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*Auroral
Propagation*

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*Satellite
Dishes*

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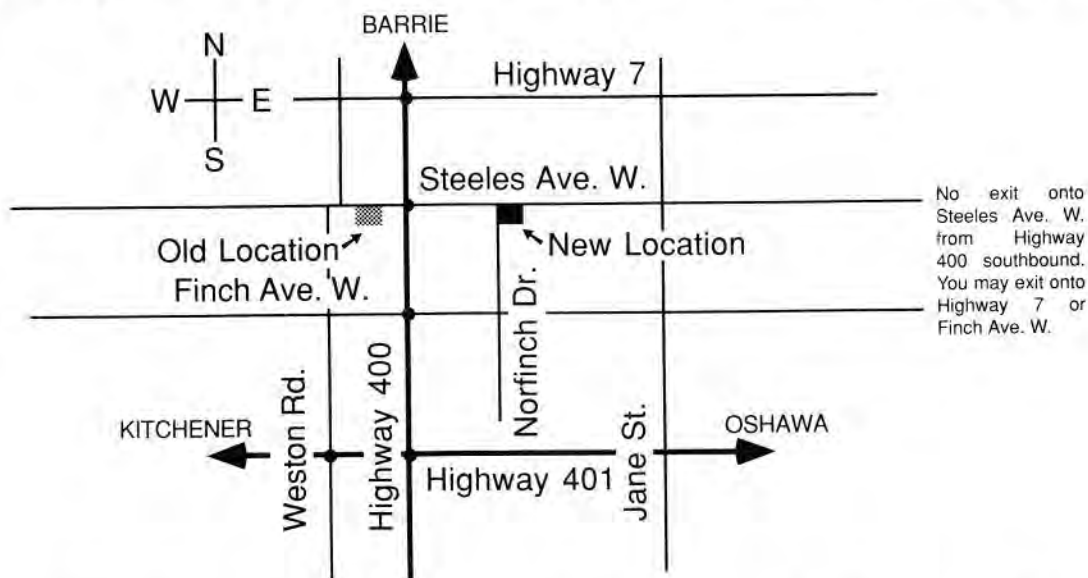
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ABOUT THE COVER



Amateur Radio fun comes in many forms. Cam White, VE3PRJ, makes some fine adjustments to the controller for the VE3OHR repeater in Ingersoll, Ontario. (VE3GSO photo)

It Seems to Us.../Il nous semble...

Those Satellite Dishes

It's not hard to figure out why radio amateurs are interested in the fate of those who run afoul of municipal bylaws that try to govern the size and placement of satellite dishes. What applies to satellite dishes probably applies to Amateur Radio antennas as well. Through the trials of satellite dish owners, we stand to maintain or lose many of our own rights.

Legal opinion seems to be divided on whether municipalities have the authority to regulate satellite dishes. Dale Gibson is an Edmonton lawyer and author. In a recent *Edmonton Journal* article entitled "Satellite dish dispute out of city's orbit", he stated:

"Edmontonians who are operating satellite dishes without permits from the city have been told they are breaking the law. This may not be so.

"It is true that there is a city bylaw requiring them to have permits, but the bylaw may not be constitutional. Cities can't make laws that affect undertakings within the jurisdiction of the federal government. Nor can provinces, for that matter. Broadcasting is a federal undertaking, and it is clear that federal jurisdiction extends to the receiving of broadcasts as well as to their transmission.

"Readers of a certain age may recall a time before the advent of television when they had to buy annual licences for every radio receiver they owned. Those licences were required by the government of Canada, not by city or provincial authorities. During the bitter depression years of the 1930s, Canadians who resented paying the government a fee to enjoy one of the few forms of entertainment that almost everyone could afford, challenged the constitutionality of the federal radio licence law. After a lengthy legal battle, the courts ruled that the law was valid, since all aspects of broadcasting are federal responsibilities.

"So where does the city of Edmonton get the authority to regulate satellite receivers? Local governments do have the right to enact laws about zoning and safety, to prohibit ugly nuisances and to regulate new construction. This means the city probably has the power to demand that dish owners take reasonable steps to ensure that dishes are located, erected, painted and perhaps shielded in a manner that will be safe and will annoy neighbours as little as possible.

"But any local law that went as far as to prevent a person possessing or using a satellite dish would certainly be unconstitutional. Although the city can regulate the non-functional aspects of your

dish—its placement, safety and appearance—it cannot prevent your owning and operating it."

That's the good news. The bad news is a British Columbia decision that recently appeared in *The Lawyer's Weekly*:

"A [Vancouver] bylaw that requires permits for satellite dishes more than six feet high is not vague and unenforceable, the BC Supreme Court has decided.

"In a February ruling, Mr. Justice Alan A. W. Macdonell allowed a Crown appeal from a Provincial Court judgement dismissing a charge against Oie Richards for putting up a satellite dish without a permit. The judge disagreed with the lower court that the bylaw was vague and uncertain. [He] found that the bylaw contravened the respondent's freedom of expression, but [that] it was saved by [Charter section] 1 as a reasonable limit to a Charter right.

"The bylaw and its exemption provision provide that 'no person shall erect an antenna, including a satellite dish, without first obtaining a development permit' unless it is a backyard and no more than six feet high. Following the respondent's trial, the lower court quashed the sections on three grounds:

□ 'antenna' could be so widely interpreted it could cover much more than what the city contemplated;

□ satellite dishes were not antennae, but simply contained them at their focal point; and

□ the exemption for antenna less than six feet was too vague since it did not specifically refer to either the height of the whole satellite dish or that of the focal point.

"Mr. Justice Macdonell considered each of these grounds but said he found the bylaw to be neither vague or uncertain. He referred to *Dhillon v. Richmond (City of)* (1987)... where the BC Supreme Court said when considering the validity of a municipal bylaw, the vagueness had to be so pronounced that a reasonably intelligent person would be unable to determine its meaning and govern his actions accordingly...

"The judge then considered whether the bylaw was an unreasonable limit on freedom of expression. He cited a variety of cases and said: 'There is little doubt that freedom of expression is a fundamental right which takes its genesis in democracy itself and arises long before the Charter. It includes a vision of society in which people's minds are free.... We

It Seems to Us... —continued on page 7

All letters are considered carefully. Letters are edited for clarity and may be condensed in order to have more information and readers' views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

DOC: THE NEW CPC 2-0-03

□ It was with great interest that I read the comments on CPC 2-0-03 (Provisional), *Environmental Assessment Process Associated with Spectrum Management Activities*, that appeared in 1992 March *QST Canada*.

The column, "It Seems to Us...", refers to ambiguity between the wording of Annex A: "Amateurs must comply..." and Annex B: "Consultation... is encouraged." Additional concerns are raised about the use of Annex D.

Annex A states that amateurs must comply with provisions in Annex B regarding consultation procedures with

municipal or land-use authorities. These procedures in Annex B encourage consultation where the installation or modification of the antenna structure may result in local objections. As local concerns vary nationally, amateurs must use their discretion when determining if consultation is advisable for the installation or modification of the antenna-supporting structure.

The second point raised in the column related to Annex D. This annex is a form addressing environmental concerns and is to be completed by applicants for land, coast and earth stations. Amateurs need not complete the form. However, they must take into account environmental

concerns addressed in this annex, and comply with Safety Code 6, non-ionizing radiation limits. —*Darius Breaux, Assistant Manager, Operational Policies, Procedures and Programs, Spectrum Management Operations, DOC Ottawa*

AMATEURS PER CAPITA

□ We have more amateurs per capita in our area on the west coast of Vancouver Island than in most cities of the world. There are now over 25 licensed amateurs in Ucluelet. This works out to 2.5 amateurs for every 100 persons. Two reasons for the growing number of amateurs in our area: restructuring and Amateur Radio classes run by Ucluelet Amateur Radio Club (UARC). If you are ever in our area call in on VE7URC, 147.00 MHz (-) and meet some of our members. —*Doug Pichette, Public Relations, UARC*

Ucluelet's amateur population seems to be more than double the national average. Can anyone top this? —Editor ■

The Canadian Radio Relay League, Inc La Ligue Canadienne de la Radio Amateur, Inc



The Canadian Radio Relay League (CRRRL) is a noncommercial association of radio amateurs organized for the promotion of Amateur Radio communications and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of radio amateurs in legislative and other matters, and for the maintenance of fraternalism and a high standard of conduct.

CRRRL is incorporated under the Canada Corporations Act. Its affairs are governed by a seven-member Board of Directors elected every two years by the CRRRL general membership. CRRRL is noncommercial, and no one who could gain financially by the shaping of its affairs is eligible for membership on its Board.

CRRRL is the Canadian member-society of the International Amateur Radio Union (IARU). "Of, by and for the Canadian Radio Amateur", CRRRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement in amateur affairs.

A bona fide interest in Amateur Radio is the only essential requirement for membership. An Amateur Radio licence is not required, although full voting membership is granted only to licensed amateurs in Canada.

