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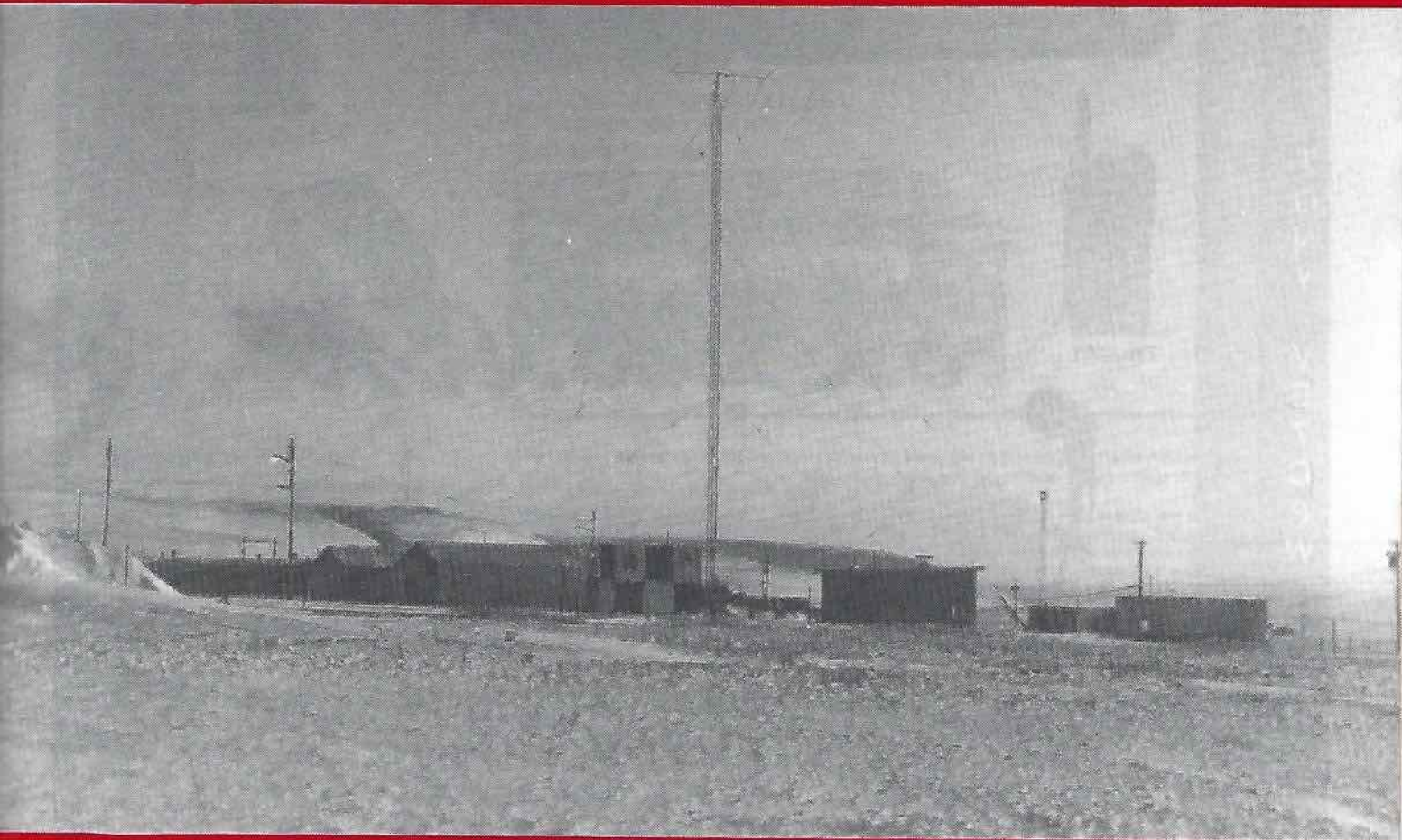
Canada's Amateur

La Revue des Radio Amateurs Cana

JUNE 1988

U.S.S.R./Canada Polar Expedition

— Page 16



Polar Bridge Expedition, CI8C, Resolute Bay: Tower and Shack.

IPARN— Part 3, Repeater Interface — Page 29

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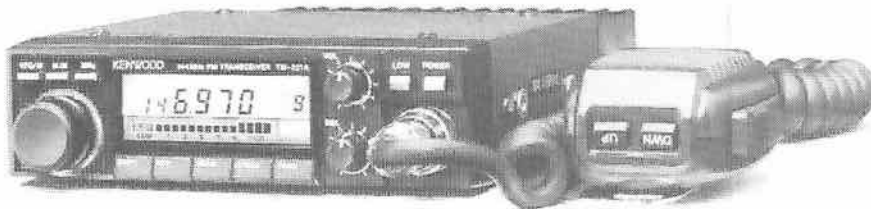
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THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

June 1988

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WHAT IS ?

The Canadian Amateur Radio Federation, Inc. is incorporated and operates under a federal charter, with the following objectives:

1. To act as a coordinating body of Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.

EDITORIAL

U.S.S.R./Canada Polar Bridge

bunch of crazy skiers are hiding out. Somewhere up around the North Pole, I think."

"Go on! You've got to be kidding. Santa Claus, maybe, but Russians on skis? No way!"

I know we didn't all get that reaction. I'm really not too sure what was being said during my school demo. You see, it was all in French!

Thanks

CARF would like to thank the following Amateurs who helped with information, ideas and suggestions when the CARF brief to the DOC on 30-890 MHz was being produced.

Farrell Hopwood VE6AHL, Bob Eldridge VE6BS, Bob Smits VE6EMD, Larry Reid VE6LR, Bob Campbell VE3KLL, Michael Ross VE2DUB, Mike Masella VE2AM, Barry Bremner VE3BZW, Barc Dowden VE3TT, Art Blick VE3AHU, Terry Darling VE3CAB, Art Stark VE3ZS, John Henry VE2VQ, Barry McLarnon VE3JF, Dick Atkinson VE3JBO, Ralph Cameron VE3BBM, Dan Holmes VE3EBI, John Iliffe VE3CES, Earle Smith VE6NM and Bill Wilson VE3NR.

REMERCIEMENTS

CARF tient à exprimer ici sa gratitude aux Amateurs dont les noms suivent pour les informations, idées et suggestions à l'occasion de la préparation du dossier du CARF au Ministère des Communications sur la question du 30-890 MHz.

Farrell Hopwood VE6AHL, Bob Eldridge VE6BS, Bob Smits VE6EMD, Larry Reid VE6LR, Bob Campbell VE3KLL, Michael Ross VE2DUB, Mike Masella VE2AM, Barry Bremner VE3BZW, Barc Dowden VE3TT, Art Blick VE3AHU, Terry Darling VE3CAB, Art Stark VE3ZS, John Henry VE2VQ, Barry McLarnon VE3JF, Dick Atkinson VE3JBO, Ralph Cameron VE3BBM, Dan Holmes VE3EBI, John Iliffe VE3CES, Earle Smith VE6NM, Bill Wilson VE3NR.

My partner J.P. Leblanc VE3PJL and I, were invited to 'Ecole Mgr. Remi Gaulin' in Kingston, Ont., to give Mme. Claudette Sulek's grade 6 class an insight into Amateur Radio and, in particular, the ski-trek. Don't ask how a Newfoundland Frenchman and an old Ontario farmer ever got themselves into that fix, but there we were. (My XYL has a way of talking me into anything!) Since J.P. goes to that fancy Military Officer Training School up on the hill, I let him do the talking. I held the radio!

The preamble went well, with J.P. fielding the questions to the best of his ability (at least I think so, my French IS rather limited, you know). After what seemed like a lifetime, the moment of truth was upon us. Would the thing actually talk to us? Would we be the heroes or the goats? Only one way to be sure! Out into the school yard with 35 anxious grade six students tagging along. Line up the antenna with the Eastern sky and wait... and wait... and wait!

Then, with a few bleeps and blurps the miracle happened! Reginald Fessenden be praised, it actually spouts forth numbers and things. Wow! Talk about excitement! (ME, I mean, not the kids.) Now I can hold my head up again, content in the knowledge that Amateur Radio didn't fail me. We did it guys. We caused a bunch of kids to be happy for awhile, and just maybe, WE recruited a new Ham or two in the process. WE did it guys: aren't you proud? (And all I had to do was— hold the radio!)

Eric Ilott VE3XE presented a booklet to me called *Exploring the High Arctic From Your Classroom* from the Radio Amateur Satellite Corporation (AMSAT), prepared by Richard C. Ensign N8IWI, Science Education Advisor, AMSAT. Portions were translated into French and used during the presentation. Thanks to Rich for this excellent publication, thanks to J.P. for the translation and thanks to Eric for bringing it to my attention.

BY GEORGE SANSOM

VE3LXA

The Polar Bridge Expedition began its more than three month journey across the polar ice cap at 0731 GMT on March 3, 1988. As I write, it is mid-April and by the time you read this, June will be half over. I guess all I can do is congratulate the entire crew who manned the base station during its existence and say, "Good Job Guys"! The daily newspapers and TV crews provided excellent coverage and in doing so showed Amateur Radio to the world.

Many of us worked CISC and followed the path of the advancing skiers. Many of us watched the faces of school children light up as we took Amateur Radio into their classrooms and demonstrated the digi-talker with its computer voice. What a perfect opportunity to promote Amateur Radio! What a perfect time to show the youngsters that we are more than just a bunch of knob-twiddling old fogies. The thing actually talks, and on a handheld radio!

"Look Jane, its telling us where a

LETTERS

ON THE CARF/CRRL MERGER

Is it not about time that the CARF Executive accepts the fact that the CRRL would appear to have no intention of getting together with CARF for One Canadian Amateur Radio Organization.

CARF's efforts on three different occasions over the years have been shot down on one pretext or another, gentlemen there are NO amalgamations today, just straight take overs.

The ARRL's financial subsidies to the CRRL and the fact that the CRRL has an arrangement to circulate its publication as an insert in the ARRL's QST magazine appears to mean that there is little or no intention on CRRL's part towards forming a single Canadian Amateur Radio organization.

If Canadian Amateurs want a truly 100 per cent Canadian Amateur Radio organization their support will be there as it has these many years.

The Canadian Amateur Radio Federation has, is and will continue to give great service across Canada, and George *The Canadian Amateur* is better every year.

Keep up the good work.

J.H. Humphrey VE3ASJ

THANKS FOR THE HELP

Thank you for your letter of March 22/88. I sure appreciate your running that ad for me.

If it had not been for all the help I received in donations from the hams I don't know what I would have done at the time as I am 64 years of age and all my lifetime belongings went in the fire.

However the good Lord was good enough to let me make it out the door, even though I had facial burns. But everything is healed now and we are taking things a day at a time and am sure that through time we will be in good shape.

Thanks again,

Dick Boutet VE3BYH

CONFORMING WITH SECRECY

I really hate to tear myself away from felling the huge Arbutus tree in my back yard. You see I'm making preparations for constructing a version of The Stump Antenna as described in this month's (April) issue of *The Canadian Amateur Magazine*. I can't for the life of me figure why no one thought of this type of antenna sooner! However as I toil away with chain saw and axe I can't help but

reflect upon some of the critical letters I also read in this issue. I seems there is some fretting about DOC's advanced thinking concerning The Canadian Privacy Act. Why can't you people see that, by implementing this Act, all Canadian Amateurs will surely benefit! The only 'Piece de Resistance' missing in this brilliant suggestion, and I sincerely feel it would alter everyone's bitter attack, would have been for DOC to also suggest we all inform our prospective QSLing contacts to 'QSL VIA Box 88 Ottawa Ontario'. Think of it, no more spelling out strange QTHs like Armpit Sask., Manyberries Alta., Tuktoyaktuk NWT or Carbonear Nfld. etc., etc., just 'Please QSL via Box 88 Ottawa'. What could be simpler? And for the timid ones who realize Ottawa hasn't an original thought to its credit, please don't worry. A country much larger than ours (and the US of A, in whose footsteps we always seem to follow) has used this method for many years. Don't you have cards from there to prove my point? Come on fellow Amateurs, accept the inevitable and don't give it a second thought, DOC didn't. Why spoil their track record now i.e.: the Ravenscroft horror story, Amateur licence fee increases, etc. etc.

I'm sorry I must get back to my antenna! Now I wonder, was there any consideration given towards global pattern when deciding on what compass directions the 'quadrated' cuts were made?

Nosbor Ybbor (AKB7EV)

(Conforming with the Secrecy Act)

YOUNG CANADIANS

On March 21st, I answered a CQ from BY5RF, Suzhou, China. The immediate reply was, "This is an elementary school in Suzhou, my name is Zhao, I am a YL and my age is nine years old."

I have worked other, similar young people, in China, and in Indonesia, also. Of course, I work thousands of young people in Japan—every year.

I would be hard pressed to find many young Canadians on the air. We do not have an 'easy entry' for them. What are we doing about it? Answer—nothing, unfortunately.

Roy Parrett VE7TG

THE END IS NEAR

For many years I have been reading about the woes of those young and not so young bemoaning the Communications Canada operator proficiency

testing exams and that the ranks of hams are thinking out.

I believe that we in Canada have it easier than in some other countries where there are several levels of proficiency rather than only two.

As for myself, I have taken several Amateur radio courses, have experimented with radio at home and passed the technical and regulatory exam sections without difficulty. However, for the 10 and 15 WPM tests I had to come back several times. I am very proud of my achievements as the Certificates were obtained by sweat and tears.

I can only say that the Communications Canada District office personnel have been very accommodating and helpful probably as most of them hold their Amateur ticket.

As far as the reported lack of sufficient new recruits to ham radio is concerned and waning enthusiasm on the HF bands, let me say that is very difficult to make Amateur radio palatable to youngsters based on what they hear on the airwave during a QSO.

The original purpose of a QSO and the ensuring QSL card was the fact that a connection by radio was indeed achieved at all, that the transmission met the basic technical expectations of frequency stability and purity of tone. Nowadays modern apparatus provides all that. Further, no more proof is needed that electromagnetic waves do circle the globe.

So, what's left? The contents of a typical QSO are really not exciting—how can they be—when you are communicating with a stranger! And, the prospective recruit will ask you why there is a need to contact strangers. What answer would you provide?

I do admit that Amateur radio is, or can be, more than just QSOs on HF bands but for really serious experimenting with new techniques, or even repairing your gear unless home-built, one requires sophisticated laboratory equipment.

So, readers of *The Canadian Amateur*, please write to me and propose how I could attract young blood to ham radio in this day and age of computers.

S.E. Bernhoff VE3JDA

THE ARCTIC

I read with much interest the article in the December 1987 issue of *The Canadian Amateur* entitled 'The Inuit and Their Kublunait Neighbours' by Chuck Townley. Chuck and I were both stationed at Fort Churchill during the establishment of Ennadai Lake as a station in the North West Territories and Yukon Radio system. I'm afraid I never got to see Ennadai,

but I can embellish Chuck's story with a little more background.

The materials assembled for the establishment of the new radio station arrived in Churchill earmarked for a lake of another name. Maps of that area were not all they might have been in those days. It turned out that this other lake was some 60 miles away. Ennadai Lake was actually the spot they wanted.

There was an American Arctic Test Detachment in Churchill during those days. They hoped to gain communications experience by accompanying the cat train to Ennadai. There was a Cat and two Wannegans. A Wannegan is a shack on sleigh runners. I believe Chuck referred to it as a caboose. A radio station was established at a prime receiver site. A Naval radio station was to be set up later across the road in order to work the boys on the Cat train, but, as it happened, the communication equipment was in one Wannegan and the power equipment was in the other! They had no sooner set out, when the sleigh with the power equipment packed it in and could go no further. Communications then fell to the World War II vintage C52 set located in the cook shack, powered by batteries. Our communications site at Fort Churchill was not really the best. We were located on what was literally a pile of rock. A good ground just wasn't possible. For example, a 40-foot diamond drill found only three small seams. In addition, our antennas were not really orientated for good propagation to the west. Our normal communications were to the south and to the north. I was one of the operators at Churchill assigned to work the Cat train to Ennadai. This was much easier said than done. The noise was unbelievable and the signals always weak. We sure had trouble; passing traffic was like pulling teeth.

One day when things were worse than usual, I received a telephone call from one of the American operators at the receiver site halfway to town. He said, "You seem to be having some trouble." I let him listen to the racket over the phone for a few seconds, and then he replied, "Listen to this." The signal from the tractor train was loud, clear and beautiful. From then on, when things were really rough, I read the tractor train signals via the phone from the Americans. Whoever coined the motto on the R.C. Sigs. hat badge 'VELOX VERSUTUS VIGILANS' didn't know how right they were (or did they?)! Some time after the establishment of Ennadai, the following incident occurred. The Eastern Arctic, unlike the Western Arctic, is practically devoid of trees.

When one of the Inuit families from Ennadai was leaving on a trip, the family was asked to bring back a small tree for the station to put up at Christmas. When the family returned, the man showed up with a big smile and a tree. He apologized for having taken the branch off so that he could pack it more easily!

Clay Jones VE7CUW

Cher Georges,

J'ai lu avec beaucoup d'intérêt l'article paru dans le numéro de décembre du *The Canadian Amateur* intitulé: 'The Inuit and their Kublunait Neighbours' (Les Inuits et leurs voisins Kublunait), de Chuck Townley. Chuck et moi étions tous deux postés à Fort Churchill pendant l'installation d'Ennadai Lake comme station du réseau des Territoires du Nord-Ouest et du Yukon. Certes, je ne suis jamais allé à Ennadai mais je peux néanmoins embellir l'histoire racontée par Chuck avec quelques détails supplémentaires.

Les matériaux rassemblés pour la construction de la nouvelle station radio arrivèrent à Churchill avec des étiquettes portant le nom d'un autre lac. Les cartes de la région laissaient beaucoup à désirer à cette époque. On s'aperçut que cet autre lac se trouvait à quelque 80 km de là. C'était en fait le Lac Ennadai qu'on espérait toucher.

À ce moment se trouvait à Churchill un détachement de l'équipe expérimentale américaine de l'Arctique qui espérait acquérir de l'expérience en télécommunications en accompagnant le 'Cat Train' vers Ennadai. Le convoi comportait un 'Cat' et deux 'Wannegans'. Un Wannegan est une guérite montée sur traineau. Chuck l'appelait 'caboose'. Une station radio fut érigée sur un site très favorable à la réception. Une station radio navale devait plus tard être installée de l'autre côté de la route pour assurer la liaison avec les gens du 'Cat train'. Il se trouva cependant que le matériel radio était transporté dans l'un des Wannegans et le système d'alimentation dans l'autre Wannegan! Ils ne s'étaient pas mis en route depuis longtemps que le Wannegan portant le système d'alimentation s'embourba et fut immobilisé. Les transmissions ne purent alors être assurées que par le vénérable C52 datant de la dernière guerre, placé dans la cuisine mobile et alimenté sur batteries. Notre emplacement de station à Fort Churchill n'était pas idéal. Nous étions posé sur un vrai amoncellement de rochers sur lesquels aucune bonne prise de terre n'était praticable.

Ainsi, une perçuse à pointe diamant de seize mètres ne trouva que trois petites ouvertures. En outre, nos

antennes n'étaient pas convenablement orientées pour un bon rayonnement vers l'ouest. Notre trafic normal s'échangeait avec le sud et le nord. J'étais l'un des opérateurs de Churchill affecté au trafic avec le 'Cat train' vers Ennadai, mission plus facile à dire qu'à réaliser. Le niveau de bruit était incroyable et les signaux toujours faibles. Nous avions réellement des ennuis: écouler le trafic ressemblait à une extraction dentaire. Un jour que les choses allaient encore plus mal que d'habitude, je reçus un appel téléphonique de l'un des opérateurs américains à la station de réception à moitié chemin de la ville. Il me dit: "Vous paraissez avoir des difficultés". Je lui fis entendre le vacarme au téléphone pendant quelques secondes. Il me dit alors: 'Écoutez-ça'. Le signal provenant du train tracté sonnait clair, puissant, merveilleux. Après cet incident, chaque fois que la réception était vraiment affreuse, j'écoutais les émissions du train par le téléphone des américains. Quiconque est l'auteur de la devise du Corps des Transmissions 'Velox versetus vigilans' ne savait pas combien c'était vrai... (à moins que...) Quelque temps après l'installation d'Ennadai se produisit l'incident suivant: à la différence de l'Arctique occidentale, l'Arctique orientale était pratiquement démunie d'arbres. Lorsqu'une des familles d'Inuit d'Ennadai partait en voyage, on lui demandait de rapporter un petit arbre pour le Noël à la station. Au retour de la famille, le mari arrivait avec un large sourire et un arbre. Il s'excusait d'en avoir coupé les branches pour pouvoir l'emballer plus facilement! J'espère que ces souvenirs vous intéresseront. Servez-vous en comme vous l'entendez.

Clay Jones VE7CUW
(Traduction VE1Z1)

GENTLEMEN'S AGREEMENT OUT THE WINDOW

I guess the gentlemen's agreement for what we use our Amateur bands for is gone. Take 10 metres. We have for years all over the world agreed to use 28.200 to 28.300 MHz for beacons on 10 metres. This allows Amateurs all over the world to check on propagation on the band and now that the sunspot cycle is coming back and 10 metres is opening up more again, all you can hear in this part of the band are VE7s and VE3s on SSB having a great time talking right on top of the beacons. I wonder what the rest of the world of Amateurs thinks of Canadian Amateurs (not much). Oh well, I guess what is good for the goose is good for the gander. I see

Continued on next page

LETTERS (cont'd)

articles in CARF all the time talking about how we need to recruit prospective new hams. I wonder what they think if we can't have a gentlemen's agreement how to use the allotted frequencies. We must be pretty poorly organized.

Gordon R. Curling VE3KKL

THE B.C. ISSUE

The March 1988 issue of CARF honoring British Columbia and the Yukon and others monthly across our great country is wonderful idea of CARF's.

We, the Savage Family, must say thanks to our Pacific Director, Hoppy Hopwood VE7AHB, for the excellent article on VE7FB and others in the West.

