Auckland Branch

N Z Association of Radio Transmitters Inc.

NEWSLETTER

April 2013

SPECIAL GENERAL MEETING

Saturday 27th April 2013 at 1330 hours

To approve a commitment of $800.00 to a fighting fund for legal costs to make a submission to the Auckland Council Unitary Plan to include antennas.

INTER-BRANCH FOX HUNT

Scout hut, Churchill Park, Kinsdale Ave, Glendowie

Saturday 20th April, 2013

Briefing at 1245 hours; Individual starts from 1300; Debrief at 1600.

Some subscriptions are overdue: **Please pay $45 by direct credit to 12-3047-0076823-00**

DIRECTORY:

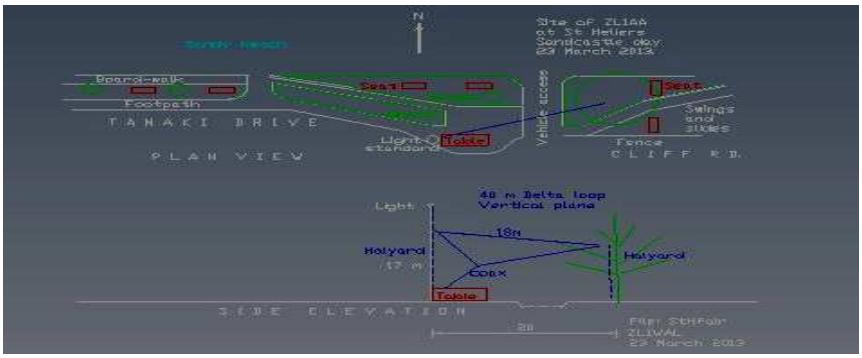
www.qsl.net/ZL1AA	Box 18-003, Glen Innes, Auckland, 1743	Nets: Mondays 3.645 MHz
ZL1AA@NZART.org.nz	400 St Johns Road, Kohimarama,	Thursday 145.775 MHz
Clubroom: 528-2039	Google earth: 36.86973^{0}S; 174.84386^{0}E	Club: Saturdays 145.775 MHz
Contacts: 524-9969 (Gwynne)	ARRL Grid: RF73kr	Skype: ZL1AA_NZ
21– 0226-4981 (Steve)	ASB Bank Account: 12-3047-0076823-00	Remote K3: ZL1AA.dyndns.org

FROM OUR PRESIDENT

And the winner was ….
The raffle was drawn at the Committee Meeting on Tuesday 2nd April. It was won by James Knightly ZL1KNI from a draw of 26 entries. This raffle was the initiative of Gwynne ZL1AAR who has since ordered the 2013 volume from ARRL to be kept as a reference at the Clubroom. The Treasurer was pleased to report that the raffle proved to be a good incentive to collect Members' subscriptions at the beginning of the year, so as to have a cash flow to meet our expenses during the year.

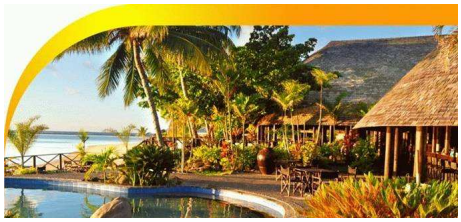
Equipment TradeMe Sales
Many items have been sold, including a ZC1 Mark II for which the bidding was fierce. This is no small task, thanks to Steve and Wallace. Our thanks go to Allan ZL1AJH who has put in hours at the Clubroom, testing and breathing life into this gear. Sadly for us, Allan has returned to Taumarunui. More equipment has recently been collected from Bill ZL1UTwho is going through a second retirement since he previously retired and came to Auckland 30 years ago and has not operated since.

St Heliers Sandcastle competition
On Saturday, 23 March Wallace ZL1WAL, Ray ZL1AJR and Gwynne ZL1AAR operated an HF station on the foreshore at the east end of St Heliers beach. Wallace used his trusty catapult in the middle of the night to get halyards over a street light standard and a over a tree. They erected an inverted vertical 40m delta loop antenna suspended between these. Because its propagation is perpendicular to the plane, good signal reports were received from Japan and USA. Below is the Plan view and Side elevation showing the antenna at its planning stage.



This was our chance to show off to the public and to hopefully attract new Hams. Families whose fathers or grandfathers had been Hams were pleased to see us and various Branch Members stopped by to chat.