Membership inquiries and general correspondence should be directed to CRRRL Headquarters, Box 56, Arva, ON N0M 1C0 Tel (519) 660-1200.

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Calendar



Attention: Deadline for items is the 20th of the second month preceding month of publication. For example, information should reach *QST Canada* by January 20 to be included in a March issue.

Bangor, ME: Bangor Hamfest, 1992 June 13, at Hermon Elementary School, Billings Road. Sponsored by Pine State ARC. Opens at 0800. Admission: \$2. Talk-in on 146.94 MHz (-). For more information, contact Roger Dole, KA1TKS, Box 730, Route 2, Bangor, ME 04401, Tel (207) 848-3846.

Burbank, AB: 21th Annual Picnic, June 19-21, at Burbank Campground, 2.5 km east of Highway 2A on Highway 597, then 3 km south. Sponsored by Central Alberta Amateur Radio League. Fleamarket, bunny hunt, barbecue, golf tournament, dance, Sunday breakfast, children's and ladies' programs. Camping: \$10 per single unit, \$15 per family. Registration: \$6. Talk-in on VE6UK, 147.150 MHz (+) or 146.52-MHz simplex. For more information, contact Pat Wright, VE6ALD, Tel (403) 346-3013.

Kitchener, ON: 18th Annual Central Ontario Amateur Radio Fleamarket, 1992 June 6, at Bingeman Park, 1380 Victoria St N. Sponsored by Guelph and Kitchener-Waterloo ARCs. Opens at 0800, 0600 for vendors. Admission: \$5. Tables: \$8. Talk-in on VE3KSR, 146.97 MHz (-); VE3ZMG, 144.21 MHz (-), and 146.52-MHz simplex. For more information, contact Ray Jennings, VE3CZE, Tel (519) 822-8342.

Marmora, ON: Eastern Ontario Hamfest, 1992 June 13, at Marmora Curling Club, Crawford Dr. Sponsored by Marmora ARC. Opens at 0900, 0700 for vendors. Admission: \$3. Indoor tables: \$5. Outdoor tailgate: \$2. Talk-in on VE3TZW, 146.655 MHz (-). For more information, contact Bill Best, VE3SVI, (613) 472-5867 or (613) 472-6008.

Saint John, NB: Amateur Radio Fleamarket, 1992 June 20, at Denis Morris Community Centre, 330 Greenhead Rd. Sponsored by Loyalist City ARC. Opens at 0900, 0700 for vendors. Admission: \$2. Tables: \$4. Talk-in on VE1EE, 147.27 MHz (+). For more information, contact Allison Smith, VE1LAS, Tel (506) 696-6374. ■

Auroral Propagation

Six metres and the northern lights...

By Paul M. Dunphy, VE1PMD
3351 Highway 7
Lake Echo, NS B0J 2S0

Let's start by examining the aurora. Aurora is a phenomenon usually observed as a glow coming from the upper atmosphere in the polar latitudes. In the northern hemisphere, we often refer to auroral activity as the northern lights or aurora borealis. In the southern hemisphere, they are the southern lights or aurora australis. Auroras occur most often around the equinoxes, in March–April and September–October).

Auroral activity does not usually become visible until the geomagnetic field becomes unsettled. Auroras are the result of particles ejected by solar flares colliding with atoms of oxygen and nitrogen in the atmosphere. These particles cause gas in the ionosphere to become ionized to form a plasma. This plasma emits light, which results in the familiar auroral displays. Typical altitude for an aurora is approximately 80 to 150 km, well within the E- or upper D-layer of the ionosphere. At these altitudes auroras can be seen for hundreds of kilometers.

Most auroral activity occurs in a belt around the geomagnetic poles, at 65–70 degrees of geomagnetic latitude. These belts are called, predictably, the auroral zones. These zones tend to move toward the equator with increasing geomagnetic activity. During a major geomagnetic storm, these zones can migrate as close to the equator as 45–50 degrees latitude. The auroral zones contain the electrojet, an area of strong electrical currents. The electrojet is a major factor in the formation of increased geomagnetic fluctuations that we observe in the auroral zones. Geomagnetic storming always increases these fluctuations. We should note, however, that geomagnetic activity is always greater in the auroral zones, even on geomagnetically quiet days.

The auroral zones have considerable influence on radio propagation, both on the HF and VHF bands. In terms of radio activity, auroras peak at 1600–2000 local time. They may be predicted by an increase in the terrestrial A and K indices. Sustained K indices of five or more indicate a storm condition and increased auroral activity is likely. In general, increased auroral activity degrades HF signals but can provide exciting propagation paths for VHF operators.

Let's take a closer look at auroral VHF propagation. An aurora usually absorbs

signals below 20 MHz, but above 20 MHz signals can be scattered or reflected. We start to see this on ten meters when conditions are right. At the other extreme, amateurs have used auroras for VHF propagation as high as 432 MHz. Successful two way QSOs are possible up to 2000 kilometers. Beam antennas are almost essential, as signals should be directed toward the auroral activity and then rotated east and west to peak signals.

In general, signal strength drops dramatically as VHF frequency increases. Doppler shift and distortion increase to the point where CW is the only reliable mode. While the focus of this article is on six meters, the phenomenon described applies, to varying degrees, to all amateur bands from six metres to 70 centimetres.

Residing at the low end of the amateur VHF spectrum is the 50-MHz six-metre band. Predictably, VHF DXers wishing to use the ionosphere have turned to this band. Unfortunately, even when we experience good propagation on HF bands, long-distance 50-MHz propagation is not always possible. Attempts to transmit six-metre signals over long distances by the same means as used for HF do not work because the six-metre signals simply pass through the ionosphere and out into space.

Semi-reliable six-metre propagation is obtained by F2 refraction when the maximum usable frequency (MUF) exceeds 50 MHz. This usually happens only in the three years around the peak of the 11-year solar cycle. During the summer, and to a lesser degree in the winter, sporadic-E also propagates 50-MHz signals. Meteor scatter produces brief openings from time to time. Transequatorial (TE) spread-F can provide signal paths under the right conditions. Unfortunately TE propagation is not possible throughout most of continental North America, particularly throughout the northern US and Canada.

However, under the right circumstances, 50-MHz and other VHF signals can be bounced from regions of auroral activity. The earth's geomagnetic field over the auroral zone can deviate by several degrees. The deviation introduces a curve in the dip-angle of the magnetic field. This serves as a medium for VHF signals. This curvature, together with high levels of ionization, permits six-metre signals to be scattered by the ionosphere. This process, called auroral backscatter-

ing, can become a medium for long-distance six-metre communications. In a similar manner, forward scattering occurs when signals scatter off the aurora in a forward direction toward the polar regions. Two-way auroral communication is called bistatic auroral backscatter.

Scattering is completely different than refraction. Radio waves are literally scattered off of the ionosphere near the regions of auroral activity. Signals are scattered backwards, forwards and in some cases at various other angles relative to the transmitted signal. Sometimes the signals are scattered a number of times off multiple auroras to achieve significant long-haul communications.

Signals propagated by aurora are degraded significantly with each auroral contact. Scattered 50-MHz signals are very distorted and may be somewhat wider than normal. SSB signals propagated by aurora tend to have a sputtering motor-like sound. CW is more intelligible when distorted by aurora than is voice. While such conditions produce less than optimal signal quality, especially strong auroras have produced six-metre QSOs exceeding 2200 kilometers. These strong auroras may transform into a condition called 50-MHz auroral-E, resulting in increased path lengths and lower distortion levels.

When and where should you look for auroral propagation? Six-metre auroral backscatter communications are most likely possible when auroral activity is visible low on the horizon. However, useful aurora may be as far away as 1000 km and well below the visible horizon. Clearly the more intense the activity, the higher the possibility for long-haul backscatter communications. The likelihood of auroral backscatter is obviously a function of latitude. Operators closer to the equator will not experience auroral backscatter nearly as often as those who live in middle and high latitudes.

Auroral backscatter communications have two well defined daily peaks. As I mentioned above, the first and largest peak occurs in the late afternoon at 1600–2000 local time. This peak does not appear to be quite so dependent on geomagnetic activity, although it is sensitive to it. The second peak occurs near midnight local time. This peak is very dependent on geomagnetic activity. Backscatter

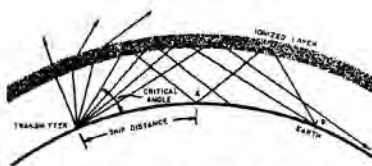
during this second peak occurs only during major magnetic storms. During quiet magnetic periods, this peak is essentially non-existent, offering only very rare incidents of backscatter communications.

It is worth noting that the same phenomena occurs in the southern hemisphere with the southern lights. We tend to think that auroral activity is peculiar to the northern hemisphere because the large populated land masses are in the north. As a result, the north is home for many Amateur Radio operators who are able to take advantage of aurora. The southern auroral zone, for the most part, is out of range for most Amateur Radio operators, even those who live in the southern hemisphere.

