebuilt repeater as well as a set of batteries from the lot obtained by John VK2ZDM from Sydney. The battery installation went fairly smoothly and the end result is that all our repeater sites are now battery backed by 200 a.h. 12 v batteries. If only the same could be said of the rest of the installation! When the repeater was turned on it produced all sorts of weird noises and results, mostly due to the kilowatts of r.f. floating around at Knights Hill, however all these problems were eventually overcome and we left the site at 1715 hours in the dark for the hour long drive home. While we were there Micheal VK2XCE and Rod VK2TRB arrived to reinstall the Rose system and a luckily he had a new Com 3 test set with him which we used to solve some of the problems, thanks Micheal. On the way home myself and Rob talked at length between ourselves and Goulburn with no further problems, other than the reception from our respective spouse when we finally got home after a 5 hour job that took 9 hours.
7/10/92. Noticed some distortion and clipping on voice peaks and after some discussion between myself and Rob, decided that the problem was due to too low a voltage on the tx. exciter board due to a design problem. Rob elected to travel to Knights Hill the next day to confirm the diagnosis and to rectify the problem if possible.
9/10/92. Rob arrived at Knights Hill before going to work and found that battery voltage was only about 12.7v and due to loss in the supply leads the voltage at the repeater was only about 10.9 volts, this was causing the distortion noticed earlier. Modifications to the control board overcome some of the problem, but still did not explain the reason for the flat batteries. Left to go to work. 11/10/92. Went up to Knights Hill to check on the voltage drop problem that Rob had noticed on his previous visit. Found that the batteries were still flat despite being on a continuous 4 amp charge since their installation on the 5th. Found a faulty earth connection that was causing excessive voltage drop and rectified same, however could not find any reason why batteries had not charged up, so left the site with intention of returning with a bigger battery charger on the next visit. Whilst

there, adjusted link audio and mute setting to overcome some minor problems. 25/10/92. Rob and myself went up to Knights Hill to do some further work on the repeater and to set the repeater clock for daylight saving. On arrival checked the battery voltage again and was now down to 12.6 volts following the hiding that this repeater and the others got over the JOTA weekend. In 16 days, including the JOTA weekend, VK2RUW had 10,000 (that's right 10k) triggers. Put the big battery charger on and set it to 30 amp charge whilst starting work on the rest of the system. Shifted the link antenna about 40 feet higher and onto the side of the tower facing Goulbourn. 62 feet of LDF450 heliax was used to connect the link antenna to the cubicle and resulted in about a 4 - 5 "S" point improvement over the original position. A further test showed that Mt. Ginini at Canberra could be accessed at full scale with only 1/2 watt tx power. We could link direct to Canberra without going through Goulburn if we wanted to. Fitted heavier cables between the battery cabinet and the cubicle to eliminate some more of the voltage drop. After some discussion decided to leave the big battery charger running at about 15 amps for the next few days, as the hum level was acceptable. The reason for this decision was that the battery specific gravity was still only 1180 after 7 hours charging at 25-30 amps. Packed up and headed home at 1500 and only got as far as the Robertson pie shop before murphy appeared and caused the link transmitter to drop out after a minute or so's use. Rob went back to Knights Hill as I had other things to do (to keep in good books with wife) Rob was still on site when I arrived home and a decision was taken to remove the link transceiver and take it home for repairs.

26/10/92. After repairing the link transceiver overnight Rob went up early the next day to reinstall the transceiver. The weather was terrible, heavy rain and fog so thick he could only see 2 broken lane lines in front, eventually arrived on site and fitted the link transceiver, which functioned correctly, however being the perfectionist that he is Rob noticed a minor problem that the normal user would not have noticed, and despite the rain, fog and freezing conditions proceeded to fix it. Whilst he was doing this his hands were shaking so much from the cold that he accidently shorted out another ic pin and the repeater went into continuous transmit. Investigations revealed that the problem was probably a defunct ic, and naturally Rob had taken the ic tray out of the car the night before, so he didn't have a replacement. Rob was left with no other option other than to remove the repeater and take it home for repairs, after thawing out at home rob quickly fixed the repeater and decided to go back to Knights Hill to reinstall it the same afternoon (Rob never made it to work that day). On the way back to Knights Hill the weather had not improved one iota, but like the postal service Rob battled on. Everything was duly reinstalled and worked correctly other than for an excessively loud buzz on the repeater tail from the battery charger that was not present before.