We have been overwhelmed with congratulations both by telephone and radio from all across Canada.

Ernie Savage VE7FB

PACKET INVASION

I read with concern, the letter from VE4CY in your March issue regarding the use of the 14100-14110 kHz section of the International Phone Band by packet operators. I was probably one of the VE3 operators mentioned by VE4CY, as I frequently act as net control for the Ex-G Radio Club net (a club for expatriate G-licensed operators worldwide) on 14108 kHz each Sunday. There is a similar net for Dutch speaking operators run by VE3JPP on 14105 kHz also each Sunday. These nets which have many Canadian and International check-ins have been running for many years, since 1959 in the case of the Ex-G net, long before packet operators 'invaded' this section of the band.

Firstly, I feel that DOC was in error in granting packet privileges for various individual VEs to operate between 14100-14110 kHz, and I would remind VEs to read their authorization letters which state that packet is on a secondary, non-interference, non-protection basis.

The ARRL Handbook has for several years recommended 14097.5 kHz and down for packet use. There would appear to be ample space for packet, RTTY, AMTOR, CW, etc. in the 14000-14100 kHz section of the band, instead of using the section which has been traditionally international phone for over 40 years. The same ARRL however, lobbied the FCC for 14150-14200 kHz, which was previously part of the band used internationally, at a time of declining U.S. Amateur population. As the larger proportion of packet operators are American, one wonders how U.S. phone operators would react if packet 'adopted' 14150-14160 kHz!

Another great loss has been the interference by inconsiderate packet operators to the international beacon project on 14100 kHz. These low-power beacons have for years provided a useful guide to worldwide propagation, until packet interference drowned them out.

Lately I have noticed packet operation around 7095 kHz in another traditional international phone band, 7050-7100 kHz. Surely there is space below 7050, instead of this already crowded band, particularly as most countries are not allowed to operate above 7100.

In conclusion, I have no intention of moving out of the 14100-14110 kHz band in Canada unless so instructed by a change in DOC regulations, or by the appropriate authorities when operating elsewhere. I consider the current use of this band for packet to be inconsiderate and ill-advised and I feel that as international propagation improves with the sunspot cycle, normal phone use of these frequencies will cause packet operators to move below 14100 kHz, where they should have been in the first place, and where their gateways and multiple access operations stand a better chance of success.

Bryan Bisley
VE3JPO/G3OFI/EISA/
XE3VBB/ZLOACU/VK1BAB
plus over 50 licences internationally

HOW WE ARE SELLING OUT AMATEUR RADIO

Today I received *The Canadian Amateur* for February and read with interest the letter by Robert Smits, Mike Wein and Wayne Drury.

They all make valid points.

I also read 'The Old Rumour Mill' by Bill Wilson.

Robert Smits' blunt, pragmatic prose was a pleasure to read, though his prognosis was gloomy indeed. If any of those who read it felt that Amateur Radio is in trouble, then they are right.

But: Did anyone think that Robert is an optimist? I've got to be joking! Unfortunately, I'm not. Robert presented the best possible scenario for the future. The reality could be different and far more unpleasant than a quiet death.

The simplest way to take something away from a person is to make it valueless to him. If you can also make it inferior and below the owner's standards— then you don't even have to take it— he'll throw it away. If you think I'm talking about VHF/UHF, you're right.

Are you really going to give away all VHF/UHF for something as vague as 'A VERY EASY EXAM?' Maybe on cereal packets instead of a holiday in Honolulu.

Let me ask you:

1) Why are you on 2 Metres instead of 11 Metres?

2) What do you feel when you look at your licence?

3) What do you feel if you should accidentally tune in on the 'Silver Dollars', 'Desert Chickens', and 'Tennessee Truckers' on 11 Metres?

4) Do you feel that that's where you belong?

5) If 2 Metres and above got like that would you fight to keep it? Would you, Hell!

Amateur Radio is going to lose both ways:

1) Above 30 MHz by giving it away.

2) Below 30 MHz by simple arithmetic: First, you'll be outnumbered; then, you'll be outvoted; then you'll simply be OUT!

So, here's my plea— drag the skeleton out of the cupboard— let it rattle its bones and say what we all feel. We've got to have a fence that's hard to climb— and there are both UPPER and LOWER limits to the numbers that Amateur Radio can live with.

So, let's say it— We're PROUD— Damn proud of Amateur Radio, and get down to finding some way of keeping numbers between the limits; not too few so we die off— but not so many that we're smothered.

So, I'm reactionary. So, I'm an old stick in the mud— tapping out morse on an old pre-1930 spark gap monster.

Well, not quite. In fact I'm one of those guys struggling with the present exam format— and my wife is one of the gals doing the same. I've got headaches from studying, I've got backache from sitting up nights reading regulations— and I've got sore ears from listening to Morse which is always just too fast for me.

So, make it easier for me— and I'll be grateful. Make the exam relevant to the times, and the study guides relevant to the exam. Cut out the Morse if you wish and I'd lose no sleep.

But whatever you do about that licence— DON'T EVER, DON'T NEVER, DON'T, DON'T, DON'T, under any circumstances, GIVE it to me, 'cos I just wouldn't want it!

Anthony Day
(Soon to be VE6???)

MORE ON EXAMS

Listening to a 2 Metre Net recently I heard some interesting statistics quoted. There are evidently more licensed Amateurs over 70 years of age than under 20 years of age, or at least about the same number, and that over 60% are over 50 years of age. If I heard correctly there are several conclusions to be drawn from these

statistics. For instance, Amateur Radio no longer has sufficient interest to attract new entries... this I think is incorrect, as with the present range of activities, like Packet, RTTY, etc., there are far more interesting things to do in 'Ham Radio'. Also when one considers the increasing amount of Scanners, Citizens' Band radios, etc., being sold it proves that there is a great deal of interest still in our hobby.

It is my opinion that the main deterrent to an increasing number of Radio Amateurs is the tests themselves, which are by no means representative of the interests or abilities of a great many present day Amateurs. My entry test in 1959 was composed of a CW test, and both technical and regulations questions, the technical questions concerned valves, condensers, Ohm's law, etc., and proved that one could not only be a CW operator, but was capable of building simple transmitters and receivers, which was indeed part of the reward of the hobby.

Nowadays the complexities of the transceivers make it virtually impossible for the average Amateur to attempt to repair the equipment they own, most people in my club send the equipment away for repairs, and in fact there are very few capable repair people to carry out such work. Most of us have pleasant memories of the days when the main bench equipment was a tube tester, or when a resistor was maybe 2" long, now you have to use a magnifying glass to see the darned things. My conclusion is that the majority of present day 'hams' are operators first, and technicians second.

Why not accept the facts of life, and concentrate on this and put the emphasis on operating— regulations, etc., and cut the advanced technology requirements, at least make it possible for the entry level applicant to start off without such things as needing geometry for various formulas. How will that increase the operating ability, which I believe is the main requirement for the modern day 'Ham'? I certainly would hate to see our hobby deteriorate into the non-standards of the Citizen Band, and my Radio Officer experience at sea and on land has proved that controls are easily enforceable. Make the test tough enough on the operating side, and on the regulation side to only get people who are ready to take a disciplined and professional approach to this Amateur hobby.

Although I have held a licence since 1959, (passing the licence test to gain employment) due to circumstances I only became active about three years ago. The technical advances in those

25 years are such that I'm quite confident that, with the exception of the CW, I wouldn't be able to pass the present test requirements— however when discussing things with my fellow club members I'm quite sure that I am not unique. I think the same holds true for the majority of present day Amateurs. They are able to operate their equipment very efficiently, but are as bewildered as I am when looking at a circuit, it was so easy to look at a valve circuit with the grid, cathode, etc., but ICs, transistors, etc. have left me and many others far behind.

There are rumours that discussions are currently taking place to restructure the Amateur test into a four grade system, the first to have no CW, and each step to be increasingly complex. This to me seems a fairly simple thing to decide on, however it is also rumoured that the restructuring will take at least 18 months. Why, for heaven's sake should it take so long to decide, by the time this new approach is in force I imagine that there will be more Amateurs over 60 than below that age.

There will be many prospective 'Hams' who are studying for the present exam, who will fall by the wayside, due to failing, and this failure will be sufficient to put them off of 'Ham radio' for good. What would be the harm of immediately bringing in a type of Novice, or Entry licence, sufficiently difficult that it won't be earned without considerable effort, i.e. will not be given away with the Breakfast cereal? But let's make the difficulty more realistic, and not have it so difficult on the Technical side but make the operating test a little more complex. I don't mean faster CW, but adjust the test to reflect the situation that exists, i.e. we have to attract more people to our hobby and a more efficient entry test will do that. However the new licence would have an upgrading requirement within a reasonable time, like 12 months. The immediate requirement is to get more Amateurs, and it shouldn't take 18 months to bring new things into line, maybe six months at the most.

Reg Baldock VE7ABF

INFORMATION NEEDED

I am looking for information regarding the performance of the MFJ Portable Antenna, MFJ-1621. This antenna is said to be a useful antenna for those living in areas where space is at a minimum and other restrictions regarding the erection of outside antennas may apply.

If any readers have any experience with this antenna, I should appreciate hearing from them.

Congratulations on the March issue of *The Canadian Amateur*. I particularly enjoy the regional aspect.

Edward Sheffman VE3FTO
182 Fenn Ave.,
Willowdale, Ont. M2P 1X9

NATIONAL UNITY

I have been an associate member of CARF for almost a year. In that time, I've had ample opportunity to view the Canadian Amateur through your organization. I must say that I am impressed, as I have been for years about Canadians in general, with the national unity being exhibited.

From the standpoint of being an outsider, I have also had a unique opportunity to witness a common failing of being too nationalistic. (Keep in mind through the remainder of this letter that I am also a member of the ARRL.) The desire of many of your brother hams to combine the CARF with the CRRL is not without merit. However, think for a moment what you as a group would be submitting yourselves to.

By being a separate entity, you're forcing the CRRL to remain lean and flexible. Nothing so hurts an organization as a bureaucracy does. In this sense you are serving as an agitator, causing them to address more than their side of an issue. And they also perform the same 'agitation service' for you. While all Canadian Amateurs can stand as a group and face any threat from an outside source, please appreciate the importance of and for remaining separate. It is far better to have two organizations who liaison well, rather than one large organization with much internal strife.

While being a member of the ARRL (of which the CRRL must be an affiliate or why would QST continue to publish Canadian News?), I have seen what can happen when one organization attempts to make policy for the whole country. There are over 420,000 hams in this country. There is absolutely no way that one organization can administer to that many individuals effectively. (In fact, it has only been in the last 10 or so years that the ARRL began divesting themselves of so many WIs on their staff.)

While it is handy to have a unified lobby in the governing capital, it is not necessary to have one major Amateur organization. Perhaps two or more federations or leagues all reporting to an august oversight committee is a better answer. (The ARRL, I am sure, attempts to do just that with the various regions and section managers.) Besides, we hardly

Continued on next page

The Radio War

BY ROY PARRETT VE7TG

Where did our Amateur frequencies go during WWII? Many were used for Army, Navy and Airforce communications, some for Radio Direction Finding (later called radar) and some were used in missile guidance and for proximity fuses in artillery shells.

Radar was an idea which was developed early in many countries. A German, Christian Hulsmeyer, obtained a patent for the idea in April, 1904. Marconi, who bounced signals off Mount Etna in the 1930s, published his findings complete with sketches, in radio magazines of the day.

As the threat of war grew, research to develop radio equipment capable of detecting ships and planes at a distance commenced.

In England, Robert Watson-Watt (Radio Department of the National Physical Department) sent a memorandum to the Air Ministry. He suggested that a radar chain be set up, and outlined its possible

performance. He indicated ways of putting the chain to use in defence, and also suggested ways by which the enemy might interfere with the system.

On Feb. 26, 1935, using the BBC short-wave transmitter located at Daventry and a Heyford bomber, Watson-Watt and his team were able to pick up the test plane at 13 km, using crude receiving equipment. As a result of these tests, a research establishment was set up at Badsey to develop RDF. The first Chain Home station was erected there. By the end of 1936, it was detecting aircraft up to 161 km away. Two years later, the system was well on the way to completion. Work then began on anti-jamming measures.

The first jammers were modified diathermy machines, borrowed from local hospitals. They were flown in from Felixstowe via a Sunderland flying boat.

During this time, other countries had not been idle. Dr. Rudolph Kuhnold, head of the German Navy Signals Research Department, was overseeing the development of radar during late 1933. His device, built by the GEMA company, was tested at Kiel on March 20, 1934. By the end of 1936, this set had become operation 'Freyja', with a working range of 80 km. It was ordered by both the Navy and the Air Force. Telefunken produced 'Wurzburg', the gun laying radar, that same year. In 1939, British expert L. Bainbridge Bell, was sent to examine the radar installation on the *Graf Spee*. It was partly sunk in the mouth of the River Plate. 'Seetakt' was a gunlaying radar with a range of 15 km, while 'Wurzburg' had a range of 40 km.

The radar sets used by both sides went through endless modifications and improvements. Some early specifications were:

'Freyja' a German air-search and EW radar, built by Gema. It operated on .53 metres, 560 MHz. It had a range in the search mode, of 30 to 40 km, and for direction-finding, the range was 18 km. Other marks of 'Wurzburg' including 'Giant Wurzburg' and 'Giant-Giant Wurzburg'— a railway mounted unit also operated on 560 MHz.

The British and Germans were developing jammers to disrupt voice and CW channels used by bombers and fighters. Our 'Airborne Cigar' had three 50-watt transmitters. It jammed by tone modulation, the signal being an almost musical warbling note. It operated on 38.3-42.5, 30-33 or 48-52 MHz bands. ABC, as it was called, had a range of 80 km.

The voice frequencies often used by the Germans were located in the 3-6 kHz band. 'Drumstick' was a device used to jam CW transmissions on these frequencies. Up to 20 transmitters in the U.K. were used to disrupt enemy communications. Later, elaborate deceptions came into use, including the recorded voices of Germans, and still later 'live' British controllers, speaking German, gave false directions.

'Jostle' was a high-power multi-channel jamming device used in B-17 or B-24 bombers to disrupt enemy transmissions in the 3-6, 6-12, 12-18, 26-35, 35-45 and 45-54 MHz bands. It provided high power FM jamming of voice or CW. 'Jostle' had an all-up weight of 600 pounds.

'Ground Mandrel' was a device designed to jam enemy EW radars, such as Freya and Wasserman in the 65-160 MHz band. Mandrel had 24 noise-modulated transmitters, in groups of six, at four sites in the U.K. In June 1944, it was modified to cover the 90-200 MHz band.

'Ground Cigar' was a measure designed to disrupt enemy night fighter control channels in the 38-42 MHz range. It used 15 ground-based transmitters in the U.K. to blot out the whole band. Each transmitter was spot-tuned to an appropriate frequency. Types used were USP 2, TU 4, SWB 4, AN/GRQ 1 (a 50 kW television transmitter), and also the BBC's sound and video units at Alexandra Palace.

'Window' or 'Chaffe' were tinfoil strips, cut to length, and dropped to confuse enemy radar. Originally, the foil from tubular capacitors was proposed, attached to partly-eaten sandwiches. It was hoped that the Germans would conclude it was part of the aircrew's lunch, rather than an electronic counter-measure! ■

LETTERS

Send letters to the Editor to:
Editor, *The Canadian Amateur*, Box
356, Kingston, Ont. K7L 4W2.

LETTERS (cont'd)

ever see or hear from our section manager except during election time.

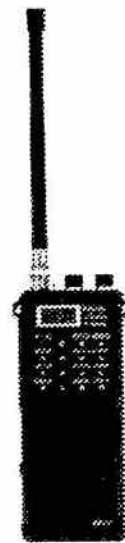
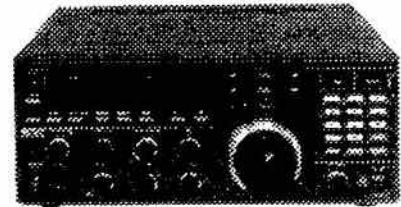
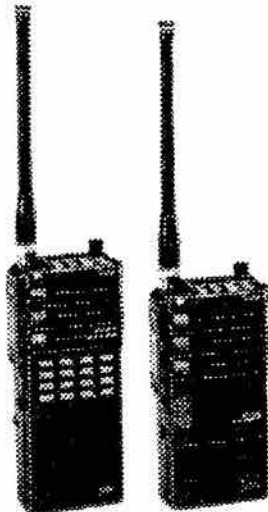
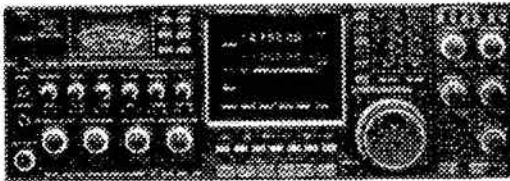
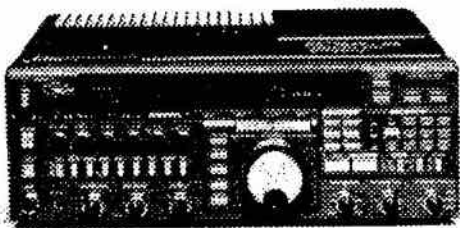
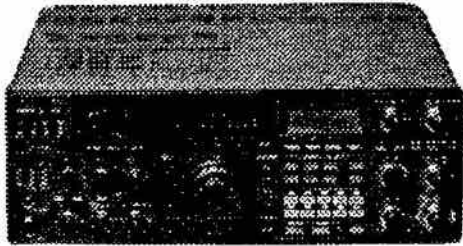
So please. Think twice or more before combining your organizations. You have much more to gain by being yourselves.

Express my best wishes to Moe Lynn. He seems to be one of the few QRPers who is knowledgeable enough and can write interestingly enough to make his readership feel good about the low power aspect of the hobby. He'll be missed here in Michigan.

By the way, yours is a magazine I genuinely look forward to receiving each month. Its style of presentation, the many practical construction articles, and interesting columns contribute to an informative and worthwhile publication. Thanks for the effort.

Michael P. Hood KD8JB

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Santa Claus is also a Ham

BY CHRIS ROCHEFORT
VE3PAE

Thirty kids at the Children's Hospital of Eastern Ontario, in Ottawa, found this out when the jolly man sent 18 of his best radio operators to the hospital on Dec. 16, 1987 so that he could talk to the children.

The group, led by Gerry King VE3GK, went to visit the children with their portables and made initial contacts with Santa giving the name and age of each child. There were three frequencies in use with two (yes TWO!) Santas who each had Rudolph along. Mrs. Claus even came up on one of the frequencies to wish everyone a Merry Christmas, to the great enjoyment of all present. Our St.

Nicks were Ron Belleville VE3AUM and Ron MacLean VE3MJX.

After he had talked to Santa, Jimmy Goodfellow, 5, ran out of his room shouting to his friends "Santa's real! He is! I'm not kidding, I just can't believe it. I just talked to Santa Claus at the North Pole." He also had proof in his hands. Each child received a certificate from the operator who provided this little service, stating that the kid had, in fact, talked to the Man in Red.

All operating was done on simplex frequencies other than 146.52 to eliminate any interference from other operators outside the hospital who would not be able to hear the transmissions and decide to utilize the event frequency as had happened on a previous occasion.

Ever present is the concern that the

Amateur transmissions might cause interference to the medical equipment in use in some rooms. This problem has been addressed in the previous years and tests are conducted every time the event takes place, with a hospital technician on hand. If interference is caused, no transmissions are made in the vicinity of the equipment. The two base stations are located in 'safe' areas and portables use low power as this is all that is needed to make contact.

This event, known as Radio Noel at the hospital, has occurred regularly for 10 years, thanks to some very dedicated people. "It is the highlight of our activities for the year," said Gerry King to an *Ottawa Citizen* reporter. "The smiles on the kids' faces are priceless." ■



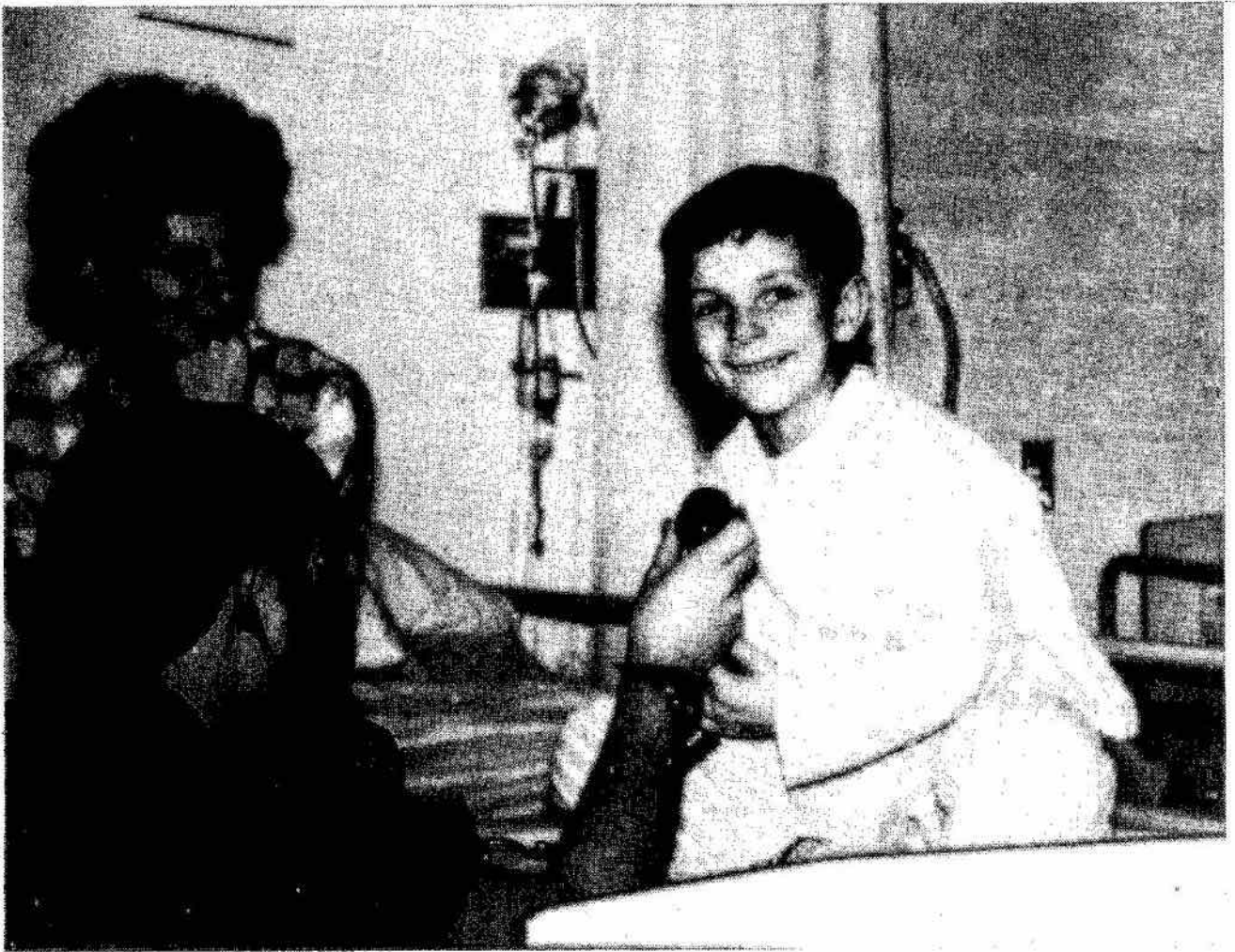
Above: Simon Bradley, 4, admires the certificate he received after talking to Santa on 2M. All the kids who talked to THE MAN received one.