In conclusion, six-metre long-distance auroral propagation is indeed possible, but requires special conditions before DX QSOs can occur. The best times for auroral DX are in the late afternoon and early evenings. The next best opportunities come near local midnight during major geomagnetic storms. Generally, the likelihood of six-meter auroral DX increases with geomagnetic activity. This is in sharp contrast to HF communication which seriously deteriorates during periods of high geomagnetic activity.

Author's note: I am not a six-metre operator. The information presented here is consolidated from a variety of printed sources. Conversations with Bob Billings, VE1YX, and Mike Dunn, VE1XDX, both top-notch six-meter operators, have also provided a wealth of information on auras and auroral propagation. ■

ANNOUNCING...

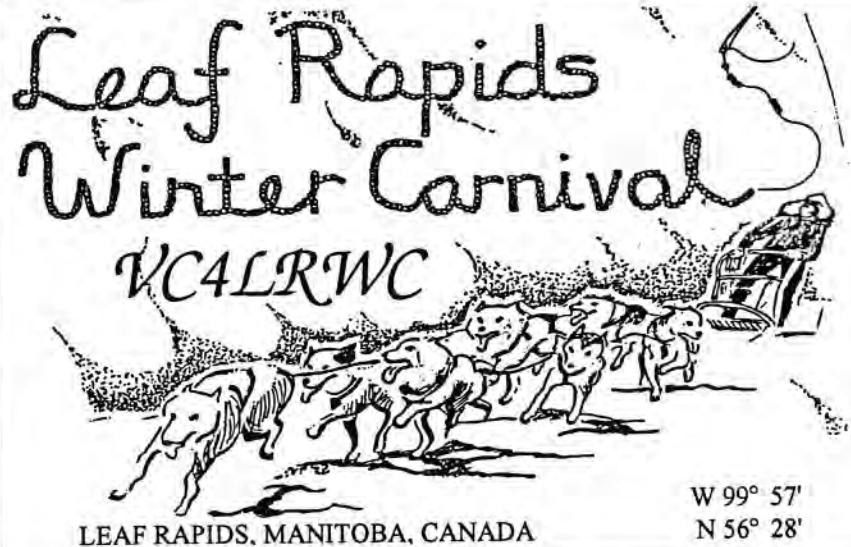


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Leaf Rapids Winter Carnival



VC4LRWC, our first Leaf Rapids Winter Carnival special-event station, was a great success. It operated throughout 1992 March 8-15 from Leaf Rapids, Manitoba, a community located about 1000 km north of Winnipeg.

Leaf Rapids is a unique community, set on a sand esker in parklike surroundings amid the bush—unspoiled pine and spruce forest. The natural beauty of the bush is preserved within the townsite with walking trails linking residential bays and the town centre complex. That bush is serenely beautiful all year around. It provides an idyllic playground for outdoor activities. In winter, cross-country ski trails and snow machine trails crisscross the area, providing recreation for young and old alike.

One major attraction is the Leaf Rapids Winter Carnival which is held annually on the second weekend of March. It provides three days entertainment and fun for the whole family. The sled dog races, which include women's men's and juniors' races, are second only to those in the The Pas Trappers' Festival. Musers from all over Manitoba, from other parts of Canada and from the US ensure a high level of competition. Other Winter Carnival events include a king and queen pageant and northern games.

There are only two Amateur Radio operators in Leaf Rapids: Les McDonald, VE4APB, and myself, Roland LaLonde, VE4ROL. During the Winter Carnival, we operated our special-event station, VC4LRWC, from the town centre for some 16 hours. VE4APB worked five countries, 13 US states and six Canadian provinces using only a homemade G5RV stretched over the shopping centre. VE4ROL worked five countries, 11 US states, three Canadian provinces and the

Yukon. Since we also served as chairperson for the Leaf Rapids Winter Carnival, we were quite busy!

We certainly hope to put VC4LRWC on the air again next year. Look for us in March. If you were one of the stations that contacted us this year, a special QSL card is being printed. To receive it, send your own QSL card to Roland LaLonde, VE4ROL, Box 77, or to Les McDonald, VE4APB, Box 156, Leaf Rapids, MB R0B 1W0.—Roland LaLonde, VE4ROL.



Above: VE4ROL in his shack. Roland advises that Leaf Rapids offers something for everyone in the summer as well: walking trails, berry picking, and government and private campgrounds. The nearby Churchill River system provides hundreds of miles of safe, navigable water, and the fishing is great with lots of walleye and northern pike. Fly-in services can take you to the best trout fishing anywhere. Consider bringing the family for a real summer vacation. ■

We always welcome articles for *QST Canada*. It's most helpful when we receive the text on diskette. MS-DOS users: please save as an ASCII or Word-Perfect file. Macintosh users: save in any popular Macintosh format.—Editor ■

New

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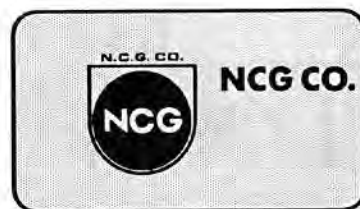
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Edmonton Amateur Wins Antenna Battle

Brian Weist, VE6BJW, of Edmonton, Alberta, has good reason to be pleased these days. He recently received the following letter from DOC:

"The Department has concluded its review of an inquiry regarding your antenna installation. The outcome of this review is that the Department will not be placing any restrictions on your Radio Station Licence relating to the existing antenna and supporting structure. The lack of agreeable alternatives with respect to the relocation of the tower and the potential impact of lowering the height of the existing structure on interference has resulted in the Department's decision."

Earlier, neighbours had objected to VE6BJW's tower on aesthetic grounds, and had repeatedly petitioned DOC for its removal. At one point, local DOC officials, citing the new *Radiocommunications Act*, suggested that they might withhold VE6BJW's station licence if the matter were not resolved. However, subsequent investigations by those same DOC officials resulted in them giving VE6BJW full support. In doing this, they did add the following caution, of which all Canadian amateurs should take note:

"We wish to remind you of the Department's expectation that all Amateur Radio operators will consult with neighbours and the municipality prior to any new construction or modification of existing antennas and supporting structures. Concerns expressed and all reasonable alternatives put forward must receive careful consideration by the Amateur Radio operator before proceeding."

A photo of VE6BJW's antenna and tower appeared in 1991 August *QST Canada*.

AMATEUR OPERATION ON 160-190 kHz

□ In response to a CRRL inquiry, DOC has advised that it is prepared to permit Canadian amateurs to operate in the long wave band, 160-190 kHz, on a case-by-case basis. Guidelines were originally set out in a memorandum sent to DOC regional offices in 1988 March. Some excerpts from this memorandum:

"Subject: Operation on 160-190 kHz by Amateurs"

"...authority should be issued only on a non-interference basis."

"...we suggest the following criteria:

1. field strength must not exceed 10 millivolts per metre at 30 metres,
2. bandwidth of the emission used should not normally exceed 3 kHz,
3. duration of the authority to be one year

from the date of issue,

4. authority to operate may be rescinded at any time."

DOC notes that while, normally, only amateurs would become involved with 160-190-kHz operation, the presence of amateur stations on this band would be based on a subsection of the *General Radio Regulations, Part II* dealing with stations exempt from licensing. This subsection requires DOC approval of equipment which could be done at a DOC regional or district office.

In issuing the guidelines, DOC notes that it is not their intention to open up another amateur band for general use, even though there are few Canadian assignments in the 160-190-kHz range.

YORK REGION ARC YOUNG AMATEUR OF THE YEAR AWARD

□ Ontario's York Region Amateur Radio Club (YRARC) is sponsoring a national award to help publicize and promote Amateur Radio among Canadian youth. First prize is \$500. Prizes for first- and second-place runners-up are \$200 and \$100 respectively. The award, inspired by a similar award offered in the UK by RSGB, will be made on the recommendation of a panel of YRARC directors. Nominations for the award will be welcomed from any official of a CRRL-affiliated or CARF-affiliated Amateur Radio club in Canada. Basis for judging: details of the candidate, his or her age, and accomplishments in the field of Amateur Radio. Candidates must hold a Canadian Amateur Radio licence and be a resident of Canada. As the idea behind the award is publicity to further the growth of Amateur Radio, good photographs of the candidate will be an advantage. Send nominations and details of the sponsoring club, by 1992 August 31, to YRARC Awards Committee, Box 352, Newmarket, ON L3Y 4X7. —*Andrew Betterton, VE3ORE, Tel (416) 895-8710*

ACROSS THE COUNTRY

□ To help publicize the 1992 Calgary Stampede, special-event station CJ6CEXS will operate from Canada Square on the Stampede grounds on July 2-12. A special QSL card and a full-colour poster award (cost of the poster: US \$5) will be available for contacting CJ6CEXS on any band using any mode. QSL via VE6NAO.