5W0M in Samoa:
Have you had a QSO with Klaus who is heading a German team on a DXpedition to Le Lagoto on Savaii in the northern part of **Samoa**, IOTA OC-**097** grid AH36TN **from 4th to 18th** April 2013. They will be QRV from 80m to 6m in CW, SSB and RTTY - including 60m - and on 2m EME. For more information see http://5w0m.hkmann.de



Inter-Branch ARDF Competition (Fox Hunt):

Wallace ZL1WAL has planning well advanced for this convivial rivalry and opportunity for fellowship on 20th April at Churchill Park. Neighbouring Branches are likely to be more numerous this time. Vaughan ZL1TCG will be there to defend his title won for North Shore Branch last year at Dingle Dell.

World Amateur Radio Day

On April 18, 2013 we'll celebrate the World Amateur Radio Day on the 88th Anniversary of the founding of the International Amateur Radio Union, IARU. This theme for this year World Amateur Radio Day is:

"Amateur Radio: Entering Its Second Century of Disaster Communications"

The REP-Rede dos Emissores Portugueses with a group of operators, will activate the special callsign **CR5IARU** from April 13 to 19, 2013 on all bands.QSL via CT1REP (bureau or direct). Logs will be available in ClubLog.

Branch 74, The Wellington VHF Group, has been granted the special callsign **ZL2WARD.**
The station will be active on The National System, and possibly on other bands. An email QSL Card will be sent to all stations requesting one.

SPECIAL GENERAL MEETING

Saturday, 27th April 1330 hours at Z1AA Clubroom

Notes from your new newsletter editor, Rob ZL2RED.

Members can we please have your attention to this serious and potentially threatening issue !

I have recently had a brief discussion about this issue with our NZART President – Vaughan Henderson and summarize his correspondence to the Branch as follows:

In brief : Auckland based Amateur Radio Operators were expecting a specific and reasonable planning provision for Amateur Radio Stations /installations , i.e. that masts/towers & associated antennas, would be incorporated into the just recently released Draft Unitary Plan. Instead there is complete silence.

Enquiries by Vaughan Henderson upon the recent release of the Draft Unitary Plan has revealed that the Council Management has made **no** such provision for Amateur Radio Stations (Masts/towers/ antennas) in the Draft Unitary Plan. And further, with the verbal informal enquiries made subsequently to the Council, they are refusing at this time to provide any formal assurance that an adequate and reasonable such provision will be made and put into the Final Unitary Plan (due out later this year, after the draft plan "consultation" period).

Please be assured, without appropriate wording in the Unitary Plan there is a potential threat to future Amateur Radio Stations on residential properties within the Auckland Council area. It is not just another political "spat" between various council factions etc., which will nicely blow over and come right for us on its own, as from past history we might wish to believe. So, in preparation to be properly heard, Vaughan Henderson for the NZART, has just recently written to Branch Presidents in the Auckland area, to alert their Executive /Membership that this issue is now a threat, and we Amateur Radio Op's must "fight our corner" successfully to obtain a written provision in the Final Unitary Plan.

Now myself and Vaughan, are not lawyers, but for Amateur Radio Op's with existing tower(s)/masts (s) & associated antenna(s), may we focus your attention on a reasonable "laymans" view: Many existing such stations within the various old Auckland area councils, are understood **not** to have received a formal permit for their tower/mast etc installation. Instead, their council may have provided an **allowance** to the Amateur/property owner for such an installation, under certain height/position requirements under the old various planning provisions. For example, not so long ago, the old North Shore Council did grant such planning provision after Amateurs negotiated to get a 17m height restriction. This provision was partly in recognition of the crucial function that Amateur Radio provides via AREC to the local comms. network for Civil Defence. (Be aware that the Auckland area Civil Defence plans to centralize, is a separate and "troubled" issue being aired in Suburban newspapers .)

Consider the huge increases in Auckland property prices, property subdivisions, neighbours' property "asthestics" and legal activism. Are you prepared to gamble that you will not at some future time face a legal challenge from a future intolerant neighbour as to your right to have your tower/mast & antenna ? A resource consent will cost you $5,000.

There are several actions that Amateur Radio Op's/members can take: Please attend this Special General Meeting to discuss Vaughan's plan and to consider your Committee's recommendation to contribute towards a fighting fund.

The formula is simple, Gentlemen: A well supported action plan now may succeed, but a "she'll be right" attitude is sure to see us Amateurs in a much worse situation for our current and future stations on residential properties.