Above, right: After talking to Santa, Jimmy Goodfellow, 5, ran out of his room to tell his friends. Harry VE3HYS is making sure that the operation goes smoothly.

Right: Eugene Duke, 6, talks to Santa with the help of Joe Courtemanche VE2DZT. Eugene said to Santa that it did not matter what he got for Christmas, anything would be fine. That one got to us!

Photos by VE3PAE.





*Top: Seven-year-old Timothy St-Jean quickly thinks of what he wants for Christmas as Mom looks on and Harry VE3HYS gets ready to press the PTT.
Above, left: Event organizer Gerry King VE3GK has as much fun as the kids themselves. He is seen here with Melissa Welshman, 3.
Above, right: Head Santa (!) Ron Belleville VE3AUM and Mrs. Claus-Belleville.
Photos by VE3PAE.*

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Extensive tests published in *Packet Radio Magazine* ("HF Modem Performance Comparisons") prove the TAPR designed modem used in the MFJ-1278 gives better copy with proper DCD operation under all tested conditions than the other modems tested.

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Good news for SYSOPs! New software lets the MFJ-1278 perform flawlessly as a WORLI/WA7MBL bulletin board TNC.

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You can copy all shifts and all standard speeds including 170, 425 and 800 Hz shifts and speeds from 45 to 300

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A high performance modem lets you copy both mark and space for greatly improved copy under adverse conditions. It even tracks slightly drifting signals.

You can transmit both narrow and wide shifts. The wide shift is a standard 850 Hz shift with mark/space tones of 2125/2975 Hz. This lets you operate MARS and standard VHF FM RTTY.

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A receive Normal/Reverse software switch eliminates retuning and Unshift-On-Space reduces errors under poor receiving conditions.

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You can transmit and receive 7 bit ASCII using the same shifts and speeds as in the RTTY mode and using the same high performance modem. You also get Autostart and selectable "Diddle".

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You get a Super Morse Keyboard mode that lets you send perfect CW effortlessly from 5 to 99 WPM, including all prosigns -- it's tailor-made for traffic handlers.

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You can store entire QSOs in the message memories, if you wanted to! You can link and repeat any messages for automatic CQs and beaoning. Memories also work in RTTY and ASCII modes.

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You'll be fascinated as you watch WEFAX signals blossom into full

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Any Epson graphics compatible printer will print a wealth of interesting pictures and maps.

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Pictures and maps can be printed to screen in real time or from disk on IBM and compatibles with the MFJ-1284 Starter Pack.

You can transmit FAX pictures right off disk and have fun exchanging and collecting them.

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The MFJ-1278 introduces you to the exciting world of slow scan TV.

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You can print slow scan TV pictures on any Epson graphics compatible printer. If you have an IBM PC or compatible you can print to screen in near real time or from disk with the MFJ-1284 Starter Pack.

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You can save slow scan pictures on disk from over-the-air QSOs if your terminal program lets you save ASCII files.

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Nothing beats the quick response of a memory keyer during a heated contest.

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Spectrum Allocation Advisory Committee

The Spectrum Allocation Advisory Committee is a non-political organization of Amateur Radio operators independent of both national Amateur Radio organizations. The committee consists of professionals who maintain careers intricately woven in modern electronic, radio and television technology. They advise in the interest of all Amateurs from a purely technical platform defending against the erosion of Amateur bands by interference from and loss to other services.

The following is taken from their response to the DOC's SP 30.01-890 document— Utilization of the Frequency Spectrum in the Range 30.01-890 MHz. Although too lengthy to print in its entirety, we believe the main points have been included. For a full transcript, or to be placed on SAAC's mailing list, send an SASE to SAAC NEWS, P.O. Box 1026, Station F, Toronto, Ont. M4Y 2T7, Canada.

INTRODUCTION

Amateur Radio operators, being an inhomogeneous and decentralized mix of private individuals, have, as such, a major disadvantage when placed next to the large high rolling corporations with hundreds of millions of dollars in cash flow yearly. As the Department of Communications is aware, these corporate giants are constantly scrutinizing, with envy, the last remaining publicly accessible airspace making such allocations nearly priceless. In effect, it becomes increasingly more difficult for Amateurs to defend, through part time involvement, against well-funded and glamorous commercial proposals. Although, in some cases, these public Amateur frequencies seem somewhat underutilized for their value, there are numerous reasons for preserving their existence.

AMATEUR CERTIFICATION

It is a well known fact in the Amateur Radio community that there has been a tremendous lack of an influx of young blood into the fraternity. One likely explanation

would be the surge in popularity of computer technology as a hobby. Fortunately, though, recent changes in certificate requirements both proposed and implemented towards drawing this computer-minded crowd back into Amateur Radio circles. With the advent of the Digital Certificate, individuals with a keen interest in computer packet communications have been permitted to join the hobby without the Morse Code requirement.

AMATEUR TECHNOLOGY

Over the past ten years, Amateur innovation has been among the most progressive in the communications field. Although Amateurs have quite limited funds, they have been capable of installing satellite and terrestrial links of extremely reliable operation. In fact, it is possible to maintain mobile to mobile communication from Owen Sound to Kingston with practically 100% confidence. This technology proved extremely useful during the Barrie tornado disaster of 1985 when the only reliable path between Barrie and Toronto Red Cross was obtained through such a link.

AMATEUR DEREGULATION

With deregulation comes the ability to realize technically achievable advances in Amateur networking. For example, lifting some restrictions could be the catalyst in the birth of several long range digital and analog links across the country. Review of regulations that restrict such popular activity should be a priority to ensure that services no longer in existence are not being frivolously protected.

PRESENT AMATEUR ALLOCATIONS 50-54 MHz

Although this band appears somewhat underexploited at present, its potential for long haul terrestrial links has always been admired. At present, most communications are performed without the use of any repeater station, thus the absence of repeaters is not necessarily indicative of utilization.

The major barrier to operation has been the lack of affordable equipment. With the Ontario

Provincial Police communications changeover, this barrier will quickly erode. Through recent advances in technology, commercially available multiband VHF/UHF Amateur mobile radios are becoming the order of the day. More of these units will provide built in access to the 50-54 MHz band. Add to this the increase in overall Amateur activity above 30 MHz contributed to by the restructuring of the Amateur certification process and it becomes clear that this band will become as congested as any mainstream Amateur band.

144-146 MHz

This allocation is heavily used by Amateurs with a preponderance of interest in FM repeaters and an additional interest in satellite, weak signal terrestrial, weak signal earth-moon-earth and digital communications. It is definitely being utilized to capacity. Amateur investment of both time and money is irrevocably recognized as overwhelming especially when considering the number of repeaters, satellites, base stations and portables that service this band.

146-148 MHz

As part of the famous two metre band for which more portable equipment is available than elsewhere, this allocation is likely the most congested of any band between 30 and 890 MHz. Predominantly for FM communications, many newcomers to Amateur Radio become acquainted with local groups and obtain advice through this media. Again, investment of time and money exceeds that of many other services.

220-225 MHz

At one time, Amateurs were quite concerned with losing this band to another service. Fortunately, till now, the allocation has been spared and finally Amateur technology is pervading, at an impressive rate, its entire expanse. This band is rapidly becoming the home of many respected digital and analog link, which will soon be the backbone to a nationwide VHF trunk.

430-450 MHz

Not long ago activity on this band

Continued on next page ▶

Canada Day 1988

More than just another day

BY GEORGE SANSON
VE3LXA

This year the annual 'CARF Canada Day Contest' celebrates birthday number ten! Ten years of fun and frolicking on the bands. What a party! All the details are on pages 23 and 26.

Over the years many stations have enjoyed the friendly competition of the contest and I know the coveted 'President's Award' gets much attention during the festivities. Even more exciting is the Annual Wager (large stakes here— a whole dollar) that takes place between mid-west director Norm Waltho VE6 'Volks

Wagon' and Past President Ron Walsh VE3 'Indian Delta Whiskey'. The win rides on the ability of either VE6VCA or VE3VCA to score the most points. I don't know how he does it, but Ron always manages to lose! Or is it— Norm always manages to win?

I have followed, with interest, this regional parrying for the last few years and have finally come up with a plausible solution to the mystery. It seems rather strange that the 'Voice of the Canadian Amateur' VE3VCA would fall prey to Murphy's Law each year on exactly the same day. Every year at precisely 0900 hrs edt, the rig quits in the middle of a QSO? Works

fine the rest of the year, but on July 1— forget it.

Now, it also seems rather strange that every year on the last day of June, Norm Waltho's XYL can't find him for about 24 hours! Hmmm... how long does it take to fly from Edmonton to Kingston and back? Norm used to be in the air force too... I wonder?

This year will tell the tale though. Ron has the station rigged. All the alarms are in place. Station manager Lennie VE3PTB is on 24 hour alert.

Not this time Waltho! Walsh's gang is ready!

This is the year the coveted 'CARF Cash' comes back to Kingston. ■

NEW DIRECT DIALING SERVICE

Communications Minister Flora MacDonald has inaugurated direct dialing service between Canada and Thailand by making a telephone call to the Deputy Minister of Thailand, Major General Chatichai Choonhavan.

It is now possible to establish automatic and immediate communication from any place in Canada with 21 cities in Thailand by simply dialing the routing code specific to each of them. It is expected that this new service will further the development of relations between the two countries by facilitating communications between the people of Canada and Thailand.

Miss MacDonald also took the opportunity to offer to the people of Thailand, on behalf of the people of Canada, congratulations and sincere best wishes on the occasion of the 60th birthday of King Bhumibol Adulyadej of Thailand and on the National Day of Thailand.

IS THIS YOUR LAST TCA?

Your label will tell you when your subscription expires.

To send reminders to you all by mail costs thousands of dollars a year. By using the label to carry the message, CARF can afford to serve you better!

CARF NUMBER

CARF has installed a new phone system to serve you better! The office number is now: 613-545-9100.

SAAC (cont'd)

was somewhat limited. But, in recent years, it has become one of the most admired allocations by VHF and UHF Amateur enthusiasts. Not only does this band contain uplinks and downlinks from Amateur satellites and reliable terrestrial links, but it also provides a relatively noise free environment not yet corrupted by the intermodulation products of spurious pages which seem to proliferate in the 144-148 MHz segment. Unfortunately, this clean environment is now being threatened by the proposal to install Wind Profilers across the country.

Investment of private funds, time and pride has been high and the pollution caused by any wideband devices would most certainly be devastating. Apparently the reason for placing such a device in this band is for the sake of protecting SRSAT. SRSAT should not have been placed in a worldwide meteorological aids service allocation with the expectation of being protected from meteorological radars that are operating within the legal constraints of the ITU. Premeditation is definitely the key to averting the proliferation of sensitive narrow band services throughout the spectrum making it difficult to find a significant window to allocate a new wide band service.

CONCLUSIONS

To rationalize the existence and tangibility of Amateur spectrum in dollars and cents in times devoid of national crisis would, on the surface, appear somewhat futile in the shadow of large, profitable commercial

interests. Nevertheless, it only takes one national or regional disaster to reveal the value, in human lives, that an abundance of Amateur Radio operators provide. Together, with the diversity of operating modes and techniques and the broad range of spectrum accessible and used by them, Amateurs prove an invaluable asset to both public and government at no expense to either.

If Amateur Radio frequencies are allowed to be constantly eroded as pressures applied to the Department from large and diverse outside forces succeed, then advancements in telecommunication as well as public and emergency services authored by and enhanced by Amateur Radio will ultimately be stifled. Who will be the ultimate casualty; the Amateur or the public?

Protecting Amateur spectrum is an investment in the training of competent radio operators, at no direct cost to the government, which insures safety in times of crisis and, further, a munificence of qualified radio operators in wartime.

As parklands are preserved in urban areas despite their commercial and taxable value, Amateur Radio frequencies must be preserved as parklands of the electromagnetic spectrum.

RECOMMENDATIONS

The Amateur Radio allocations between 30.01 and 890 MHz must be preserved to ensure that the fundamental duties of the Amateur Radio Service, namely public service, emergency relief and innovative experimentation, can continue. ■

U.S.S.R./Canada Polar Bridge Expedition

BY AL D'EON VE3AND

The Polar Bridge Expedition has by this time probably completed its more than three month journey across the polar ice cap. The skitrek began on March 3 at 0731 GMT, composed of a group of nine Russians and four Canadians who started at Cape Arctic, at the Northern tip of Severnaya Zemlya and whose final destination is Cape Columbia on Ellesmere Island, a distance of almost 2000 kilometres.

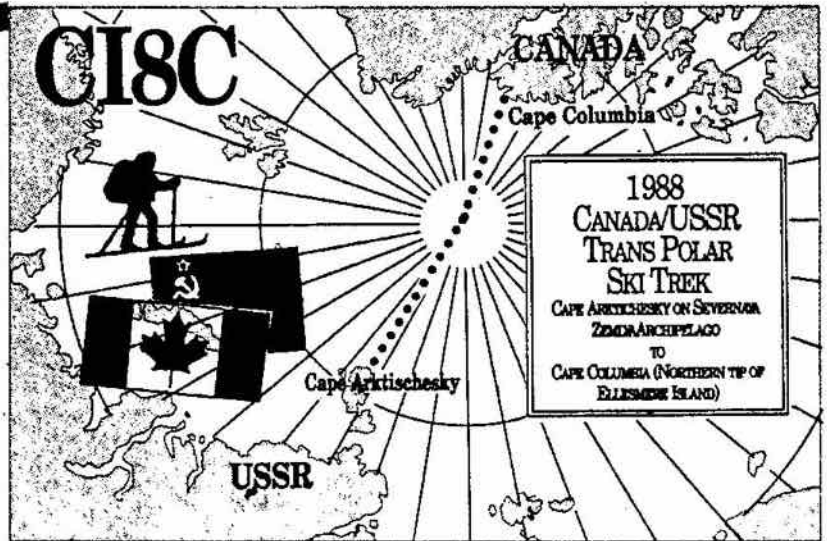
All communications for the expedition are being handled by Amateur radio. Chief operator Barry Garratt VE3CDX/VE8CDX and his crew operated the main Canadian base Amateur radio station under the special call sign C18C, using the facilities of VE8MB.

This station, manned by a rotating team of our volunteer Amateur operators was the focal point of communications to and from the Amateur radio network.

Operators for the first two weeks at C18C were Garth Hamilton VE3HO of St. Catharines and Andy McLellan VE1ASJ from St. John, New Brunswick.

All HF and VHF equipment for the Canadian base station was supplied by Icom, and C18C was active on all Amateur bands, when not engaged in the business of the expedition. A special commemorative QSL card will confirm all contacts with C18C. QSL address: PO Box 313, Don Mills, Ont. M3C 2S7.

U.S.S.R. base stations were located at Sridny Island, EXOCR, where Canadian Amateur Rick Burke VO1SA of St. John's, Nfld. worked together with Leonid UA3CR, the Soviet coordinator, and at North Pole 28, the floating Russian scientific base near the North Pole. 4KOD operated by Piotr UA3AOC together with Barry VE3CDX. During the last six weeks one of the Soviet Amateurs joined the Canadian operators at C18C Resolute Bay. Control stations were located in Ottawa, Toronto, Dikson and Moscow.



SAMPLE CARD

C18C RESOLUTE NWT/CANADA	TRANS POLAR SKI TREK USSR TO CANADA 1988					
QSO WITH	DATE	UTC	BAND	MODE	RST	

ICOM STATION: IC761, IC2KL, IC275H, IC2AT, ICA2

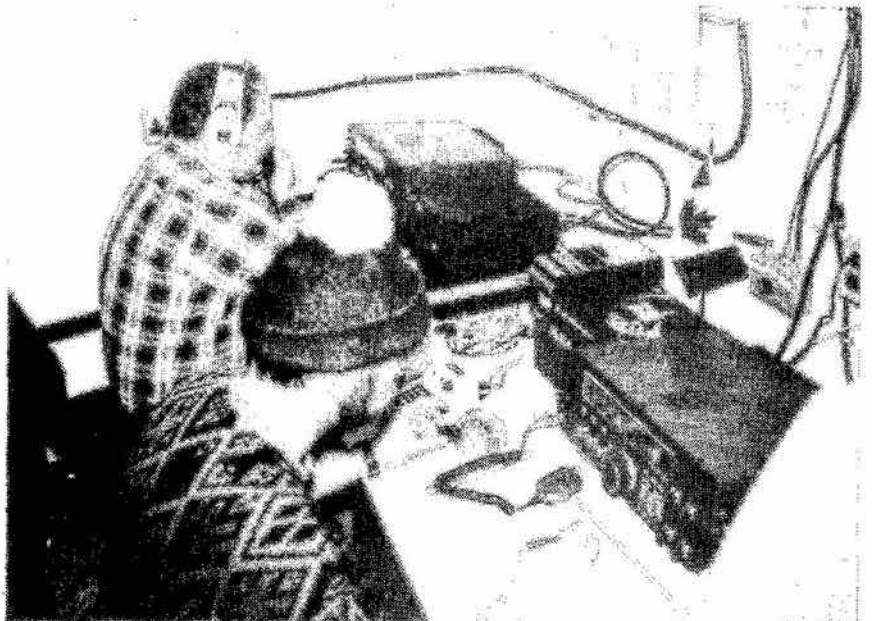
(Resolute: 74.43N 94.59W)

OPERATOR:

On March 3, 1988, a joint Soviet/Canadian Expedition left from the Severnaya Zemlya Archipelago in the USSR to ski 1750km via the North Pole to Cape Columbia on Ellesmere Island, Canada. All communications with the Expedition were handled by Canadian and Soviet radio amateurs. Radio equipment provided by ICOM included HF and VHF base stations, amplifiers, with 2 metre handheld and VHF-AM rigs to communicate with the supply aircraft. Using the facilities of SARSAT/COSPAS satellites plus UoSAT with its digitaltalker, the trekkers were able to navigate across the Arctic ice, carrying 90-lb packs for three months.

Our thanks to all who participated in this historic international venture, demonstrating the value of Amateur Radio to the world. QSL via Box 313, Don Mills, Ontario, Canada M3C 2S7

QSL cards provided by Fred Hammond VE3HC, Hammond Manufacturing Co. Ltd.



Polar Bridge Station C18C, Resolute Bay. Operators: Garth Hamilton VE3HO and Barry Garratt VE3CDX.

In order to facilitate the communications in support of the expedition, a special third party traffic and reciprocal operating agreement between Canada and the U.S.S.R. was specifically negotiated and is in effect until August 1, 1988. This is an historic agreement, the first of its kind involving the U.S.S.R. It was jointly signed by senior officials of the Soviet Ministry of Communications, the Canadian Dept. of Communications, Chairman Y.U. Zubarev of the Radio Sports Federation of the U.S.S.R. and Tom Atkins VE3CDM, President of the Canadian Radio Relay League.

Using the facilities of SARSAT/COSPAS, the search and rescue satellites, as well as the Amateur satellite OSCAR 11/UoSat, with its 'talking computer' on board, the trekkers are able to receive position reports on their Icom micro2At handheld FM transceiver on 145.825 MHz FM about every 100 minutes. The format for the Digitaltalker transmissions in plain English includes: Position Report Number, Priority Code, Date, Time UTC, Latitude, Longitude.

The skiers' daily routine consisted of a steady eight to ten hour trek, followed by the setting up of their single tent, a meal together, a few minutes on the HF radio to the base stations and a well-deserved night's rest. The morning routine includes a quick breakfast, tent take-down and switch on the Emergency Locator Transmitter for the navigation fix, during a satellite pass.

All elements of the Polar Bridge Amateur radio communications network performed well. ■

HELP WANTED

The CARF Office needs the current addresses of the following Amateurs, listed by name and last known address:

Kenneth Smith VE3CRD, 1492 Airport Rd. Sault Ste. Marie, Ont.
J. Nagel VESNJ, Box 125, Engelfeld, Sask.

Harry Westwood VE3QG, 50 Sherwood Rd. E., Pickering, Ont.
Stanley Lopata VE3AYP, 3 Marvin Rd., Pickering, Ont.

Peter Taylor VE3JDN, RR5 Renfrew, Ont.

Frederic Dorval VE2HAF, Lac Quesnel, CP 104, St-Remi D'Amherst, Que.

Robert James VO1LR, 13 Bradshaw Pl., St. John's, Nfld.
Leo Walsh VO1PC, 18 Ridge Rd., St. John's Nfld.