□ To commemorate the 350th anniversary of Sorel, Quebec, and the 10th anniversary of the Quebec Hamfest, to be held in Sorel on 1992 May 30, members of Sorel-Tracy ARC will operate special-

event station XJ2CPS on May 15-30. Look for XJ2CPS on CW 15 kHz up from the low ends of the 80-10-metre bands. Look for XJ2CPS on phone on 3.85, 7.25, 14.25, 21.25 and 28.45 MHz. A special certificate will be available. Send QSL and an SASE to Jean Gadoury, VE2UL, 265 Ramesay, Sorel, PQ J3P 4A5.

□ To commemorate the 200th anniversary of John Graves Simcoe, the first lieutenant-Governor of Upper Canada, DOC is permitting amateurs in the Niagara Peninsula region to use the special prefix XJ3S during 1992 June 29-July 12.

□ To commemorate the centennial of Windsor, Ontario, DOC is permitting Windsor amateurs to use the special prefix CK3 during May 17-30.

□ Ralph Cameron, VE3BBM, has stepped down as Chairman of the Radio Advisory Board of Canada Electromagnetic Compatibility Committee. New committee chairman is Thomas Howe of Almonte, Ontario.

□ Congratulations to Bill de Carle, VE2IQ, who won the 1992 January *QST* Cover Plaque Award for his fine article: A Receiver Spectral Display Using DSP (Digital Signal Processing).

NOTES FROM ALL OVER

□ DPRK, the Democratic People's Republic of Korea (North Korea) may soon be on the air. IARU has begun an international project aimed at establishing Amateur Radio in this country. The project is based on preliminary discussions with DPRK authorities earlier this year. Project group leader is Dr. Seppo Sisättö, OH1VR. IARU coordinator is Richard Baldwin, W1RU. ■

It Seems to Us...—continued from page 1

prize a diversity of ideas and opinions.... It is not a far stretch to suggest that electronic access to such a diversity of ideas comes well within the freedom of expression of [Charter section] 2(b).'

"But when the judge looked at the question of whether [section] 1 of the Charter saved the bylaw, he followed the approach in *Regina v. Oakes* (1986), and held that it constituted a reasonable limit on freedom of expression. He found the respondent guilty as charged and remitted the matter back to Provincial Court for sentencing."

We think Mr. Richard's lawyer should get top marks for trying. All food for thought. —*Harry MacLean, VE3GRO* ■

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Update: Defence of Amateur Radio Fund

The Defence of Amateur Radio Fund (DARF) was established to help IARU defend our amateur frequencies at the recent WARC-92, and other WARC's which will be held throughout the 1990s.

DARF thanks the following for their recent contributions: Jack Ambler, VE6CHU; Ross Snider, VE3CUV; Stuart Munroe, VE8CM; Halifax Amateur Radio Club; G. Heathcote; Violette Camille, VE1VIO; Jack Kiuru, VE1ZK; Gunter Neugebauer, VE7CLD; George Scuthe, VE3DMC; Roger Reynolds, VE7WTN; Telephone Pioneers Amateur Radio Club; and Gary Simpson.

As of January 17, the fund stood at \$24,606.86. If you have not yet contributed, consider doing so now. Please mail your cheque to DARF c/o Tim Ellam, VE6SH, 107 Strathearn Rise SW, Calgary, AB T3H 1R5. ■

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For interrupted delivery of *QST* and *QST Canada*, please send your change of address notice to CRRL, Box 56, Arva, ON N0M 1C0 eight weeks before you move. Don't forget to quote your call sign or the seven-digit number on your mailing label. —Ray Staines, VE3ZJ ■



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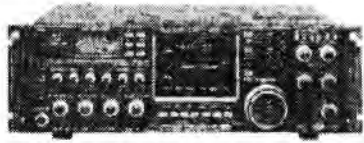
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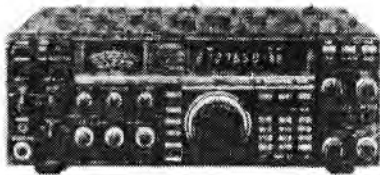
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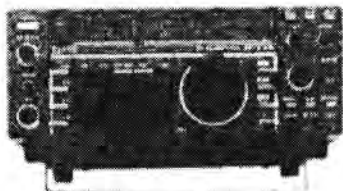
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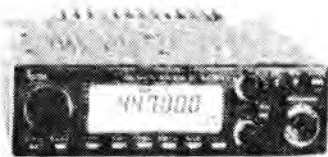
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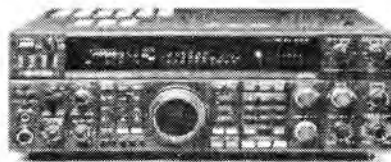


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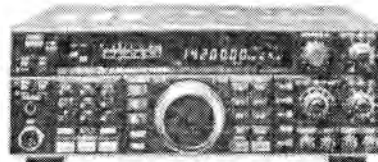
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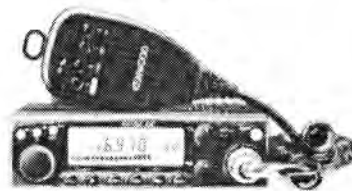
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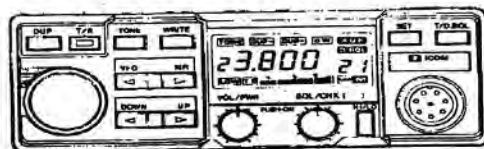
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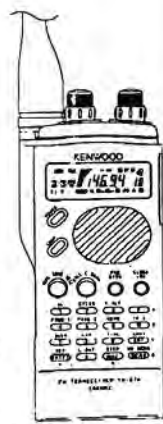
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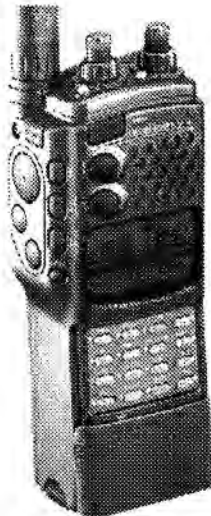
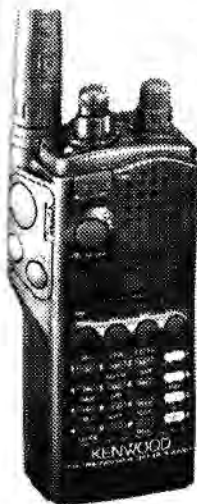
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The CRRL Field Organization Forum

REPORTS FOR FEBRUARY 1992

Alberta: SM: Don Wilcox, VE6CG; STM: VE6AKY; SEC/TC: VE6AFO; OO: VE6TY. No report available this month.

British Columbia: SM/SEC: Ernie Savage, VE7FB. British Columbia Public Service Net (BCPS, 3729 kHz 0130 UTC daily) Manager Jim, VE7JN, reports February check-ins: high-195, low-103, total 4837. Very poor band conditions. British Columbia Emergency Net (BCEN, 3652 kHz, 1900 UTC daily) Manager Ray, VE7BCL, reports 1119 February check-ins with 494 QTC. BCEN lost one of its most active members when Chris Klemm, VE7BKC, became a Silent Key. For the fourth consecutive month, Tom, VE7BNI, made Brass Pounder's League. His total this month: 511. Thanks to the following clubs for sending us their bulletins: Burnaby ARC, Gulf Islands ARC, North Okanagan ARC, Richmond ARC, Surrey ARC, and the Victoria Short Wave Club. Thanks also to those who send us letters. They are welcomed and well read and used to inform others of activities.

Manitoba: SM: Bill Crooks, VE4JR; ASM: VE4IX; STM: VE4STU, SEC: VE4PN; NMs: VE4AGH, VE4FP, VE4LB and VE4TE. I recently received a letter from Ken Oelke, VE6AFO, who has been appointed Field Services Manager for CRRL. He is replacing the late Jack Strangleman, VE3GV, in this position. Ken is asking the cooperation of all emergency coordinators across Canada is setting up and maintaining communications capabilities in event of any emergency—real or simulated. It seems that my pleas for input for this column have not gone in vain. I recently received a note from Bruce, VE4BWA, mentioning that Interlake ARC celebrated its first anniversary on February 1. The executive has been re-elected with President—Paul, VE4AEY; Vice President—Ed, VE4SV; Treasurer—Audrey, VE4ALE; and Secretary—Katie, VE4CDK. He also mentions that the club recently helped five new amateurs pass their basic test. A note from Dave, VE4AED, advises that in the past two years, Pinawa ARC has helped ten new amateurs obtain their tickets. These amateurs will be helping at the North Dakota/Manitoba International Hamfest to be held in the Peace Gardens south of Brandon in July. Dauphin Amateur Radio Club Secretary Peter, VE4PD, advises that the club supplied communications for the fishing derby held recently at Lake Dauphin, with mobile units operated by VE4s KE, KK, JA, OAH, PD, TIM and TY, with a base station manned by VE4s STU and ADP. It was all good public relations, and they enjoyed a great Ukrainian supper when it was over. Nice going!