Ladder-Line Myths

By Harold Melton, KV5R

Ladder-line is great - extremely low loss, even at high SWR. However, many hams refuse to use it because they are afflicted by common misconceptions:

"Ladder-line radiates!" Baloney. Ladder-line does not radiate any more than does coax, if terminated in a balanced antenna.

"I tried it once, and it messed up my TV, my computer, and filled the shack with RF!" Make sure you use a length of ladder-line that is **not** a multiple of a half-wavelength on any band. Lengths like 43 and 86 feet work well. A resonant length of ladder-line, just like the shield of coax, will pick up RF from the antenna and conduct it into the shack. The only difference is that the shield of the coax is grounded, and the ladder-line is not, so it acts in common-mode to bring in and radiate induced RF. A non-resonant length of feed-line will present a high impedance to common-mode currents. And, as with any feed-line, it's best to run it perpendicular to the antenna as far as you can so the EMF from the dipole will cancel itself instead of inducing current in the feed-line.

"It's too hard to work with! You have to keep it away from metal!" Well, yes, a couple inches or so. The general rule is twice the width of the line. It's easy to make stand-offs from half-inch PVC pipe. Ladder-line can *cross* a metal edge, like a window sill; you just don't want to run it right against metal for any significant length.

"It's too hard to bring into the shack!" Baloney. There are many waterproof ways to bring ladder-line into any shack.

"I can't buy a lightening arrestor for ladder-line!" So just **make** them yourself.

"It flops around in the wind, and it breaks too easy!"
(a) Windowed line should be twisted about one twist for every two feet to prevent wind-induced oscillations.

(b) Make a good feed-point connection, with proper strain-relief. It doesn't hurt to wrap it over the top of your feed-point insulator and then secure it to itself with cable ties. Also, the 14-gage stranded stuff is **much** more reliable than the old, cheap 18-gage solid stuff.

If you run an all-band dipole (with a tuner in the shack), you need ladder-line. Coax is **very** lossy when operated at high SWR. It's easy to lose 90% of your power in your coax when operating on bands where the non-resonant dipole presents a high feed-point impedance to the feed-line.

What's in a Name?

By L.B. Cebik, W4RNL (SK)

The antenna owes its name to a certain visual similarity that some kinds bear to the "movable, segmented organ of sensation on the head of insects, myriapods, and crustaceans." We rarely confuse the two generic types of the antenna for plural reasons. An insect has two antennae, but an amateur radio operator often has two (or more) antennas. (Many British experts preserve the alternative name, aerial, perhaps because the term is less arcane and captures something of the antenna's lofty position in the air and something of its ethereal role in radio communications.) "What's in a name?" wrote Shakespeare. An antenna by any other name would radiate as well--and confuse the heck out of amateur radio operators.

Auckland Branch 02, NZART (Inc)
Minutes of Committee Meeting

Time / Date / Place: 1950 hours / Tuesday 2nd April 2013 / Clubroom

Attendees: George Zl1TUJ (presiding); Steve ZL1FS, Wallace ZL1WAL, Gwynne ZL1AAR, Ray ZL1AJR, Robert ZL2RED and Selwyn ZL1BRC (Visitor).

Apologies: Japie ZL1JJN, Wes ZL3TE

Sustained ZL1FS / ZL1TUJ

Minutes of the previous Committee meeting on Tuesday 5th March 2013,

Taken as read and approved ZL1TUJ / ZL1WAL

Correspondence In:

Newsletters: Franklin, North Shore
East and Bays Courier – Response by Civil Defence about advantages of centralization
Robert - Experiencing software problems to do newsletter
Selwyn – advising that he is updating the exam tutorial and index
Vaughan – supporting Suburban newspapers article portending "disaster" by CD centralizing
Vaughan – asking for $800 commitment by September towards fighting fund for recognition of heights of antennas in Auckland City Unitary Plan
TradeMe Buyers

Received ZL1WAL / ZL1TUJ

Correspondence Out:

Robert – re Newsletter deadline
St Heliers Village Manager – Site for ZL1AA at Sandcastle event
TradeMe Buyers

Approved ZL1TUJ / ZL1WAL

Finance:

The Treasurer presented the Finance report

Donation received for hiring out old rigs to a film construction company - $300
Raffle - $130 received (26 tickets)
Sale of equipment on TradeMe – 8 items earned $351

Received ZL1WAL / ZL1TUJ

Expenses requiring approval to pay:

Orcon	Broadband	$75.43	Direct Debit each month
Wallace	TradeMe postage	$62.80	
Wallace	Silicone for rotator	$12.75	

Approved ZL1TUJ / ZL1FS

Fund raising

Auckland Council Civil Defence have not yet made a decision about the distribution through AREC.
Lotteries application - No application has been made until the AREC distribution is decided. The next application deadline will be in July.
.
Drive for Members from Schools and Educational Institutes
James ZL1KNI has some keen Grammar School boys interested.