Please tell Debbie if you have any information. Her address is P.O. Box 356, Kingston, Ont. K7L 4W2.

Shack of the Month



This month's Shack of the Month belongs to Marcel Cadieux VE2BGC. He writes:

"The Amateur Radio hobby has been in my family since at least 1926 with my grandfather, 2GA, in Montreal."

"I have been in Amateur Radio since 1968 and am currently the

holder of an Advanced Licence Certificate. I am involved in all modes or forms of transmissions (SSB, AM, FM, CW, RTTY, AMTOR, PACKET, Satellite) except TV on 80 metres through 70 cm and commonly known under the sobriquet of VE2 Beautiful Gorgeous and Charming.

Silent Key

SANDY VE3AHW— On Feb. 18, 1988, about 2 p.m. local time, Amateur Radio lost one of its most valued members, VE3AHW (Sandy) Harry Sanderson, who died at Hamilton General Hospital from the effects of an aneurysm.

Sandy, as he was affectionately known by hundreds of Hams far and wide, had become somewhat of a legend in Amateur circles. He picked up our beloved hobby about 1935, and followed the electronics field throughout his career in the RCAF. After leaving the airforce he was involved in TV and electronics repairs until he retired a few years ago.

For many years, Sandy, with his genial and understanding manner, attracted many followers, and was always helpful to the budding Ham who was trying to construct some gear or who wished to discuss some sort of malfunction in his rig. One of the gathering points for Sandy's group was at 3782.5 on the 80 metre band at about 7:30 to 7:45 each evening, and the discussions would go on for two or three hours or more. The regulars would check in, pass the time of day,

and maybe sit on the sidelines. It became a ritual for many to follow the antics of this group, some announcing their participation, others preferring to be silent listeners. I'm sure no one ever knew the vast numbers in the background. This evening get-together was NOT a net, and Sandy would get upset if anyone referred to it as such. In the last few years the group had moved down to 3762.5.

It is my hope that the Sanderson Hour will continue as a memorial to the efforts and to the love of one who gave so much of himself to Amateur Radio. I know Sandy will be sadly missed by so many. May his loss prompt those of us who are left to carry on, each adding our own little contribution to the hobby and to our fellow man.

It has just been learned that Fred Hammond VE3HC has acquired Sandy's station and will be moving it to the Hammond Museum, 95 Curtis Road, Guelph, Ont., where it will be known as the Sanderson Memorial Station operating with the callsign VE3AHW. — VE3CEH

Ski Trek Profile

Dmitry Shparo— Arctic Skier

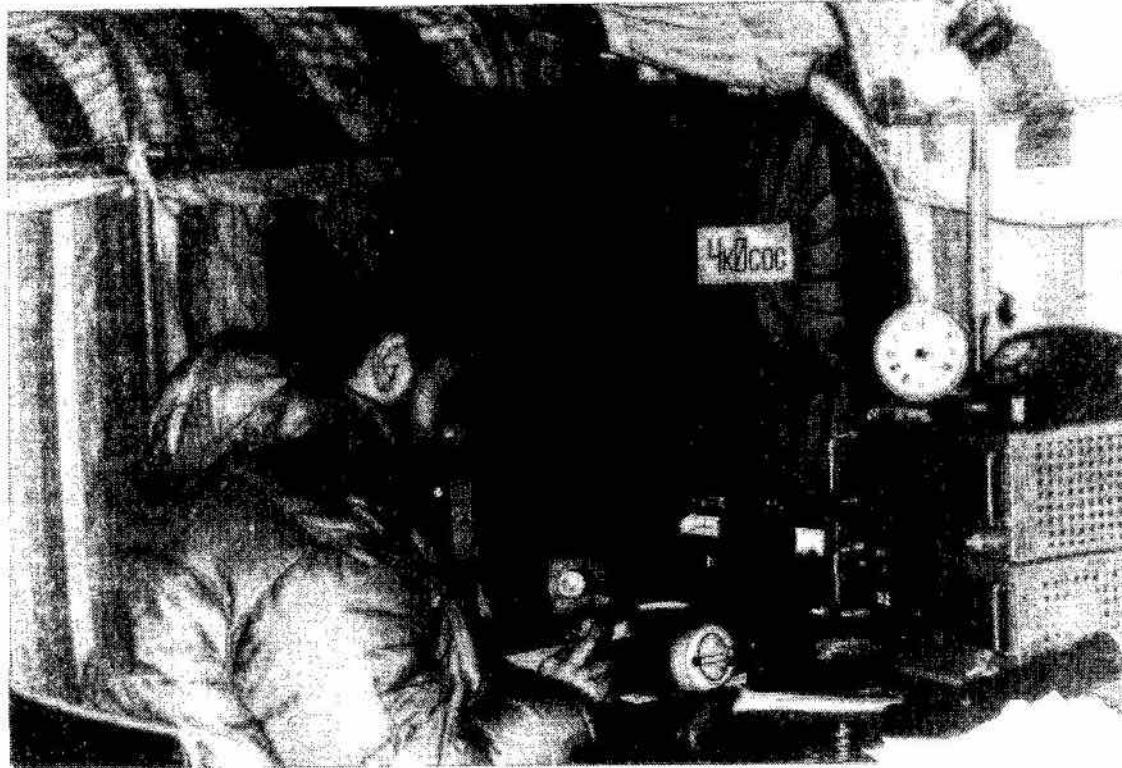


A Soviet-Canadian, Trans-Arctic ski expedition was the main subject of talks and meetings which were held in Ottawa during the week of March 17, 1987. During this time period, CARF president Ron Walsh became the first Canadian Amateur to discuss the possibility of Amateur involvement with ski-trek communications. His discussions with the Soviet team led to the following profile for *The Canadian Amateur*.

Dmitry Shparo has travelled on ski trips across the Arctic for more than 16 years. His best known expedition is the first ski trip in polar exploration history: the 1979 Henrietta Island-North Pole ski expedition.

In 1986, Shparo and Dr. M. Malakhov, along with nine other skiers, crossed 700 kilometres on the Arctic Ocean between two Soviet polar stations, across the pole of inaccessibility, which is 1500 km from dry land. This trip was the first made in conditions of polar night.

The photos included here are previously unreleased prints of that expedition. ■





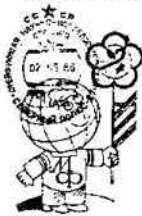
ZONE16 Moscow, USSR U-REG.170



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NEWSPAPER PUBLISHERS**



ZONE 16 Moscow, USSR Obl. 170



UK3KPF
 RK3KPF



Ma Bell's Modem Program for Radio Amateurs

BY CROFT TAYLOR

VE3CT HISTORY

Over a quarter century ago, several Amateurs working for the Bell Telephone Company of Canada wondered whether any of the 'surplus' teletype machines periodically being junked could be made available to licensed Radio Amateurs.

A self-organized task force of five employee Amateurs was established in the early 1950's to prepare briefs and to approach Bell's President on this matter. These members were Joe Blanchette VE2BYZ (now VE3BAD), Croft Taylor VE2MR later VE3OR now VE3CT, Rae Petley VE2TT (now VE3RP), Jack Urquhart VE2AXD, later VE3PK (now a silent key) and Ray Lumsden VE2XE, later VE3UH (now a silent key).

After two years of deliberations, during which many obstacles had to be overcome, the program was underway—the first shipment consisting of about two tons of factory rebuilt Model 15 machines— all nicely cartoned. To those involved, it was quite gratifying and in fact seemed like Christmas with the hundreds of cartons of new components.

Needless to say, that first shipment was quickly dispersed from VE2TT's garage and from that time on—for the past 35 years—the program has placed almost 1,200 tons of equipment into Canadian Amateurs' hands. Evolution during that time included release of 14, 15, 19, 20, 26, 28, 29, 33, 34, 35 and 43 types of teletype machines. Later, distribution was almost exclusively modern-type Video and Printer terminals.

Commencing with the release of 8 Level (ASCII) equipment in the late 60's, interest increased exponentially. The proliferation of computer equipment in Amateur Shacks made this particularly attractive in that the equipment, as well as being able to be used on RTTY, could also be used to generate hard copies for computer programs.

Control of the distribution of Surplus Bell equipment has been one of our big headaches. Care had to be exercised that the equipment did not fall into commercial use and compete

with Bell—the official administrator of the program. VE2MR devised a 'waiver' which each recipient had to sign attesting to his non-commercial use of the equipment and it is interesting to note that other Canadian and U.S. Bell Companies who have since entered into similar programs have adopted this same waiver— simply changing DOC clauses to FCC clauses where appropriate. Although these controls were instituted, we have in the past 35 years exercised the confiscation option on only two occasions. This is indicative of the general high integrity of Radio Amateurs.

Formal allocation of equipment to Amateurs was instituted as a public service gesture by Bell, in recognition of the Amateur fraternity's good work in restoring communications in times of disaster. Cost to Amateurs seldom exceeded 5 to 10% of the original cost, and was simply to cover administration costs.

Each time a large release of equipment was made, Pioneer Amateur Radio Club (PARC Ottawa) members assisted by arranging to receive, transfer, store and refurbish the units prior to their release to

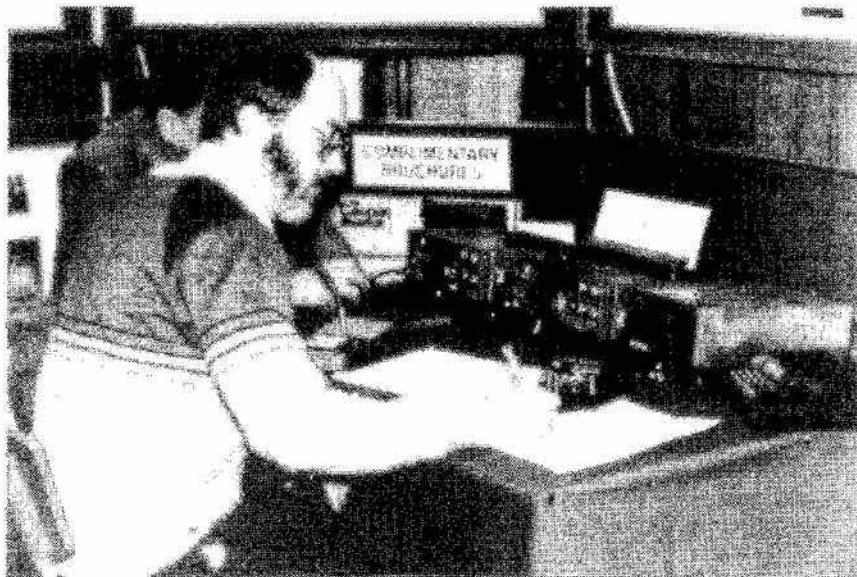
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T212A LIST OF SPECIFICATIONS

ITEM	SPECIFICATION
Input data format	Serial, binary
Operational mode	Full-duplex
Line requirement	Switched DDD network
Transmission speed:	
Low speed	0 to 300 bps, asynchronous
High speed	1200 bps, (±0.01 percent) synchronous or (+1.0, -2.5 percent) character-asynchronous
Modulation:	
Low speed	Frequency Shift Keyed (FSK)
High speed	Phase Shift Keyed (PSK)
Nominal frequencies for low speed:	
Originate mode	
Transmit mark	1270 Hz
Transmit space	1070 Hz
Answer mode	
Transmit mark	2225 Hz
Transmit space	2025 Hz
High speed carrier frequencies	
Originate mode	1200 Hz
Answer mode	2400 Hz
Transmit signal level	0 to -15 dBm adjustable in 1-dB steps. 0 to -12 dBm programmable in 1-dB steps. -10 dBm permissive. - 4 dBm fixed loss loop.
Receive signal level range	0 to -44 dBm.
Power requirements	105-129 Vac, single phase. 57-63 Hz, 10 watts maximum.
Operating temperature	0° to 50° C.
Data interface	In accordance with EIA RS-232-C except for pins 18, 19, 21, and 25.
Net weight	6 lbs (2.7 kg).
Shipping weight	10 lbs (4.5 kg).

Lifestyles 88

Amateur Radio on Review



Bob Swinwood VE1PQI with Wayne Mills VE1AGU in the background.

MODEM (cont'd)

Amateurs. Our thanks go to a few PARC members who have made outstanding contributions in this program— particularly Dick Atkinson VE3JBO and Joe Blanchett VE3BAD. At the time of release of equipment, Gwen Burnett VE3AYL would be advised and she in turn would notify all Canadian RTTY enthusiasts through her national publication, the RTTY News. Gwen by the way was a recipient of a CRRL Amateur of the year award for her dedication to Amateur Radio.

CURRENT ACTIVITY

Evolution of video terminals and printers has brought the acquisition price of commercial terminals within reach of most Amateurs, and the need for this program has diminished. Also, yours truly, having wrestled with over 1000 tons of this equipment, thinks it's time to taper off as retirement approaches.

We have decided, however, to carry on the program to make commercial quality modems available to Canadian Amateurs. While this program requires several hours a week in refurbishing and testing, I believe it to be rewarding in that there is considerable interest these days in modems among computer hobbyists— and most 'hams' have become computer hobbyists!

The particular modem being made

available by Bell is the RIXON Model T-212A. Cost to licensed Amateurs is \$58.50— about 8% of the original cost. This includes taxes, shipment to Ottawa and the cannibalization of some T-212A's to make parts available for refurbishing and for future maintenance. The modems are 300/1200 Baud, switchable from the front panel, RS232C compatible and have auto-answer capability. Brief specifications are shown later in this article. With the spares, we will be able to maintain these units for many years.

In commercial service, the T-212A modems are designed to be used with a special key-type telephone (not provided). A double pole/double throw switch must be added to replace this telephone to switch from the DATA to TALK mode. Over 200 units have been distributed so far, and no one to date has encountered any difficulty with the installation. A diagram is provided for the switch installation.

If your club is interested in acquisition of these units, they can be packaged in quantities of six units for shipment.

In order to reserve a modem, please write: Croft Taylor VE3CT, P.O. Box 3246, Station D, Ottawa, Ont. K1P 6H8.

Be sure to include all of the following: Name, Call, Address in full, Business Phone, Residence phone. ■

IT'S TIME TO SELL HAM RADIO

In mid-January 1988, the Nova Scotia Amateur Radio Association (NSARA) participated in a unique trade show in Halifax. Lifestyles 88, a sport, fitness, and recreation promotional show, offered a prime opportunity to present Amateur Radio to a captured audience.

The NSARA included a fully-operational station (thanks to R&S Electronics, Dartmouth, for supplying the equipment), video tapes, and numerous display panels depicting the various themes: Personal Communications, Public Service, New Technology, Fun and Earning a Licence.

To ensure that public interests would continue, another Amateur Radio Course was planned to immediately follow the display. Nine prospective Amateurs were a direct result of the show!

The success of the show as due in no small part to Ian Snow VE1QT, Project Co-ordinator, and a major group effort. Thank you to the following people for their time, dedication and talents: Ian Snow VE1QT, Project Co-ordinator; Bob Swinwood VE1PQ, Drafting & Photography; George Snow VE1CAW, Booth Staffing; Arnie Brown VE1AOG, Display Material; Kevin Wood VE1BEX, Pictures, Production of a multi-colour computer plot depicting Radio resources in the Maritimes; Jack Guilfoyle VE1OU, Display material; Don Bower VE1AMC, Antennas; Martha Devanney VE1???, Design & Media; Peter Devanney VE1JJ, General Gopher.

Thanks also go to the following Amateurs for manning the booth and donating equipment and antennas: VE1AGU, VCN, BQO, BIR, CES, JA, CHI, BSN, AGT, BLM, AOI and FH.

Any groups or individuals wishing to obtain more information and details on the set-up and operation of our trade show display may address queries to the author. Please include an SASE.

In summary, this type of show presented an excellent opportunity to sell Ham Radio to prospective Hams, to create general awareness about the hobby, and to stimulate teamwork within the fraternity itself. With the results of a recent survey published showing that 50% of all Hams are

Continued on next page ▶

over 50, it is strongly suggested that more groups actively pursue opportunities to promote Ham Radio, especially to the young. ■

—Peter Devanney VE1JI

**MODES DE VIE 1988
REGARD SUR LA RADIO
AMATEUR
L'HEURE DE NOUS FAIRE
CONNAITRE**

(Trad: VE1ZI)

A la mi-janvier 1988, l'Association des Radio-Amateurs de Nouvelle-Ecosse (NSARA) participait à Halifax à une foire commerciale unique.



'Lifestyles 88' (Modes de vie 1988), manifestation destinée à promouvoir les industries des loisirs (sport, culture physique, distractions de plein air) qui offrait un forum idéal pour présenter la Radio-Amateur à un auditoire solide et attentif.

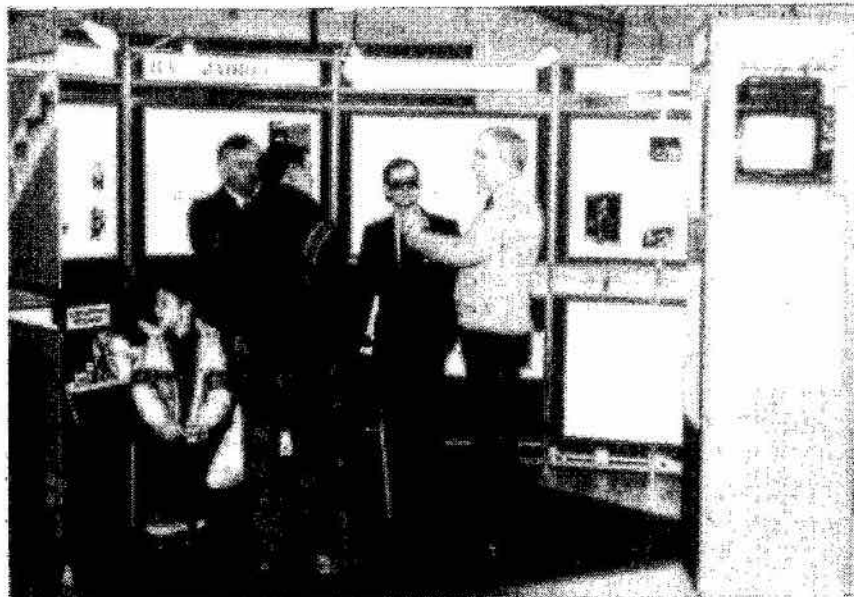
La NSARA avait installé une station complète en démonstration (grâce au matériel prêté par R&S Electronics, de Dartmouth), des cassettes vidéo, et de nombreux panneaux consacrés aux thèmes suivants: Communications personnelles, Service Public, Nouvelle technologie, Distraction et Obtention d'une licence.

Pour s'assurer de la persistance de l'intérêt du public, un nouveau cours d'apprentissage à la Radio-Amateur avait été prévu dont les sessions devaient débiter immédiatement après la clôture de la foire. Résultat: neuf inscriptions au cours et neuf possibles futurs Amateurs!

Le succès de l'exposition est dû en



Above, left: Peter Devanney VE1JI demonstrating packet operation. Right: Bernie Conrad VE1BLM discussing HF operation with a show attendee.



George Snow VE1CAW, John Campbell VE1BIR, Don Bower VE1AMC and a prospective ham.

grande partie aux efforts déployés par Ian Snow VE1QT, coordinateur du projet assisté par un groupe dévoué. Toute notre reconnaissance va aux Amateurs dont les noms suivent pour le temps, l'ardeur et le talent de leur contribution à ce projet:

Ian Snow VE1QT, Coordinateur du projet; Bob Swinwood VE1PQ, Dessin et photographie; George Snow VE1CAW, Personnel du kiosque; Arnie Brown VE1AOG, Matériel exposé; Kevin Wood VE1BEX, illustrations, production d'un schéma multicolore sur ordinateur décrivant les ressources radio dans les Maritimes; Jack Guilfoyle VE1OU, Matériel exposé; Don Bower VE1AMC, Antennes; Martha Devanney VE1?? Présentation et presse; Peter Devanney VE1JI, Assistant général.

Notre gratitude s'adresse également aux radio-amateurs suivants qui ont assuré la présence au kiosque et offert du matériel et des antennes: VE1AGU, VCN, BQC, BIR, CES, JA, CHI, BSN, AGT, BLM, AOI et FH.

Tous les groupements ou particuliers souhaitant obtenir de plus amples informations et des détails sur la présentation et le fonctionnement de notre kiosque à la foire commerciale peuvent s'adresser à l'auteur (prière de joindre une enveloppe auto-adressée et affranchie).

On peut donc conclure que ce type de manifestation publique offre un cadre excellent de propagande dirigée vers de radi-amateurs potentiels, de sensibilisation du public à notre passe-temps et d'encouragement au travail d'équipe chez les radio-amateurs eux-mêmes. Un récent sondage a révélé que 50% des radio-amateurs avait dépassé la cinquantaine. Il est donc d'un intérêt vital que des organisations de plus en plus nombreuses recherchent activement toutes les occasions de recrutement de nouveaux radio-amateurs, notamment auprès des jeunes.

— Peter Devanney VE1JI

CERTIFICATES OF THANKS

Do you know an Amateur who has contributed to our service in some special way? If you do, send Debbie his name and the name of his club. The CARF Certificates of Thanks should be presented formally, with due ceremony, at a club meeting. Debbie's address is Box 356, Kingston, Ont. K7L 4W2.

The Canadian Amateur welcomes all articles submitted for publication.

Canada Contest Multiplier Chart

Province Province Territory Territoire	VO1 VO2	VE1 NS	VE1 NB	VE1 PEI	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VY1	VE0	TOTAL
Band/Mode Bande/Emission														
1.8 cw														
1.8 phone														
3.5 cw														
3.5 phone														
7 cw														
7 phone														
14 cw														
14 phone														
21 cw														
21 phone														
28 cw														
28 phone														
50 cw														
50 phone														

Rules: contests are open to all Amateurs. Everybody works everyone.