Maritimes-Newfoundland: Acting SM: Carl Anderson, VE1UU; STM: Mel Lever, VE1VX; BM: Brent Taylor, VE1JH. No report available. The Maritimes-Newfoundland Section does need a Section Manager. The duties are not onerous and the work can be quite rewarding. Please contact the Acting Section Manager or CRRL for details.

Ontario: SM: Larry Thivierge, VE3GT @ VE3WQ; BM: VE3GSA @ VE3JF; SEC:

Reports invited: CRRL Section Managers (SMs) and their Section-level assistants coordinate traffic handling, emergency communications and bulletin service across Canada. Your SM (name and address appears on page 2 of this *QST Canada*) welcomes reports of individual and club activities for publication in this column. Activities do not have to be related to the CRRL Field Organization or to CRRL.

VE3GV; STM: VE3CYR @ VE3INF; TC: VE3EGO. Congratulations to CLARA on the occasion of its 25th anniversary. High Counties Amateur Radio Club is a newly formed club serving Orangeville, Shelburne and the counties surrounding these towns. Border City Radio Club in Windsor, complete with a sharp, new logo, has a club membership around the 140 mark. VE3ZRR is a new repeater operating in the Renfrew on 146.91 MHz (-). This repeater is able to link into VE3MPC to the east, and into the Toronto FM Communications Society system to the west. NTS traffic on VHF packet BBSs is still being dogged by duplicate messages. The solution seems to be in the use of IDs as they do on APLINK. However, the implementation seems to be another matter. The VE3TKA BBS in Thunder Bay first went on the air on 1991 April 29. The following statistics for the period ending 1992 January 28: total connects—14,389 average; number of connects per day—52; average connect duration—14 minutes, 55 seconds; busiest period—0900—1000. VE3LKU is moving to the Dominican Republic for a year and will be operating as HI8DCC. "Recently reactivated" VE3EZK is giving VHF a look. Changes with the The Ontario Trilliums volunteers who operate the CRRL VE3 Incoming QSL Bureau will see VE3DIT handling cards for calls that start with "O" and "P", while VE3MYM and VE3KHR will handle cards for calls that start with "R" to "Z". VE3TGV has a new FT-990. Sault Ste-Marie EC VE3TNL held a local SET which was deemed a success. VE3JCE is a new member of the Trilliums. CTCSS has been installed on the VE3OSH repeater. The tone frequency is 156.7 Hz. This has greatly improved repeater reception which had been adversely affected by intermod. New amateurs in the northern portion of this Section include VE3NDZ, VE3UA, VE3WAZ and VE3XMR.

Quebec: SM: Joe Unsworth, VE2ALE; STM: Jean, VE2ED; OBS: Garnett, VE2GOP. Visitors to the Montreal area during February include Jang-Woo Lee, HL1KZU from South Korea. Now residing in the Ottawa area: Robert, WA6ERB. On February 26, Bill, VE2IQ, gave a repeat performance of his 1992 January *QST* article at a meeting of Montreal Amateur Radio Club. Bill described a simple interface circuit that he designed for use with your receiver and computer as an audio-frequency spectrum analyser. From VE3GOP: A new net called the Quebec YL Net has been started on two metres. It meets on VE2CWI on Wednesday evenings, 1930 EST/EDT. Frequency is 146.91 MHz (-). All YLs and XYLs are invited to join the net. Net controllers are Jean, VE2JZ, and Joan, VE2PYL (Pretty Young Lady). 1992 marks the sixtieth anniversary of Montreal Amateur

Radio Club, first of its kind in the Montreal area. From VE2UMS: VE2JEU has stepped down as vice president and has been replaced by VE2TLS. VE2FAB and VE2FUR join the UMS board as new directors. In March, VE2FUR took over from VE2JEU as editor of the VE2UMS bulletin. Neil, VE2BOA, will hold his annual VE2RMP repeater sugar party north of St-Jerome where the Piggy and Terra Pou-Pou awards will be presented to selected amateurs. Roly, VE2AGR, is now back home after major surgery.

Saskatchewan: SM: Joan Lloyd, VE5JML. Congratulations to Monte Skeleton, VE5WB, and family on the birth of their harmonic Stephen Monty on February 2. twenty-one Regina amateurs helped to relay scores for the annual South Saskatchewan Boy Scout-Girl Guide Klondike Hike, held in Wascana Park on February 2. Thanks to the following VE5s for helping out: AEO, BW, CON, DCP, ELJ, FAR, GW, HL, IC, KL, NX, PI, RJR, SF, TWT, UK, UU, and WW who relayed the scores. VE5CS, VE5EE and VE5JML acted as net control stations receiving incoming scores. Saskatchewan Amateur Radio League (SARL) directors met at the QTH of VE5ND on February 15 to discuss current business. Saskatchewan will not be having a formal hamfest in 1992, but an informal picnic-style hamfest will be held in late July, in conjunction with the SARL annual meeting, exact date and location to be announced. Moose Jaw amateurs are busy at their Western Development Museum setting up Wireless Room Number 2. Keep up the good work at the museum, fellows! 73. ■

Silent Keys

Conducted By Ray Staines, VE3ZJ

It is with deep regret that we record the passing of these amateurs:


VE4AGB, John McLaren, Brandon, MB
VE5AX, Ingi Eyjolfsson, Wynard, SK
VE7AU, Bob Thorburn, Port Alberni, BC

Note: Silent Key reports sent to *QST Canada* must include name, address and call sign of the reporter. To avoid unfortunate errors, reports are confirmed only through acknowledgement from the family of the deceased. Thus, those who report a Silent Key may not receive an acknowledgement from *QST Canada*. ■

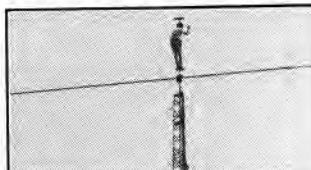

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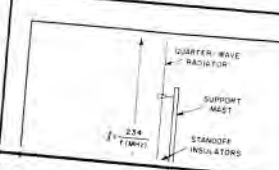





The Canadian Radio Relay League Inc.


CHAPTER 6

Practical Circuits




The Quarter-Wave Vertical Antenna

The quarter-wave vertical antenna is popular among amateurs because it requires only one point of support and can be very effective, especially for DX work. See Fig. 8-17. This antenna consists of a vertical radiator a quarter-wavelength long that is tied to a number of...



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complete circuits can act in other ways, we are diving deeply into it to gain a basic understanding you with a lot of...

ply is shown in Fig. 6-... ed to convert the 120... a little above 13.8 V... ed to have but it is the... old battery of the type... h will operate on 13.8... hile.

ting, as shown by the... 8 volts (RMS) to per... rectifier chance...

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VHF-UHF Activity

I want to make a few comments regarding all the activities that happen above 50 MHz. This is primarily aimed at the new licencees and those old timers who "never hear of such things".

There are a lot of different activities going on above 50 MHz in this country and around the world. Many, like satellite DXing and moonbounce, allow global communications at VHF and above with amazing regularity and ease. Yes, today, simple antenna systems like one or two-yagis and a few hundred watts of RF will get you started in moonbounce and permit you to QSO many of the "big gun" stations.

VHF-UHF has always been a haven for those who want to explore and get hands-on experience with propagation phenomena, building rigs and antenna systems, and DXing. In fact, the DX bug has been lurking on the VHF bands since the early days of radio. As you can see by thumbing through old issues of *QST* and the *Radio Amateur's Handbook*, we amateurs were DXing on 5 and 2 1/2 metres back in the 1930s. In those days, DXing was carried out on AM, FM, and CW, and evolved with time and technology, utilizing SSB and CW to push back DX frontiers. This work still goes on with new antenna designs, new propagation modes, new methods of recovering signals, propagation beacons and contests. Nowadays there is a bold new generation of VHF DXers.

Grid square expeditions are lots of fun. They combine the outdoors activities of camping and trekking with DXing. All you need is a multimode VHF rig, antenna and power source. Then head off to a rare grid square and get on the air. This is a big part of VHFing in Europe, and is catching on in the US and Canada. Step into that four-by-four folks, and roll 'em.

Amateur television (ATV) is a mode that has been around for a very long time. It has its roots back in the early days of TV development and is now enjoyed by more and more amateurs worldwide. Better equipment using new technologies and cheaper video cameras are making it a rewarding and fun way to operate.

Satellite operation has been with us since the earliest days of the space age when a group of US amateurs did "what couldn't be done": designed and built their own satellite. Over time, these satellites have multiplied, and become more technologically sophisticated. The next generation of amateur satellites is now in the works. They promise to be even easier to access, carry more transponders and

allow longer access times. AMSAT is the organization that promotes these satellites, and needs the support of all of us—financially and otherwise. AMSAT is a nonprofit organization that has sub-groups on all continents, designing and building OSCAR series satellite systems. There's no commercial interest here—it's just amateurs! Spectrum is set aside on two metres and at 70 cm and above worldwide for amateur satellite operations.