General business:

Reports:

Maintenance
Kitchen sink is slow to drain; smells bad.
South wall has been painted and looks good. East wall should be next to be painted.
Inorganic collection – spouting, window frame and rubbish has been cleared and taken away.
Toilet block (ex Scarbros):
Cleaning - walls are to be water-blasted
Sign to indicate which stall to use
Tardis - no decision to move it
Rotator has been replaced and the beam has been aligned
Battery chargers – obtained from North Shore and are being used to charge the foxes' batteries.
Exams – Hiroki Seko passed. He joined the Branch at the Student rate.

AGENDA (2nd April continued)

Remotely operated station:

George reported that he needs a separate power supply for his K3X.

Wallace volunteered to set up the K3 by using a dedicated PC to get it on the air again.
He suggested User logins to avoid the frustration experienced by finding other users' preferences dominating the Desktop.
Adobe will be loaded on the "Exam" computer.
All PCs are networked to the HP 3 in 1 printer. George will obtain a network interface for it.

Events held:

St Heliers Sandcastle Day 23rd March from 10 am to 4 pm - only a little interest was taken in us..

Future events

World Amateur day is Thursday 18th April. We shall **not** set up a station in the public view.
Inter-Branch Fox hunt at Churchill Park – 20th April using 144.7 MHz. Wallace is the convener:
2m Foxes, Sniffers and battery chargers have been collected – includes spare batteries.
Application has been made to Auckland Council for a Permit
Invitations / Publicity sent to other Branches in Greater Auckland.
Key for Scout den is available.
The course has been planned.
St Heliers / Glendowie Scouts/ Guides foxhunt and winter instruction 1800-2000 hours. Date TBA.

Program of Speakers / Topics for Monthly General Meetings - none decided.
Remits will need to be discussed / voted in May, and a report from NZART Conference in June.

Draw Raffle:

Tickets were put into a hat and formerly drawn, James Knightly ZL1KNI was the winner and he was 'phoned immediately, informed and congratulated.

Auckland Council Unitary Draft Plan – Amateurs' antennas are not mentioned in it. Without provision for an exception to building height restriction, Amateurs would have to apply for a resource con sent costing $5,000, to erect an effective antenna.

A letter from Vaughan Henderson ZL1TCG, recently elected President of NZART, was tabled and discussed. It asks all Auckland Branches to commit $800 each to a fighting fund to engage lawyers to present a case to Council. This expenditure will be required by September 2013.
The Committee recommend Branch Members support this expenditure (being over $300) ZL1AJR / ZL1TUJ
ZL1FS abstained
A Special General Meeting will be called for the 4th Saturday (because on the 3rd Saturday, we are hosting the Inter-Branch Fox Hunt).
Some private pledges have been made to reduce the impact on Branch funds. The Treasurer would like to hear from other philanthropic Members.

Committee Member vacancy - Allan Hobbs ZL1AJH has resigned and returned to Taumarunui

Job assignments:

Maintenance — Steve
Grounds — Robert (under duress)
QSL card collection and replies — Ray
Health & Safety — George
Phone tree for contact with Membership — All
Sale of equipment – Steve, Gwynne and Wallace
Batteries – Steve,
Antennas – Japie and Gwynne
Construction projects — Steve
Supplies, Logs — Gwynne,
Newsletter — Robert

Other Business

Selwyn ZL1BRC voiced his concern that Members were not attending the Clubroom, even when General Meetings were scheduled. On one occasion, because only Members of the Committee were present, a snap decision was made to abandon the meeting (as permitted by the Constitution).

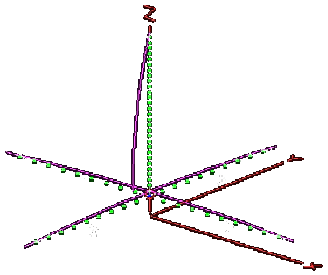
The meeting closed at 2215 hours with supper provided by Ray ZL1AJR,

Continuation of discussion about experiments with vertical antennas

Acknowledge http://ve2bmc.com/ANTENNA.htm

1/4 VERTICAL

Elevation Plot .