Classes:

In the single op section there are 10 classes of entry. They are All Band Mixed Mode (CW-SSB), All Band CW, All Band SSB, and Single Band Mixed Mode (CW-SSB). There are two multi op classes and they are Single TX All Band (Multi-single) and Multi TX All Band (Multi-multi).

Exchange: Operator's name; Signal report; Consecutive serial number; Province, territory, state or country. Multi-multi entrants use separate numbers for each band.

QSO Points: 10 points for each station operating in Canada and for all VEO stations, and 4 points for stations operating outside Canada. An additional 20 points may be claimed for each official station using the VCA or TCA suffix.

Multipliers: As listed above for a possible total of 182.

Frequencies, kHz: 1825/75, 3525/3775, 7025/7070/7155, 14025/14150, 21025/250, 28025/500, 50040/50125 kHz

Entries: A valid entry must contain log sheets, signed statement, summary sheet showing claimed score, QSO's, a list of multipliers and bonus stations. Entries must be postmarked within 30 days of the contest. Please send in your comments and photos.

Awards: Certificates will be awarded to top scoring entries in each class in each province, territory, DXCC country and each U.S.A. call area. Trophies for All band Mixed mode, All band CW, All Band SSB, Single Band 14 MHz, Single Band 7 MHz, Multi op single, Multi op multi. Trophy winners may win the same award only once within a two year period.

No Cross mode QSO's are allowed. Single ops must use own station.

CANADA DAY CONTEST ENTRIES go to:
John Clarke VE1CCM, 16 Keefe Ave., Sydney, N.S. B1R 2C7

CANADA WINTER CONTEST ENTRIES go to:
J. Parsons VE6CB, Acton Corners Rd. Oxford Mills, Ont K0G 1S0

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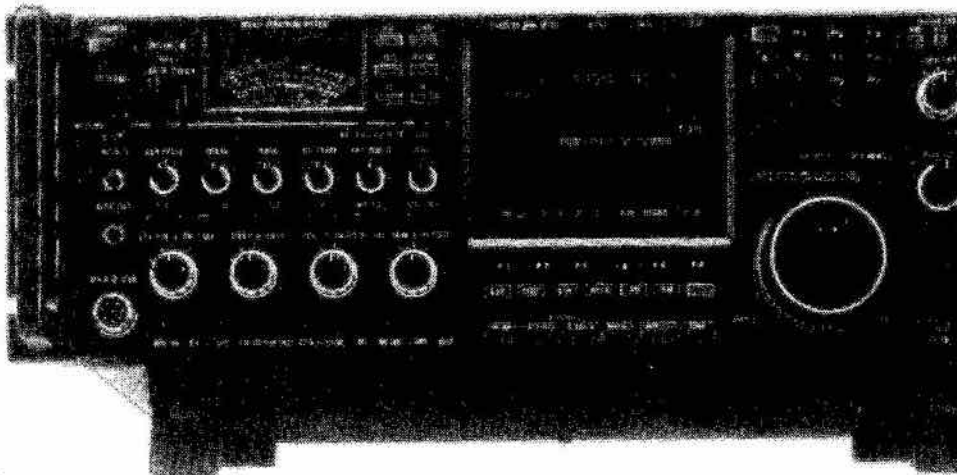
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When you want to change the frequency or the memory channel fast, use the Dial Select function. Dial Select changes the 1MHz, 100kHz digit or the memory channel directly. It's so easy to operate: just push one button!



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SPECIFICATIONS

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Frequency Coverage	Receiver: 0.1MHz ~30.0MHz; Transmitter: 1.8MHz ~2.0MHz, 3.4MHz ~4.1MHz, 6.9MHz ~7.5MHz, 9.9MHz ~10.5MHz, 13.9MHz ~14.5MHz, 17.5MHz ~18.5MHz, 20.9MHz ~21.5MHz, 24.5MHz ~25.1MHz, 27.9MHz ~30.0MHz
Frequency Resolution	10Hz, 50Hz, 1KHz
Power Supply Req./Power Consumption	110 ~120V or 200 ~240V AC; Rx audio at max 150VA, Standby 140VA; At 150W 760VA; At 15W 325VA
Dimensions	16.7"(425mm)W x 5.9"(149mm)H x 16.2"(411mm)D
Output Power	150W (SSB/CW/RTTY/FM); 75W (AM)
Max. Freq. Deviation	5KHz (FM only)
Emission Modes	SSB (A3J), CW (A1), FM (F3E), RTTY (F1B), AM (A3B)
Sensitivity	(Preamp Switch On): SSB, CW, RTTY (for 10dB S/N) 0.1 ~0.5MHz, Less than 0.5µV; 0.5 ~1.8MHz, Less than 1.0µV; 1.8 ~30MHz, Less than 0.16µV; AM (for 10dB S/N): 0.1 ~0.5MHz, Less than 3.2µV; 0.5 ~1.8MHz, Less than 6.3µV; 1.8 ~30MHz, Less than 1.0µV; FM (for 12dB SINAD): 28 ~30MHz, Less than 0.23µV
Audio Output	More than 2.6W at 10% distortion with 8Ω speaker

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- 100 Memory

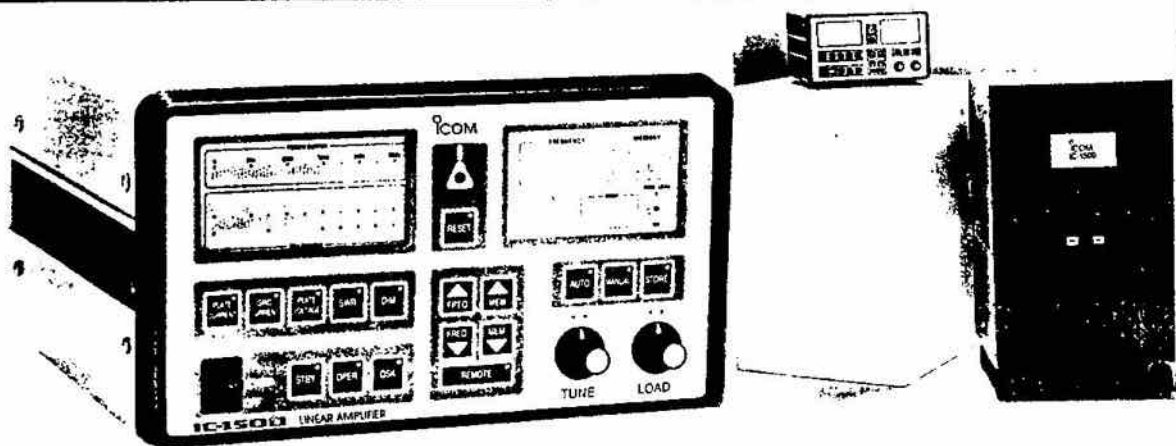
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MULTI OPERATOR

- Single TX- All Band
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SCORE CALCULATION

TOTAL QSO's	<input style="width: 100%;" type="text"/>	
CANADIAN QSO's	<input style="width: 100%;" type="text"/>	X _____
OTHER QSO's	<input style="width: 100%;" type="text"/>	X _____
BONUS QSO's	<input style="width: 100%;" type="text"/>	X _____

TOTAL QSO POINTS

MULTIPLIERS

TOTAL SCORE = QSO Points X Multiplier

This is to certify that in this contest I have operated my station within the limitations of my licence and have observed fully the rules and regulations of the contest.

(Signature) _____

Logs must be postmarked no later than 30 days from the date of the contest.
Results will be published in TCA- The Canadian Amateur Magazine prior to the next contest.
Non-members of CARF must include an SASE to receive contest results.

The decision of the Contest Committee is final.

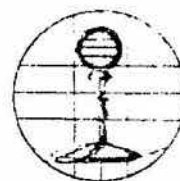
HAM-FAIR

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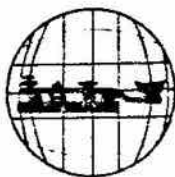
PLACE: SUMMERLAND, B.C. at the ILLAHIE BEACH and RV PARK.
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DATE: JULY 8,9,10,1988.

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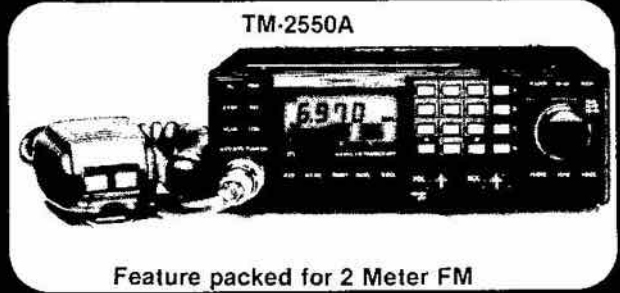
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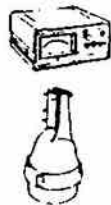
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SPECIFICATIONS AND PRICES
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IPARN

Part Three The Full Duplex Trunk/Drop Repeater Interface

BY BILL BLAKE VE7CQ

In the previous two parts we looked at some of the main points to consider when designing a cohesive and easy-to-use network of repeaters. Certainly the planned application of DTMF throughout the system paves the way to provide easy system use. This application of control tones illustrates only one aspect of network planning and development. The word 'cohesive' is used here to illustrate the point that the network should not be merely a collection of various

repeaters that have been made to work with one another but rather a planned event to ensure a reliable and clean sounding system.

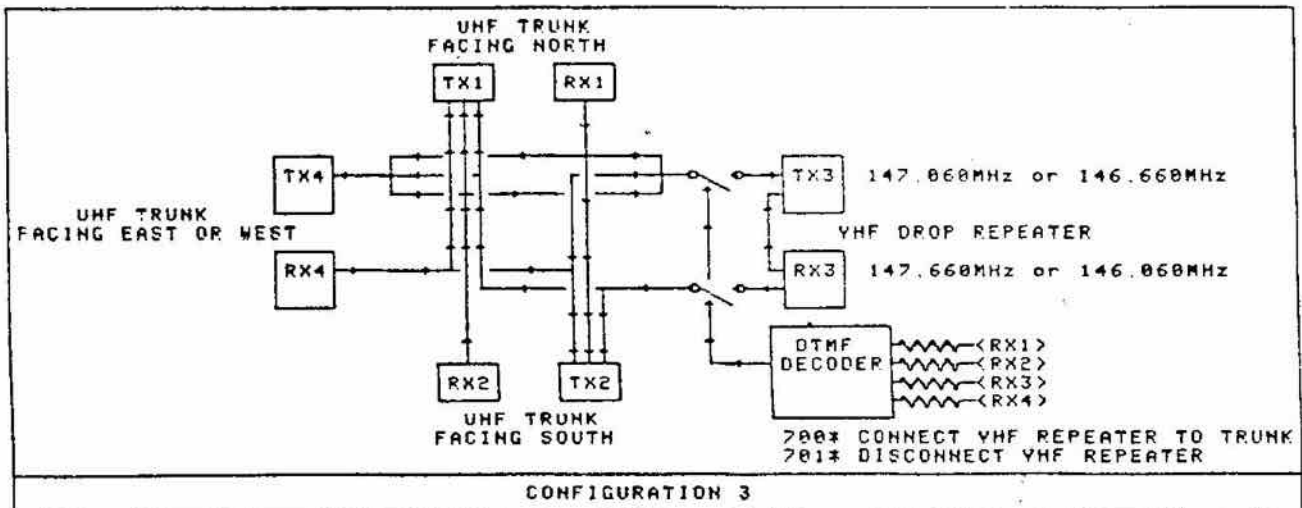
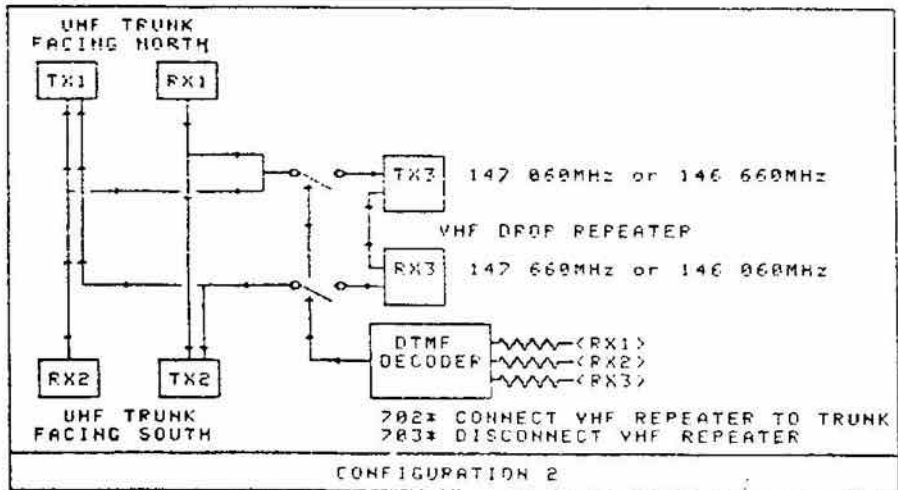
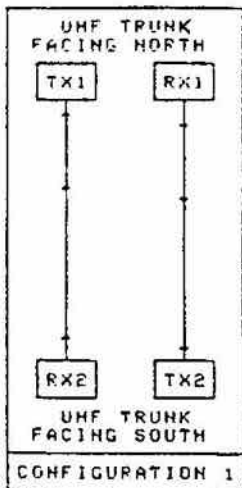
To explore this system of planning and development, a close look at the organization of a given IPARN site is all that's needed. In a step-by-step process, we can follow the rationale that is used and the reasons for various decisions will then become obvious.

PATH TESTING

The first task to tackle is proper path

testing between the sites on the frequencies allocated for those sites. During these tests, attention is paid to the signal strength and especially the fade margins on the trunk channels. Noise occurring on the trunk frequencies will be heard throughout the system, so careful testing is required. The trunk channel tests give an opportunity to evaluate any site interference problems before the project advances too far. Work with the people on the adjacent site during

Continued on next page ▶



these tests ensures no problems occur at those sites that will affect your tests and visa versa. Additionally, they may be able to enhance your tests by adjusting antenna headings. The visit to the site to conduct these tests provides an opportunity to plan antenna, feedlines, and equipment placement as well.

When satisfied that the frequencies allocated and the paths tested meet the requirements of both the network and the drop repeater, work can begin on the electronics itself.

INTERFACE CARDS

It became very clear to us early in the designs for IPARN that we needed an interface card to make every radio 'look' the same as far as inter-connecting them was concerned. Actually two interface cards were needed. One was for the receiver and the other for the transmitter. These cards are referred to as I/O cards.

The RX I/O was designed with numerous 'features' in mind so that it would work with any receiver. These features include:

- on-board de-emphasis network,
- audio level control,
- audio can be switched by received carrier,
- high impedance conditioning of the COS (card input),
- adjustable receiver timer,
- receiver mute control,
- VOX.

Similarly, the transmitter interface card was designed with some 'features' in mind:

- on-board pre-emphasis,
- audio level control,
- audio mixing,
- PTT signal conditioning,
- transmitter mute control,
- audio mute control,
- drop-out delay timer,
- transmitter timer.

Each card has about 20 jumpers to let us select the particular options that we need and gives them the versatility needed for a wide assortment of radio parameters. In fact, with one RX, one TX card and three jumpers, just about any radio can be used as a repeater.

A typical IPARN site consists of three radios. Two of the radios are used for the 'duplex trunk' and are on UHF channels. The other radio is on VHF. The UHF channels in use for the trunk have been selected bearing in mind several factors. These channels must work with each other without mutual interference as well as work with the VHF frequencies. Inter-modulation problems are minimized and the frequencies are authorized as 'clear channel' in the portion of the UHF band used for linking. Using these standard allocations simplifies the site configuration at the start.

SITE CONFIGURATION

The three radios are configured with the standard I/O cards. Each receiver and each transmitter has one for a total of six. Once these cards are in place and optioned correctly, all the carrier operated switch (COS) and the press to talk (PTT) lines behave the same. The audio levels and timers can be set and the jumpers installed to make the VHF radio into a repeater.

At this point in the development of the electronics, some time should be spent doing some 'on-air' testing. Care should be taken to be certain that no weird noises or distortions are present as well as 'funny' operations on the COS and PTT lines as a result of RF around the hardware. The physical arrangement of the radios in a suitable rack or cabinet should be sorted out and the duplexers can be tuned and tested with the associated radios as well.

All that remains now is to interface the three radios into the final configuration. This procedure is handled by the control shelf. In reality, the control shelf is a switching centre for audio and COS/PTT signals. The control shelf also contains the DTMF decoder and the CW identifier. In all there should be four basic control cards:

- audio interface
- COS/PTT card
- DTMF decoder
- CW identifier

COS/PTT

If we ignore the fact that a VHF drop will be added to the configuration, and just look at the trunk, the signal flow becomes very much simplified. The flow of audio and COS/PTT switching for one direction on the trunk is the same as that in the other direction. Remember that the two trunk paths are independent from each other. Looking at just one direction through 'the site', (say north to south) we need two basic signals properly interfaced. The COS of the RX (that carries traffic in a south-bound direction) is connected to the PTT of the transmitter. This allows a signal originating from north of 'the site' to turn on the transmitter and let it carry on to the southern adjacent site.

AUDIO QUALITY

The other signal of course is the audio. The receive audio is interfaced to the transmit audio such that anything that is heard by the receiver is passed on to the adjacent site. Remember that we are only talking about traffic flowing southbound through one-half of the trunk. It is the audio interface that is the most critical aspect of building a trunking site or any repeater for that matter. The care taken here will reap benefits both at

the repeater level and throughout the network.

Audio from the receiver may or may not be de-emphasised. It depends on where you obtain it in the receiver. If you take it at the discriminator output it will probably need de-emphasis. If you pick it off at the RX audio amplifier it will probably be already de-emphasized. The same is true for the transmitter. Depending on where you inject your audio feed, you may be ahead or behind the pre-emphasis network. The point to remember here is that the audio, if de-emphasized by the RX, MUST be emphasized by the TX. Furthermore, care must be taken to ensure that one of two conditions does NOT occur. These conditions are double de-emphasis and double pre-emphasis. One condition (double de-emphasis) results in very bass sounding audio. The other condition results in high piercing type audio response. With either of these two problems occurring, the setting of system deviations is a nightmare.

The two factors that make the audio interface a success are the audio frequency (pass-band) response and the levels (deviations) through the RX/TX circuits. With the use of op-amp techniques both the levels and the frequency response can be carefully controlled. Additionally, the stage can be set to allow the audio mixing needed to feed the correct signals to the drop without degradation. Be careful if using commercially available controllers as they may not be configured correctly to do the job and modifying them can be a challenge.

The southbound audio splits and goes to the southbound trunk transmitter as well as the drop transmitter. The audio feed to the trunk TX is never switched off. However the audio to the drop TX is enabled only when the repeater is connected to the trunk. Similarly, audio from the drop RX is connected to the trunk TX only when the repeater is on the trunk. This whole process is duplicated for the northbound direction. The result (config. 2) is two trunk halves for signals to flow; one northbound and the other southbound. If connected, the repeater receives signals from both trunk halves, combines them and feeds them to the drop TX.

Further, the drop RX feeds audio to both trunk halves such that signals on the repeater are passed on to both adjacent sites. These audio and COS/PTT functions are handled by the two (config. 3) cards in the control shelf designed just for that purpose. IPARN went a stage further and provided for both north/south

Continued on next page ▶

17TH AIRBORNE SEEKS TO LOCATE MEMBERS

The 17th Airborne Division Association, composed of men who served as paratroopers and glidermen in the Division during World War II, is conducting a membership drive to locate all former members, including Gold Star mothers and family members of those who were killed in action. If you served with this Division, please contact Edward J. Siergie, Secretary-Treasurer, 62 Forty Acre Mountain Road, Danbury Connecticut 06811, for details of the Division Association as well as information about the 35th Annual Reunion which this year will be held at the Radisson Hotel, St. Paul, Minnesota on August 3-7, 1988.

VE3CNE

VE3CNE will be in operation again at the 1988 edition of the Canadian National Exhibition. This premier display of Amateur Radio will be held in conjunction with Canada's largest annual exhibition, Aug. 17 through Sept. 5 at exhibition place in Toronto, Ontario.

If you are in Toronto please feel free to visit our booth located in the arts and crafts building located at the west end of exhibition place just south of the Dufferin gates. VE3CNE is easily reached via public transit. All sites at Exhibition place are accessible to the handicapped.

VE3CNE will be in operation 1000-2200 daily and many facets of our great hobby will be demonstrated to the public including HF operation on all bands 10 through 80 metres and VHF activity on two metres. There will also be facilities for RTTY and packet. You are most welcome to come along and play with the 'Toys'—we will have lots to entertain you. We invite you to spend some time operating. Better still, talk to our 'non-ham' visitors about Amateur Radio.

Our Motto this year is 'Amateur Radio: THE Hobby!'

For further information write to VE3CNE, P.O. Box 307, Station 'H', Toronto, Ont. M4C 5J2 or contact Thelma Woodhouse VE3CLT at (416) 757-5593. And if you cannot visit us in person then please look for us on the air. A special QSL card will be sent to all stations making a contact with VE3CNE. See you at 'The Ex'.

VE3CRC

The Chatham Kent Amateur Radio Club will operate VE3CRC on July 2,3 from the 1988 'Festival of Nations' a celebration of the variety of ethnic cultures that are present in Chatham and the country of Canada.

Suggested Frequencies:
Phone: 3.875, 7.240, 14.250, 21.360, 28.340;

Social Events



CW: 3.450, 3.725, 7.045, 7.125,
14.030, 21.090, 21.125;
FM: 147.720/147.120 VE3KCR

For certificates, QSL to: VE3CRC,
Chatham Kent Amateur Radio Club
Inc., P.O. Box 284, Chatham, Ont.
N7M 5K4.

HAM HAPPENINGS

Planning for Ham Happenings '88, Vancouver Island, British Columbia is well under way.

The Victoria Short Wave Club has finalized the dates as Sept. 10 and 11 1988, and the place is Saancha Hall, Sidney, B.C. The get-together will contain all of the events that has made previous Ham Happenings on 'The Big Island' such a success, as well as some new twists that I am sure will be well received.