There is lots to do above 50 MHz. Try it! You will be amazed.

ARRL REPEATER DIRECTORY: UPDATING CANADIAN LISTINGS

As you may have noticed, the Canadian section of the *ARRL Repeater Directory* is way out of date. For some time now, CRRL has tried to keep things shipshape by forwarding information to ARRL in their standard format. In fact CRRL has an agreement to this effect with ARRL. CRRL's responsibility includes FM voice repeaters, packet repeaters, ATV repeaters, propagation beacons and band plans. If you take a careful look at the directory, you will notice that it contains a vast collection of information for North and South America, Central America and the Caribbean. It is one very handy book for the traveller, and it is important to keep it up to date, not only for ourselves but for visitors.

To keep things correct from coast to coast, please make sure that your local repeater coordinators send their information to the CRRL VHF-UHF Database, c/o Ken Oelke VE6AFO. Ken's address can be found at the front of this magazine. If you do not have a coordinator, please send the information directly to Ken. Ken has a keen group of people, all members of the Calgary Amateur Radio Association, looking after things. It's a real team effort.

FIRST WORLDWIDE VHF IONOSPHERIC PROPAGATION SYMPOSIUM

The first of these propagation symposiums is being held in conjunction with the annual Central States VHF Society conference in Kerrville, Texas, on 1992 July 16-19. There has been a call for papers. The symposium will be devoted to the study and dissemination of information related to ionospheric propagation of radio signals at 50 MHz and above. Symposium organizers are encouraging presentation of papers on all forms of propagation including, F-layer, Transequatorial (TE), sporadic E, scatter, aurora, and field-aligned irregularities (FAI). Central States VHF Society President Bill Tynan, W3XO, will host a Texas barbecue at his ranch on July 19. Send abstracts of your papers to Dave Batcho, N5JHV, 5611 Desert Star Road, Las Cruces, NM, 88005, Tel (505) 526-1861.

BEACON NEWS

Mike, VE1MQ, writes that the VE1MUF beacon is QRT. He advises that he is now running a beacon VE1MQ (FN65) on 50.073 MHz and 144.297 MHz. The beacons run 5-10 watts. On six metres, he uses a three-ring halo. On two metres he is using a 16-element Cushcraft Boomer aimed southwest in summer and north in winter. Send your signal reports to Mike Smith, VE1MQ, 408 Canterbury Dr, Fredericton, NB E3B 4L9.

1992 WA8MZQ GRID SQUARE EXPEDITION

We hope everyone enjoyed Bryan, WA8MZQ's, report on last year's trip to Manitoulin Island which appeared in the last month's *QST Canada*. Bryan is planning an even more extensive trip this summer. Here is his schedule: July 16 (evening)-July 18 (morning): FN06. July 18-August 1: EN85, EN86 and EN96. Bryan will be active on both six and two metres using 300 watts—fairly high power—on both bands. Operation will be on 50.125-50.150 MHz and 144.200-144.250 MHz. He will use 40-metre SSB (7163 kHz) for liaison. Details will be available on the VHF Group Net (3843 kHz) on Monday evenings 2100 EST/EDT. For more information, drop a note to Bryan Snyder, WA8MZQ, 4415 Holiday Lane, Bellefontaine, OH 43311.

JUNE VHF QSO PARTY NEWS

This year's VHF QSO Party takes place on June 13-15. Toronto VHF Society's VE3ONT will make another appearance in the multioperator category. Among the operators using VE3ASO's QTH in Mountain, Ontario: VE2DUB, VE3ASO, VE3BFM, VE3FN, VE3HJK, VE3KDH, VE3VD, KA2RDO, N21QU, W9IP/2. Look for their big signal on all bands, using CW, SSB and FM.

NET NEWS

A new net, the Southern Ontario SSB Net, is off and running on the old mobile-AM frequency: 144.144 MHz. Isaac, VE3HFU, is net control. Currently, net operation is a mix of horizontal and vertical polarization. Vertical polarization should work well for picking up those mobiles who are still running SSB to 5/8-wave antennas. It's going to be very interesting to see how this develops. If you have SSB gear check in. The net opens at 2000 EST/EDT nightly.

MICROWAVE UPDATE '92 CONFERENCE ANNOUNCEMENT

Make plans now to attend Microwave Update '92, which will be held 1992 October 16-18 at the Holiday Inn Holiday, eight miles south of Rochester, New York, just a few miles from Interstate 90. The Rochester VHF Group (the oldest VHF/UHF/microwave Amateur Radio club in the US, founded in

1948) is sponsoring this year's conference. Because of the proximity of this conference to large population centres, this event promises to be heavily attended—especially by the Canadian contingent. A tour of the largely untapped surplus outlets is planned for Thursday, October 15 for those who arrive early. Technical presentations will occupy both the Friday and Saturday. Not to break with tradition, noise figure measurements will be conducted on Friday night, along with a poster session and indoor flea market. Activities will officially end on Saturday night with a banquet.

The technical section of the conference is taking shape now. If you would like to present a paper, contact Mike Owen, W9IP/2, or Dave Hallidy, KD5RO. As in other years, ARRL will be publishing proceedings of the conference, so papers must be submitted by 1992 September 1 to give ARRL time to print them for distribution at the conference and for sale later.

BAND REPORTS

50 MHz: As we all know, 50 MHz sits on the transition point between the HF and VHF bands. It exhibits properties of both HF and VHF bands at various times during the year and various times during the sunspot cycle. We are now on the down side of the current sunspot cycle but we are still seeing good DX. It certainly has been an exciting cycle so far. The rapid expansion of 50-MHz SSB throughout the world has helped greatly in developing activity on this band.

From VE1-land, Mike, VE1XDX, reports lots of six-metre happenings as we enter 1992. Mike notes that the propagation is becoming more selective with shorter openings, and smaller areas being covered with each opening. However there is plenty of "good stuff" out there! During January, Mike worked some good north-south openings. At 1400–2100 UTC, January 12, the band opened to HC5K, HK4EB, ZF2GO, XE1GRR, TG9NX, XE1MD, W6 and W7. Mike worked Jim, W6JKV, and finished with NI6E/KH6 on the big island of Hawaii. At 1400–1430 on January 23 there was a brief opening to PY2VA and HK4EB, and a European opening on January 28–29 to IK2GSO, G, PA0, F and ON.

Mike states that "...the first two weeks of February saw the best, longest and loudest European openings that I have experienced with over 50 QSOs on February 6, over 200 on February 7, and over 100 on February 10–11!" Contacts included CT1LN, 4U1UN, CT1WB, CN8ST, LA9ZV, SM3EQY, LA9DI, OZ stations by the shoebox full, LX1SI, OE5OLL, OE9FKI, OE5KE, OY9JD, CT1WW, LX1JX, LA1HKA, YT3ET, IK0OKY, YU3AN and so many more from YU, G, and F that "...it sounded just like 20 metres". Mike reports a QSO at 1816 UTC on February 10 with none other than ZS9A—a quality QSO indeed!

On February 11, Mike worked many new ones including ES9QB, ES5PC, and lots of SM, OH, and LA stations. On February 12, the band opened to Europe for four hours. Highlights: contacts with OK3ID, OK2ZZ and OK1FFD. Mike found the band lively every day from February 15 to February 29 with ZD8LII in at 1630 UTC on February 22.

16 QST Canada

March brought more DX with many South American openings. On March 11, Mike worked FO0CI on backscatter. Signal strength was only 2 by 5, but it was new DXCC country.

From Alberta, Grant, VE6TA, notes that he worked lots of good DX on six metres this winter including KH6 on 25 separate openings, V73AT, TI2NA on four openings, the east coast and lots of LUs. He had two JA openings, and worked ZL1ANJ on November 9 three hours after sunset. That was at the same time that VE3FGU worked Hawaii on aurora. Grant's best DX was KG6UH/DU1 in early December. Grant has worked 21 DXCC countries.

Also from Alberta, Jack, VE6JW (K2FJV/VE6, VE6EME), advises that he is always looking for QSOs into Ontario, and Rochester, New York. If you hear Jack and can't get through, call him collect at (403) 973-5417. On six, Jack runs kilowatt and a monster array of four yagis from Namao, just outside of Edmonton.

From the 50-MHz DX Bulletin, LU7DZ is trying to find a 5722 diode tube and matching seven-pin socket for a noise generator. If you can help, please mark the package "Gift—Used—No Value" and send it by first-class mail to Eduardo Van Ooteghem, Drago 2524, Villa Adlena 1607, Buenos Aires, Argentina. According to Ken, VE3FIT, VR6BX on Pitcairn Island has six-metre receive capability and would be happy to activate his island on six if someone could send him a rig. On January 22, Kari, OH2BC, completed a six-metre EME contact with Shep, W7HAH. The interesting part here is that Shep runs a single M-squared 11-element yagi at 65 feet with no elevation control. This is fed with 180 feet of 1/2-inch heliax. He has a 9913 with the preamp in the shack, and a kilowatt. The moon was six degrees above the horizon at W7HAH. This demonstrates that OH2BC is getting out well with his four-yagi array—good news for many KL7s who still need Europe for WAC.