Quarter wavelength vertical antennas are widely used in phased arrays, especially in those which cover more than two directions. The famous "four square" array is a good example of it. The down side of the ground plane is that it can be a very inefficient antenna. Unless one uses "elevated radials" with sufficient height, the antenna return current will travel through the ground, and back to the feed point. This will cause RI^2 losses. Unless special care is taken, there is a heavy price to pay in terms of losses when the radial system is located "in the ground" or "on the ground".

It is not uncommon to see the efficiency of a 1/4 wavelength antenna to be well below 50%. There are a number of experiments and publications which demonstrate how the efficiency of a ground plane is sensitive to its radial system. One experiment which can be easily conducted is to measure the feed point impedance of the antenna while adding more radials to the ground system. The difference of impedance observed represents the "loss resistance" which in practice translates into loss of power into the ground itself. Knowing the feed-point impedance of the antenna and the theoretical radiation resistance also allows calculating the efficiency of the antenna.

Here is an example of data obtained after having performed the experiment described above. I started the experiment with 21 radials, the antenna was tuned for 14.200 Mhz. The vertical section of the antenna was only 1 foot above the ground and the 1/4 wavelength long radials were laying on the ground. The feed point impedance was measured using an antenna analyzer model MFJ-259B. Here are the actual results obtained:

# Radials	Feed Point Impedance (ohm)	Antenna Efficiency (%)	Power Lost into Ground (1 kw output) (watts)	Loss (dB)
0	94	27%	734	-5.8
1	84	30%	702	-5.3
2	69	36%	638	-4.4
3	61	41%	590	-3.9
4	55	45%	545	-3.4
5	49	51%	490	-2.9
6	46	54%	457	-2.6
7	42	60%	405	-2.3
8	39	64%	359	-1.9
9	39	64%	359	-1.9
10	38	66%	342	-1.8
11	36	69%	306	-1.6
12	36	69%	306	-1.6
13	32	78%	219	-1.1
14	31	81%	194	-0.9
15	31	81%	194	-0.9
16	31	81%	194	-0.9
17	30	83%	167	-0.8
18	30	83%	167	-0.8
19	30	83%	167	-0.8
20	30	83%	167	-0.8
21	30	83%	167	-0.8

Antenna Efficiency versus # Radials used

% Efficiency = Radiation Resis-

These results are quite stunning. By going from 3 to 14 radials, decreases the feed point impedance by a factor 2, which in turn translates into a 3 dB improvement. In other words, the efficiency of the antenna would be doubled simply by using 14 radials instead of only 3. As mentioned previously, knowing the radiation resistance of the antenna allows calculating the efficiency of the antenna. We can also clearly see that even with 21 radials, the system is far from being 100% efficient. An in-ground or on-the-ground radial system would require about 120 of such radials to get closer to 100% efficiency.

The conductivity of the ground is also a key factor here. Poorer the ground conductivity, more dramatic will be the losses. Over very good ground, a smaller number of radials will suffice to obtain good antenna efficiency. Over salt water, only 2 radials will yield satisfactory results.

Next month: Vertical loops will be discussed

(From Ed: This came through from NZART on one of their recent info releases. Food for thought to promote QRP operations and thus encourage Amateur Radio antennae experimentation. (Sorry—bottom refs missed).

Tokyo 170-8691 JAPAN

P. 0. Box 73 Toshima

18 March 2013
To liaison Officers of all IARU Region 3 member Societies

(ARANC/ARCOT/ARM/ARRIJARSI/BARL/BDARA/CORA/CRSA/CIARL/FARA/HARTS/JARL/KARL;MARTS/NZART/ORARI/PARA/PARS/PIARA/PNGARS/RAST/RSGB/RSSUSARC/SARTS/SIRSNARC/VARS/WIA) cc:

Directors of IARU Region 3
(VU2GMN/HL1AQQ/JE1MUI/VK3IL/YBOAZ/ZL2AZ)

2013 QRP Dav (June 17)

Dear Colleagues:

The interest in QRP activities is everlasting in amateur radio community worldwide. QRP radio communications testify high ability of radio amateurs, and offers advantages concerning, among others, the reduction of QRM on the amateur bands.