The weather conditions were finally getting to Rob so the system was left as it was with the charger switched to 15 amps and Rob went home.

27/10/92. I checked the repeater at 0615 and found that the buzz was still as loud as ever but the repeater was otherwise functioning correctly. Later Rob called me at work wanting to know what had happened to VK2RUW as it was not going when he checked it at 0800. I didn't know either! Arrangements were made for Rob to call Peter VK2BIT later that day to see if he could duck over after work to see if a supply fuse had blown. I heard the repeater ident about 1730 and assumed Peter had been and replaced the fuse, however Rob called me just after 1800 to tell me he had just spoken to Peter and he had just left to go to Knights Hill, so why the repeater was off air for the best part of the day we still don't know. As he was already on his way, Peter decided to continue to Knights Hill to check out the system anyway. The fog was the thickest Peter has ever seen it, and he lives there, at 20 kmh he missed the turn off and he has been down that road 100's of times! Eventually he arrived at the cubicle with a beach umbrella to try and keep the rain out of the repeater while he checked it over. The battery charger was still charging away at 15 amps and the voltage was 14 volts, but no obvious fault was found other than a dry joint on a resistor that was causing the buzz on the tail. After a hurried 4 way consultation with myself, Rob, Peter and Ian in Goulbourn, we decided to shut the system down in case the battery voltage rose excessively, as we were going to leave the charger running until Friday when Rob and myself are going up to the site again to check the repeater and batteries out again. So now you know why ruw is currently off air.

VK2RIL 438.725.

Working perfectly (touch wood) and the only haven from the JOTA weekend traffic, seems they don't know about it yet.

Cheers Ken. VK2TKE

** WAY BACK THEN **

Episode 13. 1973.

Apart from the Moonbounce Project, the main club activities during the year were - setting up and operating a clubroom at the Wollongong Police Boys Club (not used for monthly meetings, which continued to be held at the Wollongong Town Hall Committee Room) - placing our 2metre repeater at its permanent site at Mount Murray and putting it into operation - re establishing the 2 metre Foxhunts late in the year.

Clubroom at Police Boys Club.

A room was made available to us at the Police Boys Club as from mid January. It required repainting and fitting out such that radio equipment could be installed and operated in an approved manner. Our technical books required shelving to form a library and other facilities were needed to make it a suitable place for our members to use. Much planning and physical work was carried out by the special sub committee, formed under the guidance of Steven Russell, to set up and "manage" this facility at a minimum cost to the club. Other club members also

assisted in preparing the room, donating or loaning equipment etc. and manning the roster of "full calls" required to supervise the operation of the radio transmitters on the Friday evenings and Sunday mornings that the clubrrom was open.

By mid year a HF station was operational on 160, 80 and 40 metres plus one on 2 metres. Unfortunately, things did not work out and the club Committee decided in September that the transmitters must be made inoperative. The room could still be used for other club activities and was opening of a Friday evening as at year's end.

However further problems occurred and we were evicted by the Police Boys Club early in 1974.

2 Metre Repeater. A formal Agreement was reached with the owner of the property at Mount Murray in February, for the establishment of a 2 metre repeater installation on the hill behind his house and for 240V supply from his service, with the approval of the County Council, covered by us paying an appropriate fee.