OKANAGAN HAM FAIR

British Columbia (Okanagan Valley), July 8-10, 1988— The Okanagan Ham Fair Society is pleased to sponsor the annual Okanagan Ham Fair at Illahie Beach RV Park, Hwy 97 N., Summerland, B.C. 4 p.m. Friday to 4 p.m. Sunday.

Events to include: Flea Market and

IPARN (cont'd)

trunking as well as east/west. The routing for COS/PTT is always the same as for the audio routing since they go hand in hand.

While the audio interface is the most critical, in reality the circuits themselves are straightforward and the COS/PTT is even less complex. IPARN uses six integrated circuits to look after the COS/PTT work. If DTMF and CW identification were ignored, the site could be installed with the repeater permanently connected to the trunk. The I/O cards work directly with the audio and COS/PTT cards and the wiring between them is nothing too special.

auction, new equipment, surplus, seminars, packet, repeaters, refreshments and food. Admission: \$5. Talk in on 146.34/94 or 146.52.

Contact VE7GSB Glenn Borgens at (614) 492-5684 or write to Okanagan Ham Fair, Box 477, Penticton, B.C. V2A 6K6 or contact VE7BEE at (614) 493-1122.

THE FRIENDLY BORDER AWARD

The Friendly Border Award is offered by the Algoma Amateur Radio Club to Hams/SWLs who qualify by working/hearing Amateurs in the provinces and states along the 3,500 mile friendly border joining Canada and the United States of America. The provinces and states adjacent to the common border are British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and New Brunswick, Washington, Idaho, Montana, North Dakota, Minnesota, Michigan, New York, Vermont, New Hampshire and



Maine. An endorsement is available for working/hearing Alaska and the Yukon. Certificate endorsements for single mode transmission and/or single band may be made.

Send certified log data (signed by an executive of your club or two fellow hams) with \$3 or 10 IRCs to Awards Manager, Algoma Amateur Radio Club, Box 86, Sault Ste. Marie, Ont. P6A 5L3.

LEVELS

The last item to consider before exploring the remote control is the system levels. The deviations for all transmitters should be set to limit at +/- 5 kHz. The audio levels should then be set such that if the receivers receive a 5 kHz signal it is maintained at 5 kHz throughout the site. Unity gain must be maintained for all signals passing through the site or distortion, poor signal to noise ratio and unreliable DTMF control will result.

In Part 4 we will look at the DTMF decoder and the CW identifier and their role in controlling and informing.



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Art Blick VE3AHU
P.O. Box 356,
Kingston, Ont. K7L 4W2

LOOKING AROUND

Television series, radio programs, record companies and articles in the public press are having a nostalgic look at the 'Sixties'. This decade is also interesting from the viewpoint of Amateur Radio.

The period before 1960 could be said to be the pioneering, by a small group of Amateur experimenters, of equipment and operating practices that has resulted in the Amateur communications of today. The Sixties was the period in which this pioneering work was developed until accepted as the norm by today's Amateurs.

At the beginning of the Sixties, a number of Amateurs were using sideband techniques for communication on the HF bands and suffering the 'monkey chatter' derision of the majority using AM phone. Your author started with a simple DSB, home-brewed rig, consisting of a VFO, frequency multiplier, balanced modulator and linear amplifier (807 in class AB) with the addition of a product detector and audio AGC circuits to the receiver. This developed into a home-brewed station using a 50 watt SSB/AM/CW exciter (Sideband Package with a mechanical filter), a kilowatt linear and a triple-conversion receiver, that saw extensive use until replaced with a commercial transceiver (KW-2000)

TECHNICAL TIPS TS830 MODIFICATION

Noting in international radio bulletins that a modification had been made in the Kenwood TS430's noise blanker circuit, I took a look at my TS830's circuit and found that the noise blanker circuit was similar, so I changed the components indicated, which resulted in a big improvement in the noise blanker. Now the 'woodpecker' can be reduced to a gentle rap.

Parts to be changed in the TS430 (on the RF board):
R80 33K change to 100K
R81 10K change to 56K
C125 330 pF change to 560 pF

Parts to be changed in the TS830 (on the AF board):
R117 33K change to 100K
R118 10K change to 56K
C72 330 pF change to 560 pF

T1 and T2 may require slight adjustment to obtain the best reduction in noise without distorting the signal.

— Norm VE7EGO, *Ragchew*

Several clubs run a code phone.
Does yours?

toward the end of the decade. The 'normal' Canadian Amateur station, in 1960, had an AM/CW transmitter (e.g. Heath DX-100, Viking II, etc.), a commercial AM/CW receiver, dipoles for 80M and 40M and a tri-band beam (20/15/10M) mounted on a 40-foot TV tower. The antenna system stayed the same but, by 1970, the normal station was using a commercial SSB/CW transceiver manufactured in the U.S.A. and AM phone had virtually disappeared from the HF bands.

On the VHF front, six metres was not used to any great extent due to probability of TVI, and two metre enthusiasts were using the Heath 'lunchboxes' (low power AM transmitter and regenerative receiver), war surplus SCR-522s, or Pye transceivers—the 'six block mobiles'—and becoming familiar with the vagaries of VHF propagation.

Within ten years, the swing to two metre FM communications was on and the initial breed of Amateur auto-repeaters were coming into use. This also saw the move of local nets to 2M and a significant decrease of QRM on the 75M bands. Originally, using the low power AM sets, antennas were horizontally polarized as majority of 2M operation was between base stations. But, with the increasing use of mobile communications, vertical polarized antennas became the standard and the problems of constructing and mounting vertical beams were overcome.

On the DX front, the Sixties started just after the peak of the highest sunspot cycle known and ended with the peak of a normal cycle. The ARRL DXCC was the certificate desired by Amateurs to show their prowess in working DX and several thousand were issued in the period. During the peak cycle years, 15M and 10M were wide open—old-timers will remember the 'International Gang' on 15M—and it was common to work Australia on low power AM. International DX contests came into being and developed with no restrictions on frequencies used. This led to many complaints that contest activities on practically every weekend prohibited normal use of the DX bands with 'DX rat packs' jamming the frequencies around every exotic DX station that appeared on the bands.

Satellite communications were introduced with the 'HI' in CW of OSCAR 1 in 1961, followed by OSCAR 2 of 1962. The initial operational satellite, OSCAR 3, was launched in 1965 and provided two-way communications for about 100

stations in Europe and North America using the 2M band. OSCAR IV, using an up-link on 2M and down-link on the 450 MHz band, was launched in late 1965 but never reached its planned orbit and only about a dozen contacts were realized. These satellites were designed and built by a group of California Amateurs—the Project OSCAR Association—that became the international Radio Amateur Satellite Corporation (AMSAT) in 1969.

This period was noteworthy in that, in 1967, the Canadian national Amateur organization—CARF—was formed as a federation of provincial Amateur societies. Before CARF came into being, representation of Canadian Amateurs was performed by the Director of the Canadian Division of ARRL but the growth of national spirit, occasioned by Canada's Centennial, led to the realization that Canadians could, and should, look after their own affairs. Your national Federation commenced operation, in 1967, with immediate problems, mainly financial (annual income never exceeded \$1000 until 1973 when CARF membership was extended to individual Amateurs). But, with the aid of a host of officials across Canada, representations were made to the DOC on a variety of subjects including the sudden increase of Amateur licence fees from \$2.50 to \$10; the growing problem of GRS; TVI/BCI; and proposed expansion of the U.S. phone sub-bands.

CARF officials foresaw the problems that did arise with Canadian Amateurs having two national organizations and, in 1969, forwarded a proposal to the ARRL Board of Directors that their Canadian Division and CARF be amalgamated into the Canadian Amateur Radio League. CARL would have an organization similar to that of present day CARF and CRRL with *QST* as the national publication and containing a page, or more, of Canadian content. This proposal was rejected by the ARRL Board primarily on the basis that there was an insufficient number of Canadian Amateurs to adequately support the proposed organization, problems with the Canadian content in *QST*, legal aspects of changing the ARRL constitution and the rights of Canadian members of ARRL to continue such membership. This rejection did have a positive aspect as CARF determined to demonstrate that Canadian Amateurs would adequately support their own national organization with a new national publication that came into being in 1973. ■

TRANSMITTERS - RECEIVERS - TEST EQUIPMENT - LAB EQUIPMENT - COMPONENTS

CARF

VE3 KHB

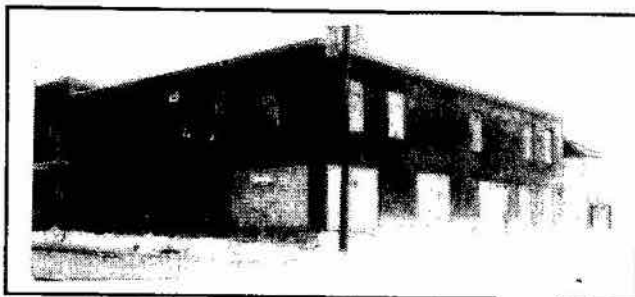
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We are open Saturdays from 9 am to 5 pm. Weekdays, for the present, are restricted to appointments for any time between 5 am to 10 pm. We normally are not maintaining a regular schedule during the week and therefore an advance appointment is essential to ensure your visit is successful. Sundays and holidays we are closed.

We carry a vast assortment of items ranging from medical, laboratory, scientific, photographic, optical, antiques and other strange pieces for the experimenter and enthusiasts as well as schools, labs and electronic firms. If in the area when we are open, feel free to drop in and browse. Always happy to answer queries by phone or mail. If we are not available and you are using 283-5195 (connected to our warehouse), an telephone answering machine will come on the line for any message. Our residence number is 283-0637 and has no answering machine facilities.

As promised last month, we are listing a few items from our 2nd floor. (1) Singer film strip projectors \$25.00 (2) Beseler, Transpaque & Bell & Howel overhead transparency projectors \$30 to \$75.00 (3) Beseler opaque Vu-Lyte II projectors \$150.00 (4) Kodak optical comparator with 14" screen & 5 lens magnification turret \$600.00 (5) Sony B&W video cameras, built in monitor, zoom lens, case \$250.00 (6) Sony AV3600 video recorders \$125.00 (7) Sony stereo tape decks, Model TC707SD \$250.00 (8) Sony speaker cabinets with 3 spkrs \$20.00 Our stock of microscopes now includes Zeiss, Bausch & Lomb and Reichter. We recently obtained a few Systron-Donner solid state spectrum analysers, 712-2A display mainframe with 809-2A tuning unit (10 MHz to 40 GHz) complete with manual. These have been quite popular and at the time of compiling this ad we have one left at \$1400.00

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Moe Lynn VE6BLY
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Edmonton, Alta. T5N 3A7

QRP

Has anyone thought of a good idea for increasing QRP activity in Canada? Or has someone designed a suitable logo we can combine with CARF or *The Canadian Amateur* (which is FREE with all memberships) or a 'stand alone' sticker? In January TCA the reference to Australia CW QRP should have read striving for 200 members whose quarterly bulletin is called *LO-KEY*.

A recent Royal Bank Letter entitled 'The Creative Approach' went on to say, "Much ability is wasted when people tell themselves they're not creative. It's a waste the world can ill afford. Taking the creative road means changing some mental habits. But think of the rewards!" Looking back a little further, wasn't it Thomas Edison who said, "creation most often is 90% perspiration and 10% inspiration"?

NEOPHYTE

Handed to me by Al VE6AXW was his completed kit of the Neophyte Receiver by John Dillon WA3RNC published in the February issue of *QST*. This is the first time someone has made their work available for my evaluation.

For anyone contemplating Amateur radio for the first time, it is an ideal starter receiver. Signals heard on the band 3.5-4 MHz were entirely readable when the same did not register on the meter of my Icom 761. They were not only readable but loud enough for traffic handling which Al also reported on his Icom R71A and to have him choose this kit is actually recommendation enough. Some readers may remember him for his jumping from an HQ129X a while back and being the protege of Tom VE7BNI. He went further and had an independent laboratory do those tests shown in the article with equal or better results.

Where the kit calls for a twisted pair between the board and R1-Gain Control and C4- RF Peaking in trimmer, Al has used RG174 coax. He also wants to experiment with 0.01 or 0.02 for C14 and C16 in an endeavor to obtain improvement in higher audio frequency response between mixer and audio amp. Personally the way the receiver performs here, it is hard to believe any more modifications are necessary. A choice of kits as

REPEATER DIRECTORY

1988 Repeater Directories are now available free from the CARF office. Send an SASE to Box 356, Kingston, Ont. K7L 4W2.

listed with the *QST* article permits further miniaturization and would even allow combining it with a QRP transmitter with proper shielding.

Conclusions drawn should also mention the superlative writing in the article, especially circuit explanations. Besides a good performing receiver for just brushing up or learning the code, it was used on my G5RV without a transmatch for traffic handling. This is why I would recommend it in combination with a QRP homebuilt transmitter for Field Day events this month.

GLEANINGS

Bill VE7DHK from Chemainus wrote for some RITTY programs and included a brief rundown of his homebuilt QRP equipment. He prefers VFO control and has separate VFOs for 80 and 40 metres running about one and one quarter watts out. Odd, he says, that many hams give me a good report, but when I tell them it's QRP they want to take off. Another rig from *Solid State Design* is good on 20 but lots of harmonics on 40 (has its own VFO and Doubler). Will you be writing a report for us on this equipment, Bill?

Many enjoyable phone calls from Earle VE6NM plus a long letter just to say hello and enquire about my health. Among his many activities besides that of CARF Vice President, is his great interest in the Society of Wireless Pioneers (SOWP). Paul W6WOW also dropped me a line as Executive Secretary of SOWP telling me about preferring to answer anyone calling CQ QRP. He is also publisher of *QTC Newsletter*, a quarterly for SOWP (see logo reproduced elsewhere) whose last issue was 16 pages on standard letter size paper. He mentioned being on the lookout for anything written about Adventures and Experiences of Professional Brass Pounders Around the World. In the same issue dated March 1988, 'The YL Scene' is covered by Olive VETERA, whose members at her last count numbered 40. Her first column included a very interesting story by Ursula VP2MT (formerly VP2MDY) telling about her start in CW during WW II, then Amateur radio in Montserrat.

Another letter from Lowell KD8FR and this time reproduced here is the ARCI's snazzy new sticker. He tells me that Tom W8UUT took our January 1988 issue to Dayton Hamvention the last weekend in April which we hope will give *The Canadian Amateur* better exposure than selling *Ham Radio* magazine at a discount.



Dick K2ASM exchanged the W2TW Special Event Station QSL with me for working them during the Electro-Magnetic Telegraph Sesquicentennial celebration. It was to commemorate the 150th Anniversary of the first public demonstration of the telegraph at Speedwell Iron works, Jan. 11, 1938. Highlighting the card was a drawing of the 'Factory' at Historic Speedwell.

QRP ACTIVITY

Again, except for Rick WL7BDK on most Sundays at 1900 UTC and Barry VE6BMX, there has been no activity reported on the VE-QRP net. Barry told me he is back from down east but going to Calgary quite frequently and still working on his DXCC. Also worked Roger WSLXS on TCN for the first time in many moons. Ilse DF6KN gave me 579 for my 5W, as did Hans SK7AX, but only 559 from Arnold SM5CIK. However, the previous day Steve SM4OTI reported 599 and was only 579 here on my meter with his kilowatt. Alex UA9JO with 200 was 579 and gave me 559. Dick VE6NKR appeared quite active on 15M one day and agreed to try QRP then reporting his TS940S results soon. Did not work but heard Ade WORSF on 3560 kHz but too near a traffic net schedule on the same QRG to make contact. Don AA7Y/MM2 gave me 569 as was his report while under way just one day west of San Francisco heading for Guam and was my first QRP Maritime Mobile. Elmer VE6BLO introduced me to a new form of QRP when he loaned me his cordless phone so he could talk to me at the dinner table or if I hobbled outside.

Again from another Royal Bank Newsletter: "Enthusiasm is that 'ecstasy of mind' in which anything appears possible. It must be cultivated if it is to be kept alive—and keeping it alive has now become vital to our whole society."

Remember the QRP QRGs 1810, 3560, 7030/40, 10106, 14060, 18106, 21060, 24960 and 28060, 24 hours per day plus 14060 on Sunday at 1900 UTC plus or minus QRM. ■

•CQ DX•CQ DX•

Paul Cooper VE3JLP
RR 2 Metcalfe Ont.
K0A 2P0

PROPAGATION PRIMER

Ever since I started to write 'CQ DX' I've had a list up my sleeve of basic subjects this column ought to review. The list was attempt to cover all the elements of DXing so that, over a fairly large number of issues of *The Canadian Amateur*, we could look at everything a DXer should know to be effective in the game of working the rare ones. Right at the top of the list was the single word 'Propagation' and time after time I have chosen another lead subject for the column leaving propagation for another issue. You can probably guess why I've taken such a long time to bite the bullet, the subject is complex and many-faceted. While the science of propagation is clearly a branch of Physics, certain aspects have a strong element of 'Crystal Ball' in them. For example, making predictions about whether or not a particular circuit will be open at a particular time to a certain part of the world is as much an Art as it is a Science.

Obviously it is close to impossible to do real justice to the subject in a single column. If I tried our editor would be most unhappy about the number of pages I needed while many of you readers might suffer from an acute case of mental indigestion on being asked to wade through so much relatively heavy material!

I have decided that the answer is to break the subject up into a number of reasonably easily digestible chunks spread over a number of columns. This has the added advantage that it will allow you to react to the material, as it is presented, which may well help me to avoid omissions and even, perish the thought, correct mistakes I might make!

I'm deliberately calling the section a 'Primer' as it will not attempt to go into great detail on any of the many elements that are part of the propagation puzzle. For those of you who are interested (and what serious DXer isn't interested in the subject), I cannot recommend too highly my textbook for this series, *The Shortwave Propagation Handbook* by George Jacobs W3ASK and Theodore J Cohen N4XX. It is one of the *CQ Magazine* technical series. George Jacobs has written a propagation column for *CQ* for a great many years and I find his tables easy to use and invaluable in spotting, for example, when openings are most likely on particular bands.

So where to start? I thought for this first section we might take a quick look at all the various factors, elements, call them what you will, that decide whether you are going to get

through to that DXpedition that's currently operating from 8Q7, the Maldive Islands, in the Indian Ocean. I'm going to put them in list form, in no particular order of importance, and as you read them bear in mind that any one of these factors can make or break your chances of getting through to 8Q.

1. The band you choose for your attempt.
2. The time of day or night.
3. The season of the year.
4. Your position on the earth.
5. The Solar Flux Level (often described in terms of sunspot number)
6. The current level of Ionospheric

Storm Activity, as expressed in the 'A' and 'K' indices.

7. (The last two elements are strongly affected by where we are in the present 11 year sunspot cycle.)

8. Sudden Ionospheric Disturbances.

Equally important, though not strictly part of the propagation puzzle, are things like your transmitter power, the gain, directivity and radiation angle of your antenna, your receiver characteristics and the amount of QRM and, perhaps QRN, you experience.

In next month's column we will start to dissect these factors and get down to some of the nitty gritty of propagation.

From the logs of VE2ZP, VE3JLP & VE3NVM, March-April 1988

CALL	FREQ (MHz)	TIME (UTC)	QSL Route (etc)
SORASD	21.210	2028	EA2JG
HC8GR	28.421	2111	
DU1MEL	14.176	1352	
YB0AQL	14.158	1356	(YL operator, Iris)
VP8BRE	28.444	1916	Box 260, Mount Pleasant.
VP886Q	28.509	1817	(YL operator, Lucie) Box 97 Port Stanley.
TR8CF	28.009	1713	
TR2VU	14.007	0406	DJ9ZB
FY4EF	21.003	2349	
4S7EA	14.007	0129	
OX3KD	14.001	0130	
V855I	14.146	1522	Box 182 Uara.
9Q5TM	21.180	1717	UNICEF, Zaire. PO BOX 5747 New York, NY. USA. 10163
905AA	14.183	2120	Jon on Snookies Net.
F47DX	14.186	0422	E07KR (A new IDTA, "Romano Cay, CUBA")
3B9CF	40 & 80 CW	0205	Reputably very active.
TR3CFK/FW	14.025	0424	
TC0JI	14.005	0339	
A35WJ	14.015	0346	
5TU6FM	14.131	2220	PO Box 51, Atar. (DXpedition to TIDRA Island)

UGANDA— SAD NEWS

The Ottawa Valley Mobile Club's annual flea market doesn't sound a likely place to find DX, but my visit this year turned up a real live DXer with a fascinating but sad story to tell.

Father Gerry Kambites has been mentioned several times in this column as he has been the only station operating from the troubled African state of Uganda, using the call 5X5GK. Gerry is a priest of the Russian Orthodox church and a medical doctor. His clinic and church, on Bukasa Island in Lake Victoria, have been featured in both *Readers Digest* and *National Geographic* magazine. It was clear from the articles and my conversations with Gerry today and two years ago on 20 metres that he has been doing sterling work for his Ugandan community under very difficult conditions.

Sadly, this is all now in the past as Gerry, his Ugandan wife and their four children have been just summarily thrown out of the country on a series of trumped-up charges. The accusations would have been laughable had they not had such a devastating effect on his life's work. Gerry was led away at machine gun point and thrown into a blood-smeared cell for a week. He was released after Canada protested through the British Embassy in Kampala but only a week later he was again detained to be put on an aircraft and forced to leave the country.

I asked Gerry what he planned to do now and he told me he has several writing projects in the works including another article for *National Geographic*. He has no plans to return to Africa, and frankly could anyone blame him? He will be in Dayton for the Hamvention and hopes to give a short talk on his experiences to one or other of the forums there. I'm sure all TCA readers will wish Gerry and his family the best of luck for the future which will, hopefully, be more tranquil than his last few months in Africa.