Looking for a six-metre rig? Sam Goda, WA6JRA, has written a review of what is available. For details send an SASE to Sam Goda, WA6JRA, 1815 N. Woodside Street, Orange, CA 92665.

144 MHz: Aurora DX news comes from Peter, VE3VD. On February 25 he worked a widespread aurora between 0055 and 0235 UTC. Contacts included WQ0P, (EM29, Kansas), KG7Z (EN66), AA0EO (EM39), KB0ZQ (EN34), W0IZ (EN42), KE0Y (EN41), WA9PWP (EN53), N4VC (EM66), and WB4AXQ (EM74, Alabama)! Peter also heard N0IYI (EN11) who was busy working into W8-land. Peter mentions that he worked VE3FOD in Echo Bay (EN76) near Sault Ste-Marie on February 10.

From Rexdale, Ontario, Rolf, VE3FKX, writes that he has been very active on EME of late and states that he now has 40 states, five countries and 28 EME contacts to his credit. Contacts include HB9CRQ, W7VXW (Utah), DL8DAT, WA1JXN (Montana), DL8RQ, SM7BAE, W5UN (Texas), WB5LBT (Louisiana), K7CA (Nevada), and W7HAH (Montana). Rolf runs a pair of 4CX250Bs, sending 700 watts to four Cushcraft 214Bs. The preamp is an MGF1402 at the antenna followed by a U310

RF-amp and a converter. Rolf uses a Collins R-390 or his homebrew 28-MHz receiver for an IF. Rolf promises even bigger antennas and a 4CX1000 amplifier in the near future.

Need a new grid square? Look for Rudy, VE3BDR, in EN98. He is running 160 watts to a 3219 yagi. Rudy is certainly going to popular on tropo this summer.

Grant, VE6TA's 144-MHz EME system is working well. He recently worked station 46: VE1BVL who runs only 400 watts to two yagis. Grant's grid count is presently 83.

Jack, VE6JW, sent a fine report on activity within Edmonton's Aurora VHF Group. Jack notes that contesting is taking off with many group members getting on FM as well as SSB. We hope that this continues, and that the contest bug spreads! During the September contest, FM activity helped the VE6EME group surpass the VE6NOV group. Jack also notes that his current two-metre EME array will soon come down, to be replaced by 12–16 yagis on a tower high enough for tropo. He notes that he worked three big-gun stations during the EME contest using only a single yagi.

222 MHz: From western Canada, Grant, VE6TA, advises that he is now running 25 watts on 125 cm to a 15-element 4.2-wavelength NBS yagi. To date, he has worked the Novatel group and out over 400 miles to Ross, VE5LY, on January 20. This is believed to be the first VE6–VE5 125-cm QSO ever!

432 MHz: Grant, VE6TA, reports that VE7KPT is active from Cranbrook, British Columbia, using 25 watts and a satellite dish antenna. VE7KPT is about 150 miles from VE6TA, as the crow flies. Best 432-MHz DX on tropo so far: about 350 miles.

1296 MHz and up: Dick, VE3FAC, continues to press on with his 1296 work. He now has 210 watts output from a water cooled N6CA-design amplifier. Dick designed the cooling system using parts from surplus dealers and from Canadian Tire. He displayed his stuff at a recent VHF get-together, and it sure looked good and worked well too. Peter, VE3VD, says Dick's 1296-MHz signal is super strong at his Dunville QTH, some 80 miles to the south. Bob, VE3FVW, is now working on a new water cooling system for his amplifier as well.

Out in Edmonton, Jack, VE6JW, and crew had good luck with a 1296-MHz rover station during the September VHF contest. They visited some really rare grids. Jack hopes to do some DXing to Calgary and Regina in the summer. Barry, VE4MA, reports that he is solidly QRV from his new QTH in Winnipeg. Barry now has 81 grid squares on 1296 MHz, including 21 states after a moonbounce contact with Louisiana! On 2304 MHz, Barry has 27 grid squares after a recent QSO with G3LTF.

CANADIAN VHF-UHF DATABASE

Not on our mailing list? Want to be kept up to date on all the fun? Drop us a letter with your full name, call, address and a summary of the bands and modes you operate.

That's it for now. Hope everyone had a good time at Dayton this year. See you during the June contest and the summer DX season. Please keep those reports coming. Don't forget to include accurate dates, times and calls for all those DX contacts. ■

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- **SMC-33:** Compact speaker mic with controls
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Noise

Living in an urban setting invariably results in power line noise on the amateur bands. I dream of living miles from any high tension lines, light dimmers, commutator-driven AC motors, and cheap televisions. Nothing raises my blood pressure more than the band-covering raspy spark interference which suddenly surges to 20-over-S9, always strong enough during the day to cover the local 80 meter nets, and never failing to obliterate any hope for DX contacts.

My attempts to use my 20-meter beam to take a bearing on the noise that was plaguing me were inconclusive. Sometimes the noise would increase when the beam was aimed to the south, but the next day west or north would be the indicated direction.

I decided to use a portable AM broadcast receiver which has a long and directional ferrite antenna, to track down the source of my noise. Tuning this radio to the top of the AM band, and standing in the front yard, I could barely hear some line noise. I walked along the power lines to where the pole transformer was located. No noise.

Back in the front yard. I rotated the radio to get a bearing. The bearing line aimed directly at my tower. As I moved toward the tower, the noise level increased, and when the radio was placed

beside the tower leg the power line noise was deafening. All bearings taken within fifty feet of the tower pointed at the tower!

I suspected that some sort of power line ground loop was causing the noise, as my extensive tower ground is also connected to the house power line ground. I pulled the main breaker. The noise did not vanish as I had hoped. It didn't even flicker. After I reset all the digital clocks in the house, for the first time I really started to think. Then I grabbed my climbing belt.

March is not the best time to do tower work, but a mild day (air temperature: -2°C) shouldn't be wasted, and within minutes I had huffed and puffed my way to the top. The caustic noise crackled in the radio. I could also hear all of the local radio stations as well. I figured that was front end overload.

My dipole antennas for eighty and forty are fed with home made ferrite toroid baluns, and the antenna connections are made with brass hardware. I had checked the SWR on each antenna, so I wasn't surprised to see that all of the antenna connections looked secure. I started to wiggle each in turn, listening for a change on the radio.

As my fingers tightened around one of the 80-meter dipole leads, the noise disappeared. So did the gibberish from the

local radio stations. Only the sound of the beam elements vibrating in the growing wind kept me from leaping up and down with glee. Not a good thing to do at fifty-plus feet.

A few good tugs at the wire proved the connection was tight, but I could make the noise and radio stations appear and vanish at will. The copper-brass joint had corroded enough to make a diode junction, and it was this semiconducting junction that was creating the many varieties of interference.

Any wire immersed in the strong 60-Hz power-line fields found in any urban setting will have several induced voltages on it. When a DC path is less than perfect, as it was in the case of my corroded joint, tiny interference-generating pulses can develop. RF from local radio stations adds to the problem. This RF is picked up, mixed and reradiated across the spectrum.

Fixing the problem was much easier than finding the fault. Some quick work with fine sandpaper removed the oxides, and the connection is now noise-free. Now I'm working on a covering to keep the weather off these connections—and me—off the tower.

I guess the lesson I learned from this escapade can be stated quite simply: When looking for sources of interference, start close to home! ■

Public Service—continued from page 20

to the point where these facilities will be useless for emergency traffic. Furthermore, most cellular systems use some form of wire line interconnects. If the disaster causes physical damage to the telephone system, it will almost certainly damage the cellular system as well.

□ Kim Olfert, VE7DZV, is Terrace Zone Amateur Radio Chief in the BC Provincial Emergency Program (PEP). Terrace is one of the nine zones in PEP, each of which has an Amateur Radio Chief responsible for inter-zone and zone-headquarters communications. Kim has been working hard to create an emergency communications plan. Recently he sent me a draft copy of it. The plan is somewhat different from others in that it covers a large geographic area containing a total of nine communities.

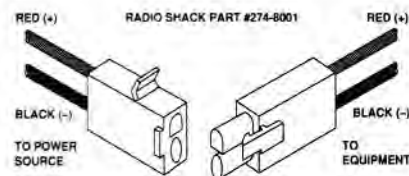
Kim has done a fine job of pulling everything together into a plan which covers all of the essentials. Of special note is the excellent organization of the plan and the neat format which he obvi-

ously created with a first-class word processor. All in all, it is a real professional job which will certainly enhance the image of Kim's group. Congratulations, Kim!