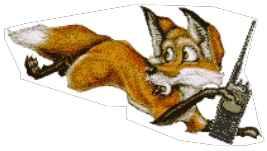
The 10th IARU Region 3 Conference held in September 1997 in Beijing has resolved the following recommendations based on the document (97/X/14) submitted by NZART, which says;

"That Region 3 Societies help to promote the IARU objectives for QRP operation, specifically:
to support QRP operation on **June 17** each year;
to foster QRP activities by their members;
to encourage regular publication of QRP articles in their national magazines;
o provide QRP sections in any national contests; and
to assist other Societies with the promotion and development of QRP."

Accordingly, member Societies are requested to note the above resolution and take appropriate actions with reference to the holdings of the following events, for example, in order to contribute to more effective use of radio spectrum:
QRP Field Day;
QRP Contest;
Distribution of QRP Transmitter Kits and Reference Book; and
Workshop of QRP Operation. 73,

Ken Yamamoto, JA1CJP Secretary, IARU Region 3

Invitation



Inter-Branch ARDF 2m Competition

Churchill Park, Kinsdale Avenue, Glendowie
Saturday, 20th April 2013.
Sausage sizzle between Noon and 1230 hours.
Briefing at 15 minutes before 1 pm at the Scout Hall, next to the flagpole.

What to expect

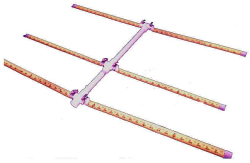
Churchill Park is 40 hectares of gentle grazing pasture that has stands of mature pine trees and has smooth graveled paths around and through it. Over summer, cattle treads in the paddocks have dried in some places to make it hard on one's ankles. Gates are self closing. Climbing fences is discouraged.

There will be five foxes hiding (hi hi). They will NOT be in newly planted and fenced off areas. Over 65 year olds need find only four foxes.

They will be easier to find than at last year's event (in Dingle Dell) because fewer reflected signals and RF shadows will be experienced in this terrain.

Print the map of Churchill Park; familiarize yourself with the map's orienteering legend, and / or visit the area beforehand (not allowed at International ARDF events).

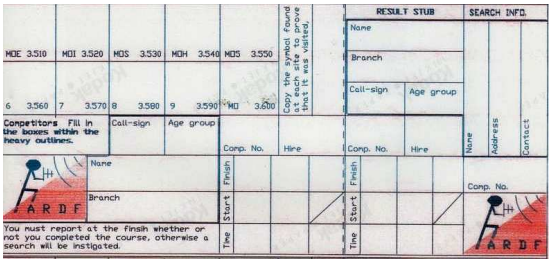
Very few NZART sniffers are available for hire for $10; bring your own 2m hand-held rig.



See www.qsl.net/ZL1AA > Newsletter > 2012 > March for construction details of a Yagi antenna made from a tape measure. Alternatively, you can hold your hand-held set closely against your body to shield RF entering from behind. The null is the direction to the fox.

Essential items to bring are the map, pen and $10.00 entry fee (includes BBQ); useful items are headphones, clipboard, and a compass to orient your map.

Fill in the red control card with your name and details THRICE, then hand it in to the Starter. He allocates a start time and hands you back half of the card, keeping half to know who is still out in the park. Your half of the "clip card" is used to record the codes of each of the foxes that you find.



Competitors start individually at 5 minute intervals at which time you may pick up your radio and turn it on — not before.

Each fox broadcasts its identity in slow Morse code on 147.000 MHz: MOE, MOI, MOS, MOH, and MO5 for one minute each in rotation. That is, each fox is silent for four minutes until its turn to transmit again.

Each fox appears at eye level as an orange and white prism-shaped flag on which is written a code. As you find each fox, record its code ("F" in this example) thus scoring 20 points.

Time allowed: 1 hour. One point will be deducted for each minute late in returning. You must report at the finish, otherwise a search party will be sent out to look for you.

As you finish we shall record your elapsed time, check the codes and compute your score.
Results will be displayed throughout the afternoon for you to compare your score with others.
At a debrief at 4pm, the winner will be asked to describe his route choices and DF technique.

In last month's newsletter I gave some tips about **sniffing,** that is, using the technique of triangulation. If you have not already had some practice, I suggest that you pair up with a buddy, each having a hand-held radio, and go out into some nearby wooded park. Take turns to be the fox, while the other sniffs for you. Such practice will be invaluable on the day of the Competition. **Good hunting.**
de Wallace ZL1WAL

You will need this for the Inter-Branch Fox Hunt Competition on 20th April.