COOPER'S BEEFS

I am sure you all respect the gentlemen's agreement that lays down where the various modes of operation should be on the Amateur bands. The plan we all use makes great sense to me and also to at least 99% of our fellow Amateurs which is why it is particularly annoying when one stumbles on somebody breaking the rules. Doubly so in this case, as it was a fellow Canadian! Details? On April 2 I monitored a VO1 on 14.139 MHz calling a VE4 on CW. What possible excuse can there be for this piece of thoughtlessness? The 100 kHz allocated for CW on the 20 metre

band is, I would venture to say, never so busy that one cannot find a reasonably quiet spot for a QSO.

The second 'beef' I logged recently is a 'more in sorrow than in anger' case. On April 18, around 2100 UTC, I swung my beam to the East and managed to work 4S7EA in Colombo. Tuning around, I spotted a VU3 at the end of a QSO and gave him a quick call. Conditions were not too good, but he was Q5 with me as we started the usual exchanges. I gave him 518, his note was not quite a 'perfect tone', then passed the transmission to him. He came back slightly off his earlier frequency and I started to copy down his basic information. However it was not long before I realized that there was something very wrong at his end. His note slowly became more and more distorted while he seemed to be spreading across an ever-widening band of frequencies! On top of this, his signal strength deteriorated to the point that I could barely copy him.

As is often the case, I was able to sense that he was passing the transmission back to me so I knew when to hit the key with my response. "UR TX FAULTY OM" was all I could think to send on the spur of the moment, 'NBG' would have been more appropriate but I wasn't sure he would understand the abbreviation! He came back with a 518 signal but again it slid down and spread until it was almost lost in the noise. I tried a couple more times but it was hopeless as he was having trouble with QRM at his end so I don't think my vital message ever reached him. I wonder if he is still trying to work DX with an ancient rig probably cursed with several dying tubes... I shall never know.

1A0— SOVEREIGN ORDER OF MALTA

Now and then the national press sheds a little light of some of the odder places we struggle to work as we climb the DXCC ladder. *The Montreal Gazette*, in an article from the *Chicago Tribune*, refers to 1A0 as the world's smallest state and uses its full name which is 'The Military Hospitaller Order of St. John of Jerusalem, of Rhodes and of Malta', more commonly known as the 'Knights of Malta'. 1A0 is a relatively recent addition to the DXCC list and I consider it a rare one, perhaps because I have still to work it! Anyway the *Gazette* tells us that early in April the 36 grand electors were to convene to elect their 78th Prince and Grand Master. What made the election interesting, or should one say bizarre, were some of the conditions that had to be met by the candidates for this illustrious office.

Only 22 of the grand electors

qualified for the post as not only had they to have an aristocratic pedigree on both sides of their family for at least 200 years but, equally important, they must have had an unspoiled record of celibacy for the first ten years! The order has nearly 10,000 members including former U.S. state secretary Alexander Haig, who is a 'third class, Grade 5 category knight', and the current contentious President of Austria, Kurt Waldheim.

It would be nice, now that I have whetted your appetite for 1A0, to be able to report that there has been recent Amateur activity from the world's smallest state but a quick look through a number of DX newsheets turned up nothing. It looks as though we are all going to have to be patient until the next DXpedition is mounted.

BITS AND PIECES

U Stations— QRZ DX notes some interesting developments in the rules governing Amateur Radio in the Soviet Union. Stations throughout the U.S.S.R. may now work Amateur stations in Israel. I must admit I hadn't realized before that this was forbidden. More important for us is the news that Russian Amateur stations may now give out their address over the air during a contact. This could mean that we now have the possibility of QSLing direct rather than going through that unbelievably slow bureau at Box 88, Moscow.

ZYOT, Trindade Island— The Natal, Brazil, DX Group is preparing for a DXpedition to Trindade island hoping to arrive in the period June 1 to 5 for a five-day stay. Five operators currently plan to be part of the DXpedition and they hope to operate on all bands and modes with an emphasis on RTTY and CW. The calls they hope to use are ZYOTO, K, R, F and W.

1987 DXCC COUNTRIES

In a recent column I mentioned an informal contest to see how many DXCC countries had been worked by members of the Northern California DX Club in 1987. QRZ DX had the same idea and the editor has just published his final results which are humbling, to say the least of it! At the top of the list sharing the honours are K2TQC and W4PZV who both managed to work 289 countries during the 12 months of 1987. I think this is an outstanding achievement when one considers that this was during a period of low solar activity. Looking down the list I see the first Canadian station to submit a score was VE3JGC who managed to work 203, congratulations OM! VE1NH

Continued on next page

From the Clubs...

George Morgan VE3JQW
687 Fielding Dr.
Ottawa K1V 7G6

Thanks to Glenn Whitehouse VE2GUQ, Postmaster (among other things) at Granby, P.Q.: "With most of the outdoor Amateur radio activities being in the summer months, a few of the Granby ARC's members decided to try an idea that would hopefully attract the winter outdoorsmen or the ham who is climbing the walls of his own shack suffering from shack fever.

"During the first week of February, 1988, the idea was brought forward to the board of directors and a week later to the club members and area operators. A few operators at the monthly meeting were interested and we chose Saturday, Feb. 20, weather conditions permitting, for the first attempt. We met on the VE2RTA repeater early that morning and off we went to our chosen spot, Brome Lake (Knowlton), located 25 minutes southeast of Granby.

"Operators transported needed equipment and supplies by truck and car to a nearby parking spot. It was cloudy with a temperature of 0°C. Our first problem upon arrival was strong winds and we had not brought a tent or anything to protect us, so we constructed a wind-break wall from snow blocks for the station and eating quarters. The station was to be powered by a 2 kW generator which would produce more noise than we needed, being only 30 feet away, and it was decided to set the machine downwind with a noise-break wall also made of snow blocks between us and power source (out of the picture to the left). Both walls answered our needs well.

"As more operators appeared on location we were able to transport the HF rig, antenna, table and generator, along with other supplies, on foot to the area we had prepared. The station



Left to right: Rex and his master Michael, Helen XYL of N4CEB, Jean Louis VE2AFY 'President of VE2CRG', Glenn VE2GUQ, 18-month-old Derek, Neil N4CEB, and Don VE2DIW. Missing from this picture: Francois VE2AAY, Gilles VE2BYX. Photo by VE2AAY.

was set up and all was functioning properly, even to our last minute tip ups (the real ones were forgotten back at one ham's home. Oh, well, he was forgiven; he remembered the 5-band vertical at least). I should also state at this time that we did not plan on breaking any records on our first annual Winter Day on Ice, and we did keep to our word. Only three contacts were recorded and one trout was caught.

"We had been there only a short time when the weather changed. I'll have to admit that if you don't come prepared you can get very wet when a blowing rain storm hits. We had nothing to protect the HF rig from that type of weather condition. We went QRT quickly and moved the transceiver and power supply to the car.

"The operators were invited in to the

home of a local ham who is currently lacking time for his hobby but was able to join in this activity and record a few minutes on video for us. The club thanks the McCubbin family for its hospitality.

"On the return trip home we got together on the 2-metre band and were making plans for next year's Winter Day on Ice, hoping to make many more contacts and bring more participation than on our first try."

I guess many communities held winter carnivals, parades, etc., and at least one included Amateur radio participation. According to the North Okanagan ARC's *Haychew*, "...once again the annual Winter Carnival Parade was held on Feb. 6, and the local Amateur radio club participated with about 12 members to assist with organizing the parade and communications. The parade got off on time with very few problems, and though the number of entries was down a bit, it was well received. Bill VE/HW, president of NORAC, expressed his thanks to all the hams taking part, including Hans VE7BOD, who came all the way from Tappen to assist."

Thanks to Claude VE2FUR and the Union Métropolitaine des Sans-Filistes de Montréal for the following:

PARTIE DE SUCRE

"Ce fut un succès cette partie du sucre familiale qui est maintenant une tradition. Il y a eu 117 participants des trois clubs de la région, soit CRRS, CRALL, UMS et même André VE2ASV, président du CRSOI. Nous remercions tous ceux qui ont participé. En plus des nombreux prix de présence et de l'opération partage

DX (cont'd)

also deserves recognition for working 92 on QRP.

SOLAR CYCLE PEAKING EARLY?

From the *New York Times*, via the *Amsat Report* and *The DXer*, we learn that one expert is prophesying great things for the current sunspot cycle. Dr. Patrick McIntosh, who is the Director of Solar Physics Research at NOAA's Space environment Laboratory, Boulder, Colorado thinks the peak of the cycle could occur much earlier than expected.

Even more interesting is his guess that it might be the "most intense ever measured". He feels the maximum could occur as early as the end of 1988, in contrast to the normal peak

which one would expect in 1992. He bases his findings on early indications of a massive build-up in three critical areas. These are the total number of sunspots, the rate of increase of 10 cm radio noise (solar flux) and the progression of 'solar crowns' (ribbon-like loops). Dr. MacIntosh cautions that predicting solar activity is a risky business and the currently rapidly rising levels of activity could flatten out. Perhaps we had better start dusting off our six metre rigs when we Spring clean this year?

Thanks are due to the following sources for some of the material appearing in this column: VE2ZP, *The Montreal Gazette*, QRZ DX, 5X5GK, VE3NVM and *The DXer*. ■

qui fut gagné par Michel VE2JEU, Pierre VE2FPJ et Yves VE2YLB n'ont réussi à déjouer nos chasseurs d'émetteur que pour quelques minutes. Le 1er fut VE2FUR, suivi de Jean Harvey ECO, VE2JEU, VE2BWG, VE2AGC, Normand Martel en attente de son indicatif et les jrs de VE2YLB et VE2FPJ."

The Windsor ARC's *Groundwaves* reports some news on CANWARN, which is a severe weather warning system passing information through Amateur radio. Randy Mawson of Environment Canada attended the club's January meeting and brought members up to date on the program, which is a pilot project that has already led to enquiries from other provinces.

Coordinator of the program, which must be in place by April 1 in readiness for the tornado season, is Paul Robertson VE3HFQ, and he feels Amateur radio should get some 'good press' from this project and encourages members to provide support and to justify the faith that has been placed in Amateurs.

I want to share with you a letter that was sent to the South Pickering ARC by Alex VE3AIO, because I am sure many of you will identify with the kind of feelings expressed:

"A 12-year-old boy takes a germanium diode, a variable capacitor, a coil, a piece of wire for an antenna, and is introduced to the world of radio through a set of army surplus headphones. It was 1955 and Radio Luxembourg was pumping out all the latest hits. Night after night the headphones crushed the ears of the listener as he enjoyed the music till one evening a signal came in that completely drowned everything else on the air.

"It wasn't the BBC Home Service or Radio Luxembourg. This fellow, booming over the headphones, was talking about antennas and all kinds of technical nonsense, and when he stopped talking—nothing. Nobody spoke back to him. But he continued talking to someone who wasn't there!

"Such was my early introduction to ham radio, and I always looked forward to weekends after that day when I could (although there was no choice) listen to our local ham. It certainly was fascinating, although definitely beyond my capabilities.

"Thirty years went by—school, work, marriage, immigration to Canada, more work, family, but always a nagging desire to know more and participate in 'ham'.

"I finally took the bull by the horns in 1986 and enrolled in SPARC's code and theory class. Struggles and disappointments followed; doubts about decisions to even try kept surfacing. But I'm pleased to say that

persistence resulted in a certificate, VE3AIO, being proudly displayed this month (February) in my shack."

HALTON POLICE

Kudos to the Halton ARC from the Halton Regional Police Force: "The Halton Regional Police Force has recognized the importance of working together with citizens in a joint effort to reduce crime in its communities. In support of this concept, legitimate organizations such as yours are frequently sought to assist in this worthwhile cause.

"Staff Sergeant Richard Kivell has informed me of the assistance provided by the Halton Amateur Radio Club on Hallowe'en Night, with neighbourhood patrols in Halton Hills and Milton. These extra resources were greatly appreciated by our officers, and I would like to extend my gratitude to your group for their efforts in helping us to maintain control during Hallowe'en this year.

"Please pass along our thanks to all your members, and our good wishes for continued success in your efforts as a community organization."

And in the same vein, the Welland County ARC received the following from the South Niagara Rowing Club: "Please find enclosed a cheque for the amount of \$250 on behalf of the South Niagara Rowing Club in appreciation for your service in the past year. We hope we may call upon you in 1988 for your assistance. It is with the support of organizations such as yours that South Niagara has become

the successful rowing club that it has in the past ten years."

HOMEBREW AWARD

Incidentally, the Welland County ARC's bulletin describes an interesting award offered by the Niagara Peninsula ARC designed to reward 'Homebrewers': "Finally the efforts of that 'elite' group of Amateurs known as 'Homebrewers' can receive the recognition they so richly deserve in the form of a handsome and unique 'Certificate of Proficiency in Homebrew Construction Practices.'

"The requirements are quite simple: you must have built a functional piece of Amateur radio equipment (i.e., transmitter, receiver, transceiver, QRP rig, linear amplifier, transmatch, keyer, regulated power supply, computer interface, beam antenna, etc.) from scratch, and not a commercially available kit.

"To obtain a certificate send a photograph (or a clear photostat copy) of your project, a brief description of same, and a cheque or money order to cover postage and handling in the amount of \$3, made payable to the Niagara Peninsula Amateur Radio Club c/o Leonard Joe VE3BGH, 38 Dougherty Cres., Welland, Ont. L3C 6A1.

"All submissions qualify for a certificate; however, those projects submitted that are truly outstanding examples of homebrew construction will have an 'E' appended to their certificate number to indicate an exemplary submission." ■

SWAP SHOP

FOR SALE: HOME in Nakusp, B.C., 733 Columbia Crescent. Nineyrs. young, 1450 sq. ft. plus 325 sq.ft. court-yard-sundeck. Beautifully fenced and landscaped. Double garage, Sauna with pool. Underground wiring, sewer, street lights, side walks. EXCELLENT DX-Location. Curling, fishing, golf, Hot Springs, Ski Hill. Contact VE7EHD, 604-265-3175.

WANTED: Wireless set no. 19 equipment and accessories. Especially looking for power amplifier and pocketwatch. I am willing to buy and/or trade equipment. Please write to Chris Bisailion VE3CBK, RR#1 Old Carp Road, Kanata, Ont. K2K 1X7.

FOR SALE: FOXX transceiver kits are available from Frank Hughes VE3DQB, RR 2 Green Lane, Hawkesbury, Ont. K6A 2R2. Diode tuner kit \$40, variable capacitor tuning \$50. Either kit \$5 postage and packing.

FOR SALE: Kenwood SM 220/BS8, SP940 Speaker, MC85/3 mic. leads, TS711A 2M all mode, TS811 all mode UHF/IC 10 interfaces, RS 232 interface, Drake TR 4310 transceiver loaded/ PS7 supply, Uv3- 3 band 144-220-440 transceiver with trunk

mounting kit, Cushcraft 230WB VHF Boomers. All above equipment is new or demo. Barry VE3ADA, 416-253-0708.

WANTED: Mini Products B-24 2 elements beam. Phil Eprile VE3FGZ, Apt. 2009, 57 Charles St. W., Toronto M5S 2X1. (416) 929-5326.

FOR SALE: \$100 off from last month. Kenwood TS 830S with two brand new sets of finals and one new driver. Included is a Heathkit HM-102 SWR meter, call Ed VE3JWZ at 807-662-1003.

Please send your 'Swap Shop' notices to The Canadian Amateur Radio Swap Shop, Box 356, Kingston, Ont. K7L 4W2. Single insertion is \$1.00 minimum (10 words) and \$1.00 for each additional 10 words. To renew, send copy and payment again. Please print or type, and put your membership number and call (not counted) at the end of your ad. Include your full address with postal code; if using a phone number, include the area code. The Canadian Amateur accepts no responsibility for content or matters arising from ads. This feature is for the use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising.

CONTEST SCENE

John Connor VE1BHA
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Nepean, Ont. K2G 4L2

Oh, oh. Someone didn't enjoy the ARRL DX Phone Contest weekend.

A well-known Canadian Amateur sent me a letter after this contest, which had clearly not made his weekend. Let's call the author of the letter Fred.

Fred sent along something entitled '11 points for successful contesting', which is probably best described as rather sarcastic. A few of the points could be rolled together, so there are really more like six points. I will try to address them each in turn.

The first point says that "on contest weekends, contesting supercedes all other... uses of the Amateur radio spectrum." Well, in the first place there is always the other mode. I am sure there was lots of room on the CW bands during the phone contest. I also imagine that the top end of the phone bands was pretty clear. On top of that, there are now the three WARC bands that have no contesting on them at all! So if you really want to get away from a contest, I don't really think that it is too hard.

This is a persistent complaint about contests, and I am afraid that I simply don't see it that way. It reminds me of the complaint about a popular night spot— "Nobody goes there anymore. It's too crowded."

The second point is concerned with poor audio quality from contest stations. I am not going to say that there aren't contesters out there with less than wonderful audio, but I think that they are few and far between. You simply won't do well with poor audio. It reminds me of two anecdotes. The first is from the days when I was contesting at VE1UNB. There were three or four stations that our beams were boresighted on when pointed towards Europe, and they basically stayed off the air on contest weekends, because we would wipe out the entire band on their receivers. This was entirely the fault of the receivers, because other people just as close could get within better than 5 kHz of our frequency with no problems. They had good receivers. Before you criticize the other guys' audio, turn off all the gadgets on your receiver, put in the attenuator and make sure that your receiver isn't to blame. If it isn't, tell him politely that he may have a problem with his audio. Most people will be glad for the information.

The second anecdote has to do with W2PV, one of the large U.S. multi-mis from the late 70s and early 80s. I was in the Caribbean for the 1981 CQ WW Phone Contest, and came across W2PV sitting on the edge of the

American phone band with an S9+20 dB signal. There is always fierce competition among the U.S. big guns for this position. I thought that with a signal that strong, I would be able to catch PV with a signal outside their band, so I tuned down to see. Not a trace. Booming in on 14200, inaudible anywhere below. The moral of the story is that most big stations are pretty well-engineered, as much as a matter of pride as anything else.

Fred also complains about fan noise from amplifiers, and he has a point there. Most SB220s seem to sound like a 747 warming up for takeoff. I'm not sure what the answer to that is. What do you do if your shack is the size of a phone booth? Put the amp outside? We can't all afford Alphas.

The third point raised by Fred is "always request skeds from stations for other bands... Never keep them." Well, getting skeds from rare and semi-rare stations can go a long way towards increasing your score. It is true, though, that not very many of these skeds seem to work out. Sometimes the propagation isn't there, and sometimes the other opinion isn't there. The only really successful use that I have seen of this technique has been by very good operators, who really know what they are doing. I think a lot of people are trying to use this trick, but are maybe a little out of their depth. Of course, if people are asking you for skeds, and it just never seems to work out, don't make them. If they insist, tell them you have to walk the dog at that time or something.

"Never QSL contest QSOs." Well, that is up to the other guy. I have never had a great problem getting QSLs from contests, and have darn near gone blind answering contest QSLs, and have the shoeboxes full of QSLs from New Jersey to prove it.

"Never leave a pause of more than 3.6 milliseconds between CQs." Hear, hear! I have occasionally come pretty close to calling people on the telephone to ask them to LISTEN! The only consolation I get is knowing that these guys are not going to win.

"... use a special prefix so no-one knows where you are." I am still kind of sitting on the fence on special prefixes. (I'm a snivel servant. I took a course in fence sitting.) It's kind of fun, especially in the WPX contests. But then, the whole idea of prefixes was originally to identify where the station was. And I definitely think that getting a special prefix for the 50th anniversary of the town firehall is going a bit far. I certainly wouldn't be upset if the DOC stopped issuing

special prefixes. Heck, I have a hard enough time these days keeping track of the regular prefixes. I mean, is RG8U coax or a Russian callsign?

I always thought that W9BRD, the former editor of "How's DX" in QST put it best when he referred to the whole thing as "this weird rubberized prefix fad". But I suspect that VE3XN (or is that VF3XN? VG3XN??) might have a different, and equally valid, point of view.

I'm always sorry to hear people complaining that a contest has ruined a pleasant operating session for them. But contesters and non-contesters are each others QRM; the contesters will be griping about the darn ragchew that just started up on the frequency. Lately, I've been DXing broadcast stations on 7.1 MHz, and when I'm doing that, all the Amateur activity is QRM. It's all a question of your point of view.

So... any other opinions out there in reader land?

Before we wind it up for this month, a few scores from the WPX phone contest. VE1IDX in PEI had about 1300 QSOs multi-single. On 15, VO1MP had about 1900, while over on 20, VO1QU had 2041 QSOs and 662 multipliers for 3.27M. Also on 20M were VE3CPA and VE7EIK, each with about 1000 QSOs. Last but not least, Dave VE2ZP went mono 80 and came up with 674 QSOs and 360 prefixes, for 1.07M. Thanks also to Dave for passing these scores along from 'the hole', 3727 kHz. I'm not sure where the name comes from, but there is getting to be a fairly regular group of contest/DX types hanging out there in the evenings. You might like to take a listen some night.

Next month... the dreaded Fourth Annual Fiendishly Difficult Contester's Quiz. Hee hee. ■

TALKING BIG

You can't talk big if your antenna talks SMALL. One hundred watts is as good as a thousand, under the right conditions. For instance:

180 watt rig into a trap vertical equals an ERP of about 25 or 35 watts in our ground. (Cond. -002) Add a 2 kW linear for an ERP of about 300 watts!

180 watt rig into a three-element beam for an ERP of 1382 watts barefoot! (Also, the beam has stronger incoming signals, and it cuts out much QRM!)

—Roy VE7TG

Bob Boyd VE3SV
P.O. Box 356,
Kingston, Ont. K7L 4W2

ARES AMATEUR RADIO EMERGENCY SERVICE

Kingston area hams have, for years, conducted exercises to prepare us to carry out our responsibilities as emergency communicators. Some three years ago we decided the time had come to get more formal so we applied to, and were accepted by, ARES. George VE3LXA was our first EC and, under his leadership, a good start was made to tighten up our organization and to improve our skills and our facilities. Yours truly, as current EC, with AECs Frank VE3FMF, Peter VE3LYW and Bill VE3MNW are building on this work.