An immediate and concentrated effort by the Repeater sub committee and many of our club members saw a large equipment "cubicle" being manhandled into position in the dugout in the hillside and a long trench being dug with picks, crowbars and shovels through the rocky hillside for the 240 VAC cable. Next came the erection of the 80ft. antenna tower and its guy wires and the installation of the antenna by our "resident skyjack". Those involved over the several weekends had some amusing tales to tell!!

The Repeater etc. was quickly installed in the cubicle and went "to air" on its Channel 1 frequency before the end of February with an initial 4 watts output. However coverage towards Wollongong was poor until modifications were made to the antenna and power output was increased. Coverage then improved considerably.

Unfortunately component failures in the equipment took the Repeater off the air by mid year and an assessment of the situation resulted in the decision to make major changes, involving conversion to solid state gear - allowing the replacement of the "full" 240 VAC supply by a wind generator and batteries.

The Repeater was still out of operation at year's end, but some progress had been made in the construction of the solid state modules.

Field Events. A very successful field weekend was held "under canvas" at Bass Point in May, with equipment being operated on various HF and VHF bands.

The club operated a station at the Police Boys Club over the JOTA weekend in October.

2 Metre Foxhunts were reintroduced in October, after a revised set of Rules was prepared, to ensure that an even more enjoyable event would be possible. Four "hounds" participated in October and five in November.

Monthly Meetings and General Matters.

The club had 58 financial members in March 1973, according to information forwarded to the WIA in the annual application for the Grant of 50 cents

per Branch member. Attendance at monthly meetings averaged approx. 25 over the year.

As the income for 1972 was only $286 and components for our 2 metre Repeater had absorbed $142 of this, with more expenditure anticipated on this item, it was decided to make a formal request to the VK2 Division for financial assistance. Unfortunately no replies were received to our requests, although there was talk of them helping us with some item(s) of equipment for the Repeater. It is only known that the promised solid state receiver did not eventuate at that time.

By the end of the 1973 Financial Year club funds were down to $31, with the Repeater and its operation taking $105 of the $130 received during the year, Moonbounce taking $18 and hire of the Town Hall Meeting Room costing $20.

At the AGM in March, the following were elected - Pres. Geoff. 2ZHU, Vice Pres. Barry 2FE, Sec. Ian 2ZJA, Treas. Alan 2VH, Asst. Treas. Bill 2ZCO, Area Off. Graeme 2AGV, Newsletter Ed. Barry 2ZYL, Club Off. Steven Russell, Publicity Off. Barry 2FE, Committee Garry 2ZOM and Hank 2BHL.

A film by Alan 2VH, on the work carried out earlier in the year at the Repeater site was shown at the March meeting. A tape on Quad Antennas was played at the Sept meeting and a film on Wildlife in Bass Strait shown in October. "Lucky door" prizes were raffled in October.

There was quite a lot of discussion at meetings during the year in order to formulate our responses and recommendations to matters referred to Branches by the VK2 Division with regard to "The Big 2 Metre Repeater Channel Allocation Battle" which was raging between this Division and Federal Headquarters plus the other Divisions at the time. It was not resolved at the Easter Convention. However the Motion before the Special VK2 Division Meeting on 21/9/73 - for the VK2 Division to secede from the WIA, was "convincingly defeated". Changes followed at the VK2 Division level and we were asked to submit our ideas on proposals for changes in Division structure etc including - formation of Regional Clubs in lieu of some or all of the Branches, in order to decentralise State activities - to allow country Clubs thus formed to provide representation on Division Council - to replace the now defunct Area Officer system by Zone Officers, with 6 monthly meetings. There was also a proposal put up for our consideration - that a Licenced Club be opened in the Division Headquarters building!!

By the Way. The Amateur Callbook which became available in August, cost $1.20 a copy!

Our November Monthly Newsletter contained an article on Transistors, reproduced from QST, October 1948, in which it was stated that "It does not appear that there will be much use made of Transistors in Amateur work"!!!!

Lyle VK2ALU.

******* Back Page *******

Full details of tha back page are available on last month's Propagator

******* The End *******