Our ARES organization comprises some 35 area hams who have committed their equipment and their capabilities to assist in an emergency. Each Tuesday at 1915 hrs local time, we hold a short net on the 2M repeater of the Kingston ARC. Nets consist of controlled checkins under the direction of a rotating net controller, and any emergency preparedness news items or announcements are covered by the EC or the AECs.

Early on, we searched for a distinctive, visible means of identifying ourselves in a disaster situation. We considered hard hats with ARES decals, or luminescent vests, but finally settled on arm bands. These have the ARES patch sewn on a red canvas band about five inches wide, which is held in place on the arm with Velcro fasteners. The materials cost us around \$5 each. Labour was provided gratis by Bill VE3MNW assisted by his XYL (or was it the other way around?).

We also put together an Emergency Communications Plan which will be

PACKET SPREADS SOUTH

Tzion Habshoosh 4X4IK of Kibbutz Sde Boker (the kibbutz of Ben-Gurion) reportedly is operating the southernmost packet station while Bentzi 4X1IL carried out packet experiments from Mitzpe Ramon. According to the latest tally, over 10% of Amateur stations in Israel are now equipped with packet radio.

— Israel ARC

CERTIFICATES OF THANKS

Do you know an Amateur who has contributed to our service in some special way? If you do, send Debbie his name and the name of his club. The CARF Certificates of Thanks should be presented formally, with due ceremony, at a club meeting. Debbie's address is Box 356, Kingston, Ont. K7L 4W2.

described in a later column. A copy of the Plan is in the hands of each of our members, and copies have been distributed to most of the area's emergency response agencies, including the Red Cross, with whom we have a good working relationship.

In the past few years we have held a several exercises of our own, designed and directed by Bert VE3EW. In addition we have participated in two emergency exercises organized by others. Two and a half years ago, the Disaster Planning Sub-Committee of the Kingston Health Sciences Complex held a major exercise dubbed 'Kaper-85', the scenario for which was the simulated collapse of a large arena during a performance.

Student volunteers constituted the 75 simulated trauma casualties. Teams from the Kingston City Fire Department rescued the casualties, taking them to a safe area beside the arena for triage. They were then transported by ambulance to one or other of the two acute care hospitals in Kingston. To make room for them, some 25 patients were 'decanted' from these hospitals to four of the chronic care institutions in the area.

Kingston hams provided three nets operating on two metres. One handled all communications between the two acute care institutions. Another covered the designated emergency hospital, the chronic care hospitals and the disaster site. The third provided communications for the exercise co-ordinator and his assistants.

Last fall, Kingston Township planned and conducted 'Exercise Autumn Leaf' which involved a simulated collision between a loaded school bus and a road tanker containing a hazardous, inflammable chemical (school bus accidents seem to be very popular these days with emergency exercise planners across the country).

In addition to the 35 casualties (one fatal), the emergency response authorities had to deal with the hazard to the population in the surrounding area of the tanker's lethal contents. The exercise was designed primarily to test the Township's Emergency Plan, and its response organization. This included the Township's Emergency Control Group, and the police, fire, ambulance, Ministry of the Environment, Township Works and Social Services Departments, the Kingston Red Cross and, last but not least, ARES.

ARES provided two nets for this exercise. The Exercise Director's net, on 52 simplex, consisted of a Net Control station and five stations in the field. The Red Cross net, on the club's 34/94 repeater, consisted of a NCS and three field stations. There was also a 75 metre link to Earl VE3KCZ in Toronto who handled communications to the Red Cross HQ. Operations on both nets were taped for later analysis. A total of 21 operators were involved. Some 118 messages were handled, 25 of them in the standard written message format.

The purpose of any exercise is, of course, to identify weaknesses in planning and procedures, and ARES did identify 14 items requiring improvement. It was apparent, for instance, that our operators required more training and experience in message handling. We did not provide enough runner/clerks to support the operators. There were no equipment failures, but the simplex communications from a few field locations were less than ideal, pointing up the need to develop better 2 metre emergency antennas.

Both exercises went off quite well, and we were commended by the municipal authorities for our contribution to their success.

We realize we have a long way to go in the Kingston area, but we think we're off to a good start. Our emphasis to date has been on fast response and on voice message handling using mainly 2 metre FM. We have a few packet stations in the area, but it will be some time before we can match the emergency digital message handling capabilities of the ARES groups in Toronto and Western Ontario.

Kingston area is fortunate in that it has never suffered a major natural or man-made disaster in modern times. Nevertheless, we are resolved to be fully prepared because, after all, IT CAN HAPPEN HERE.

It is hoped that this column, which is being submitted to both *The Canadian Amateur* and to *QST*, can become an ongoing source of news and information for members of both organizations on ARES activities across Canada. ARES members and particularly ECs are invited to send along information on what they are doing and on any developments they would like to share with other ARES groups. Yours truly will pull this together in future columns, all with the objective of increasing our collective ability to serve our community and our nation, should disaster strike.

WARC Band Antenna

BY GEORGE SPENCER
 VE3OZW

Many Amateurs have antennas for the major five bands but few have suitable antennas for the three new bands. The antenna described here provides an easy to construct antenna at low cost.

An excellent article by N4UU appeared in the December 84 issue of QST on optimizing the design of antenna traps made with coaxial cable. That article indicated that traps constructed from RG58U would allow use of maximum legal power and traps made from RG174U would allow power levels up to 500 watts. I did not contemplate using more than 150 watts on these bands, so work was done only with RG174U cable.

A further consideration was that there may be times when I would want to use a linear on 40 metres. Although none of the traps would be at resonance during 40 metre operation, it is not known whether the number 26 wire in the centre conductor of the RG174 would develop enough heat to melt the dielectric at the amperage levels attained during amplifier use. This consideration caused me to opt for leaving my 40 metre inverted V as is and build a separate antenna for the WARC bands.

The design curves given by N4UU included trap design for the 30 metre band but not the 17 and 12 metre bands. Also, the PVC form diameters given did not match what I could find. Four equations were given in the

article and solutions to these yielded quite exact numbers of turns for the form diameters that I had.

The PVC tubing which I located was 3/4-inch electrical conduit. This had an outside diameter of 1 1/16 inch and was used for the 12 and 17 metre traps. The 30 metre traps were 1 1/2 inch white PVC pipe used for sink drains. The diameters result in nearly optimum 'Q'. Scrap short pieces of PVC pipe should be available from electrical contractors and the plumbing-type pipe is available at most hardware outlets.

The ARRL handbook lists RG174U as having 30.8 pF per foot. My Belden catalog shows their #8216 as having 39.3 pF and the 8216 which I had on hand measured 33 pF per foot. This

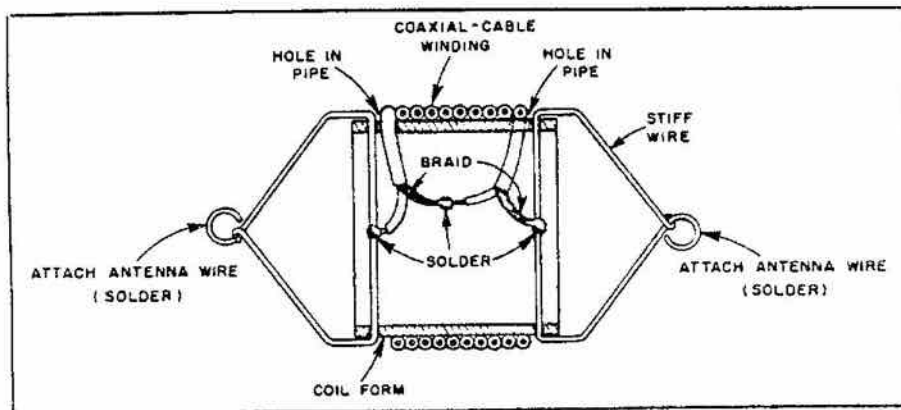


Fig. 1— Cutaway view of a coaxial cable antenna trap built on PVC tubing.

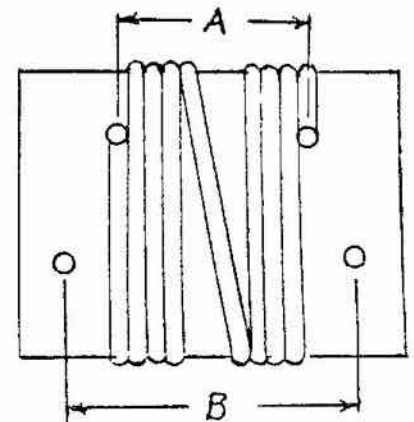


Fig. 2

Trap Dimensions

Band	12M	17M	30M
Band Centre Freq. (Mhz).	24.94	18.118	10.125
Form Diameter (inches)	1-1/16	1-1/16	1-1/2
Coax Hole Spacing (A)	1	5/8	1
Support Hole Spacing (B)	1-3/8	1-1/8	N/A *
Calculated No. Turns **	5.16 4.86	6.71 6.31	7.79 7.34
Form Length (inches)	1-3/4	1-1/2	1-3/4

* wire terminated on antenna wire at insulator

** higher no. is for pf=28.5, lower for pf= 33 per foot

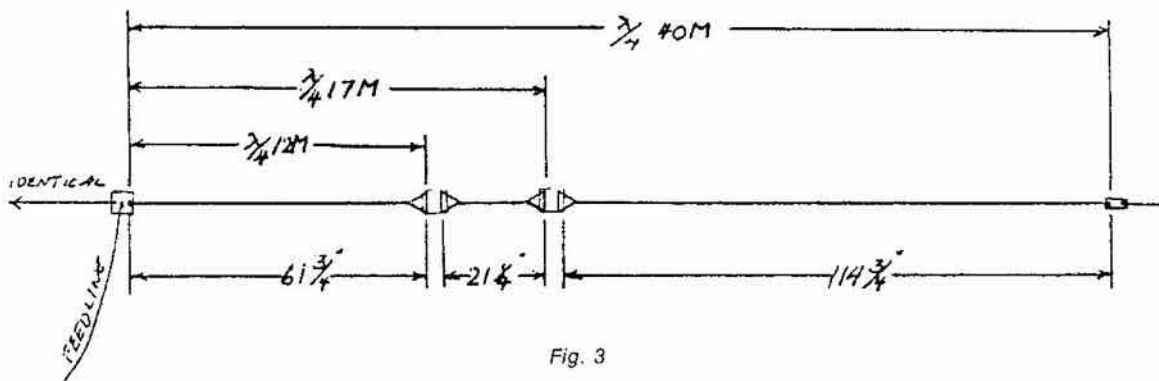


Fig. 3

caused me some consternation as a different value of capacitance will result in a different value of inductance being required for resonance of the traps.

I used the measured value of 33 pF per foot and calculated the number of turns required and added 1/2 turn to allow for trimming. I would suggest that one complete turn be added to the calculated values when the actual value of capacitance cannot be determined. Allow 1/2 inch of unstripped coax to project inside the coil and another 1/2 inch for the part that must be stripped for connections.

Figure 1 of N4UU's article is reproduced here to show trap construction. The connections are clearly shown. The drawing shows the windings to be close spaced. This makes fine tuning of the traps difficult. I find it easier to spread the turns to adjust inductance.

After winding a close wound coil with one extra turn and connecting it as shown in Fig. 1, check with a grid dip meter that it is resonant below the centre frequency of the band. Spread the windings by starting from the centre of the coil and moving the windings toward the outside ends as shown in Fig. 2.

If the spacing required is too great for the form length, part of a turn may be removed. Don't take more than 1/4 turn off at a time. Reducing the coil length reduces both the inductance and capacitance so the frequency change is much more than would be expected.

After determining the approximate spacing, use a glue gun to cement one half in place and then concentrate on adjusting the other half to achieve resonance where desired. When this is accomplished, glue the second half in position. Do a final resonance check and then waterproof the trap with silicone sealant.

The wall thickness of the 3/4-inch conduit is adequate to support the antenna wire as shown in Fig. 1 for the 12 and 17 metre sections but the wall of the 1 1/2 inch tubing is too thin to support the antenna for the 30 metre

traps. Radio Shack black strain insulators inserted inside the tubing will provide the required strength. They should be glued in place.

I used #14 solid copper house wire for the delta shaped coil connections. The centre insulator is a piece of 3" by 4" by 1/4" plastic with a chassis type SO239 connector mounted on it. End insulators were small egg-type that were obtained at a flea market.

Lengths of wire for the antenna are given in Fig. 3. The dimensions for the 12 and 17 metre sections will be given as the length of the sections between the 17 and 30 metre traps. The length of the end pieces for 40 metres will have to be determined by trial and error. Note that the dimensions are taken from the vertical part of the delta connection.

For initial tuning of the antenna, a few extra inches of wire should be added to each section. The antenna can be roughly tuned if supported a few feet above ground. Adjust each section to be resonant slightly low in frequency as the resonant point will rise when the antenna is raised to its operating position. Start with the 12 metre section and work outwards. Initial tuning can be done by wrapping the wire back on itself. When the final length has been found with the antenna at its final height, the pieces that were wrapped can be soldered.

Performance has been entirely satisfactory and the bands offer some interesting propagation and should improve as cycle 22 peaks. ■

— Niagara Peninsula ARC

ATV in action

BY ROBB VE7FSK

The other evening I had the pleasure of visiting George VE7GQ and seeing his new fast-scan ATV system in action. Let me tell you, I was impressed. The picture quality of fast-scan approaches that of commercial TV, including full colour and sound.

Seeing the Amateur you're talking to opens up all kinds of possibilities. George told me that during his first QSO on ATV with Lou K7YZZ he noted what a good signal Lou was putting in, so he asked him what kind of antenna he was using. Lou obligingly pointed his camera outside and gave George a close-up shot of his tower to accompany his commentary! A picture really is worth a thousand words!

Certainly ATV promises to be a lot of fun, and the cost is no worse than getting started in any other mode. I hope George will be able to give the

club a demonstration sometime soon.

George was also kind enough to lend me his copy of the first newsletter from one of the most recently founded Amateur radio clubs in Pacific Northwest: The Western Washington Amateur Television Society (WWATS). There are about 20 active ATV operators in the Seattle area, and it is hoped that the inaugural meeting of WWATS will bring them together.

WWATS members already have the hardware required for an ATV repeater, and hope to have it on the air soon.

Local ATV activity may be found on 434.0 MHz, with coordination on 2M FM at 146.43 MHz (simplex). If you have any questions about ATV, just ask any of the ATV gang on 146.43 MHz and I'm sure they will be glad to answer them for you.

—Victoria Short Wave Club

Fades on VE3TEN

BY FRANK HUGHES

VE3DQB

VE3TEN is a beacon situated in Ottawa. Its frequency is 28.175 MHz, and it is always audible here in Hawkesbury, about 50 miles away. The S meter reads between S1 and S3.

When starting an hour's listening, and perhaps transmitting, I always check the bands from 10 metres down to 80, unless I hit on something interesting and stay put on 15 perhaps, or 20, or even 40. During 1987, as you have by now guessed, the only transmission I heard on 10 was VE3TEN.

The beacon was a useful check that all was well, that I had not kept the antenna switch to Dummy Load, for instance, or forgotten to adjust the receiver correctly. Because of this, I began to notice that the signal strength varied, and I wondered why.

Listening closely, I noticed that, more often than not, VE3TEN had a fade on its carrier. This varied from a scarcely noticeable trill to long, slow changes. And it never seemed to be free of them, for I started to check the beacon at odd times of the day. Only very late at night did the fades seem to become less audible.

At last I could stand it no longer. I switched the recorder in across the AVC of the receiver, tuned in the beacon, and waited. Since I had the audio filter on 500 Hz, I had to stand by and touch up the tuning occasionally. The recorder showed the variations I could hear, a fade of amplitude of half an S point, recurring about 12 times a minute. This stopped abruptly, and strength rose from S 1-2 to S 2-3.

This is readily seen on the chart. The fade is easily detected from before 0205Z to 0207, when it changes abruptly. The signal near S1, repetitive at rather faster than once per half minute, is the identification, VE3TEN. From 0207 on, no fade is detectable on the chart, though a trill was audible through the speaker.

Just after 0215 a strong, rapid fade started. The period was just below audibility, but it was too fast for the

recorder to follow, so it is represented by the blodge of ink on 0215½. The transmitter identified, and the signal recovered from it without a fade, but it rapidly built up in amplitude again, and the period had slowed to 1/30 Hz (30 s). The amplitude rose over 1½ S. The pattern then reversed, amplitude falling, and period increasing, until after 0218, it disappeared. Then I knew.

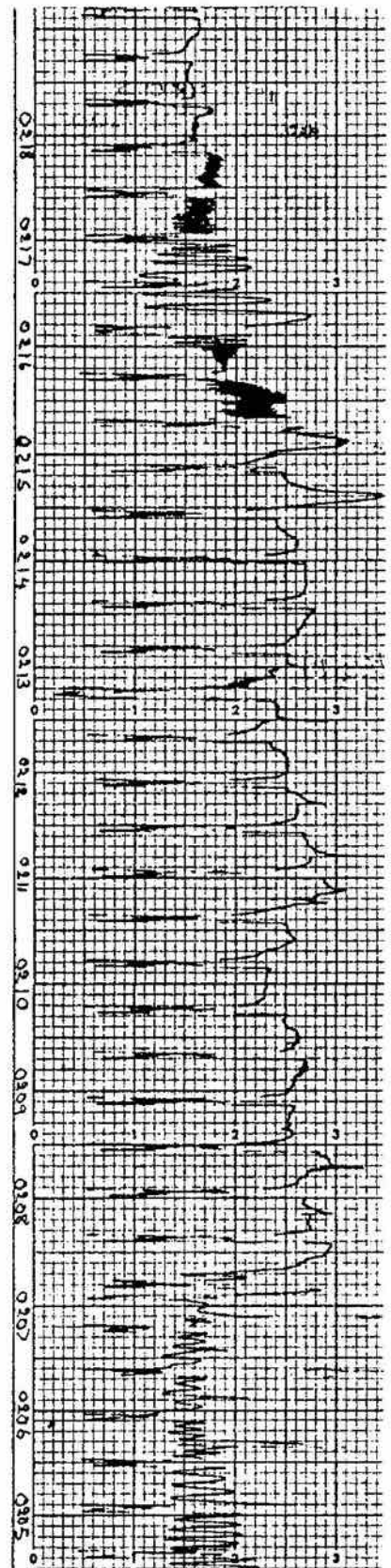
Aircraft.

Ottawa is ringed by airports: Ottawa International, Rockcliffe, Carp and Gatineau. There are flying schools at each of these, and Ottawa airspace is crudded up with 150s, 172s, other trainers and, of course the flying buses bringing in passengers from various countries of the world.

At Hawkesbury, at the limit of groundwave reception of VE3TEN, the directly received signal strength is often comparable to the signal reflected from a aircraft. The path lengths through which the two rays pass must differ, and also change as the aircraft changes its position over the ground.

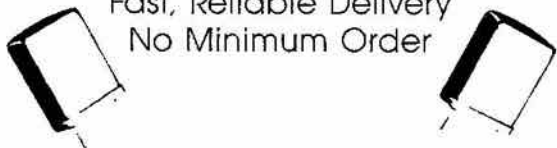
The signal I receive is the algebraic sum of the two signals from Ottawa. The chart reads thus: A large aircraft approached Ottawa at 0205, changing its position with respect to Hawkesbury at 120 metres per minute; at 0207 it changed course, travelling nearly radially to Hawkesbury, increasing the signal strength to 3. Probably the reflected ray swamped the direct ray. At 0215 it began a turn, perhaps over the OW VHF Omni-Range transmitter near Aymer, and the rate-of-change of path length varied rapidly, the angle incident-ray to reflected-ray changing least at 0216.18, at which time the amplitude of the fade was maximum. The aircraft then descended below the radio horizon a few minutes later, on its approach to Ottawa International.

Whether or not this surmise is true, I'm sure that the mystery is solved, and my dreams of discovering a new ionospheric layer are dissipated. ■



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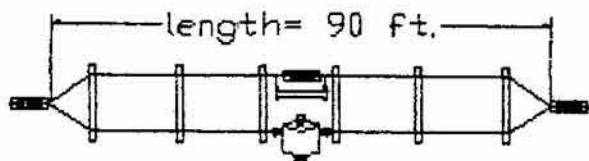
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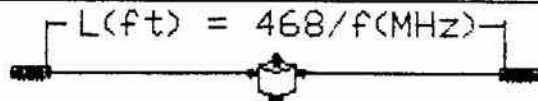
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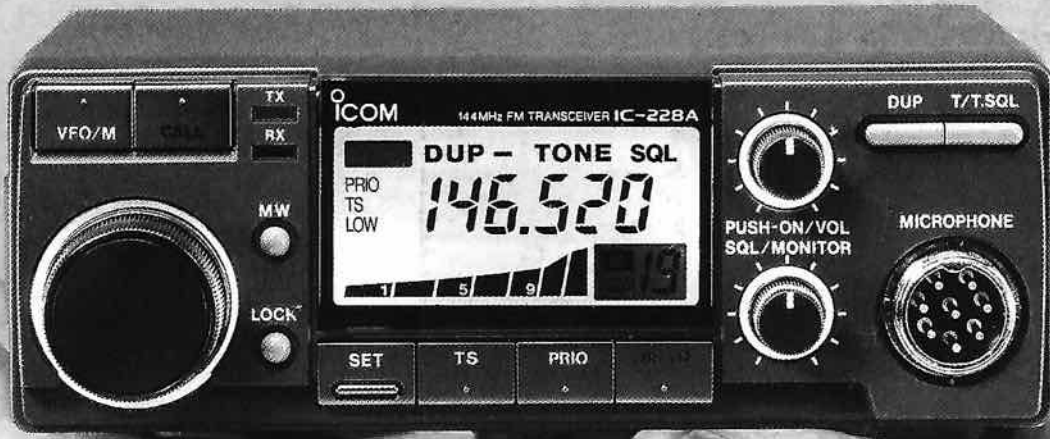
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