□ How well do your ARES members understand the other emergency communications systems available in your community? A knowledge of what else is available may prove of considerable value in deciding how best ARES can serve the community in an emergency. In our area, police, fire, ambulance and public works communications systems are well developed. Unfortunately, none of these can communicate with each other. A presentation to your group by the communications expert from each of the other available systems could be interesting and instructive. A conducted tour of some of the other facilities might also be worth considering. Perhaps your ARES group could take the lead in creating a composite network diagram of all of the emergency communications services available in your municipality. This could be distributed to each of the services, as well as to

members of your municipal emergency control group.

CLARIFICATION



PROPOSED STANDARD 12-V CONNECTORS

Here's that standard power connector, the one we featured in last month's column. When you purchase this connector from Radio Shack, you'll find that the metal pins are not yet installed. To achieve the standardization we're after, it will be important that everyone install the pins in the same way. We're going to specify male pins in the female connector and female pins in the male connector. If you have one of these connectors, please check that this is the way you've done it. —Bob Boyd, VE3SV ■

Personal Readiness

Vic Henderson, VE3FOX, is the author of a series of thoughtful articles on various ARES topics in the Peel Amateur Radio Club Newsletter. Here is what he said recently about personal readiness.

"Once an emergency situation is declared, it rests on the shoulders of the individual amateurs involved to perform in their most efficient manner. Their effectiveness will, in part, be determined by how well they have taken care of personal preparations, some of which are listed below.

1. Make sure all your equipment is in good working order. We often put up with a loose wire or a dirty contact, but under emergency conditions these things only add to an already strained situation.

2. Know what the emergency plan is for your area. This includes what repeaters will be used, where pre-arranged facilities are located and who the coordinators are. The best way to keep up to date on this is to participate in emergency nets and exercises.

3. Have some form of emergency power. For handhelds, you should have a spare battery pack and keep in the habit of charging both batteries on a regular basis. A car battery provides an excellent means of powering a base station for a long time—if you also remember to keep it charged.

4. Keep spare antennas ready. A magnetic mount antenna with a coax extension should be available in case you need to operate from a less-than-ideal location.

5. Hone your operating skills whenever possible. By participating in public service activities and handling messages, you become familiar with operating practices and net control protocol.

6. Prepare a readiness kit. Common items such as pens, paper, repeater directory, flashlight, log sheets, candles, matches, etc. stored in a handy container will assist you in setting up a station when required.

7. Register your availability. If you intend to be an active participant, make sure that your name is included in the callup list. This is vital for a speedy first response.

8. Monitor the local emergency frequency. Whether at home or in your car, this will be the best way for you to have the soonest possible notification of an emergency condition."

IDEAS FOR EXERCISES

In any emergency exercise worthy of the name, the designer will throw in a few "monkey wrenches" to test operator reac-

tion to situations that they might experience in a real emergency. Here are some, culled from an article by Pat Christian in *Worldradio Magazine*.

1. If the scenario includes a total power failure, it will be impossible to get gasoline from a service station with motor driven pumps. How about checking the gas gauge on each mobile that shows up for an exercise, and marking or even disqualifying all vehicles that have less than,

say, a quarter tank of gas? This will drive home the very good advice from experienced communicators to always maintain a minimum of half a tankful of fuel in all vehicles.

2. Send some mobiles to difficult-to-find places that will require maps and map reading skills to locate.

3. Announce to an emergency operator that the fuse just blew in his rig. If he is properly equipped he'll replace the fuse

Field Organization Reports February 1992

CRRL Section Emergency Coordinator Reports

Reports were received from the following SECs (DECs and ECs reporting to SECs are listed in brackets) denoting a total ARES membership of 1145.

Reporting	ARES Members
VE3GT	626
VE4JR	56
VE6AFO	306
VE7HJS	157

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Dlvd	Total
VE1BTV	0	16	18	0	34
VE1YS	1	6	5	3	15
VE1NB	0	6	3	5	14
VE1VAR	0	8	0	1	9
VE1DLC	0	2	0	1	3
VE3ORN	2	108	104	14	228
VE3GSQ	2	55	68	2	127
VE3AUU	5	48	52	5	110
VE3DVE	0	40	55	8	102
VE3GT	0	50	42	0	92
VE3AJN	0	47	27	5	79
VE3CYR	0	42	20	0	62
VE3BDM	0	18	38	0	56
VE3SB	1	22	23	3	49
VE3NVJ	2	17	23	4	46
VE3EUI	1	17	20	1	39
VE3LPM	1	16	21	2	39
VE3GKB	1	14	15	7	37
VE3WV	0	30	3	3	36
VE3BAJ	2	2	10	0	14
VE3MNI	1	3	8	2	14
VE3DBG	0	2	10	0	12
VE4JR	0	31	80	9	120
VE4STU	0	2	19	4	25
VE5KZ	5	37	35	2	79
VE6CE	15	18	23	2	58
VE6XG	8	24	11	11	54
VE7BNI	54	175	245	37	511
VE7BCL	6	87	40	27	160
VE7ANG	2	74	73	3	152
VE7XA	2	32	29	20	83
VECCJ	1	31	33	1	66
VE7BZI	11	29	18	7	65
VE7FB	0	12	44	7	63
VE7FLY	1	13	21	2	37
VE7OM	0	17	17	0	34
VE7DFX	0	15	13	3	31
VE7FRZ	2	15	5	2	24
VE7EJU	0	13	10	0	23
VE7WI	6	8	3	2	19
VE7GKA	0	11	3	0	14
VE7ALV	3	8	3	0	14
VE7EGM	0	7	6	0	13
VE7BCF	0	10	2	0	12
VE7VO	0	2	8	0	10
VE7CZW	0	7	1	0	8
VE7DJ	0	5	1	0	6

National Traffic System

Net (Mgr)	Sess	QNI	QTC
APN (VE1YS)	29	—	64
KTN (VE3AJN)	13	102	19
OLN (VE3POJ)	28	596	29
OPN (VE3AJN)	29	517	245
OON-D (VE3ORN)	27	100	48
OON-E (VE3CYR)	29	107	67
OON-L (VE3GSQ)	25	26	26
MEPN (VE4LB)	29	1187	21
MMWX (VE4TE)	29	396	25
PATN (VE5NX)	58	—	339
BCEN (VE7BCL)	29	1119	494

Brass Pounders' League

This listing is available to amateurs who report to their SM a traffic total of 500 or a sum of originations and delivery points of 100 or more for any calendar month. All messages must be handled on amateur frequencies, using standard ARRL-CRRL form, within 48 hours of receipt.

BPL: VE7BNI

Public Service Honour Roll

(1991 Revision) This listing is available to amateurs whose public service performance during the month indicated qualifies for 70 or more points in the following eight categories (as reported to their SM). Please note maximum points for each category: (1) Checking into a public service net using any mode, 1 point each, maximum 60; (2) Acting as a Net Control Station (NCS) for a public service net using any mode, 3 points each time, maximum 24; (3) Performing assigned liaison between public service nets, 3 points each time, maximum 24; (4) delivering a formal message to a third party, 1 point each, no maximum; (5) Originating a formal message from a third party, 1 point each, no maximum; (6) Serving as a CRRL SM or field appointee, 10 points for each office or appointment, maximum 30; (7) Participating in a communications network for a public service event, 10 points each event, no maximum; and (8) Providing and maintaining an automated digital system that handles messages in standard ARRL-CRRL format, 30 points. Amateurs who qualify for Public Service Honour Roll 12 consecutive months, or 18 months out of a 24-month period, will be awarded a special certificate.

PSHR: VE3ORN (184), VE3GSQ (132), VE3BDM (91), VE3GNW (89), VE3GT (87), VE4LB (82), VE3LPM (79), VE4STU (77)

Service and Specialized Nets

Independent Net Managers: Your monthly reports are welcomed. Send to CRRL, Box 7009, Station E, London, ON N5Y 4J9.

Net (Mgr)	Sess	QNI	QTC
GBN (VE3VW)	29	52	8
GBSSN (VE3VW)	29	51	21
Trans-Provincial (VE3EUI)	29	10160	10
Aurora 1 (VE4AHG)	27	1312	5
Aurora 2 (VE4FP)	26	1560	3
Avonlea 2-Metre	27	815	1
MJARC 2-Metre	28	438	0
Prairie WS (VE5EX)	29	749	0
Saskatchewan ARES (VE5FY)	4	150	0

and continue operation.

3. Other "monkey wrenches" suggested include simulated broken antennas or mike cords, car problems, bad roads, etc.

Simulated emergencies like these, placed within the context of a broader exercise, can challenge participants' preparedness and ingenuity and perhaps lead to improvements in emergency kits, training, etc.

SALT SPRING ISLAND

RAS-CALL is the name of the new newsletter for Salt Spring and other Gulf Island Amateurs. Editor is Norm, VE7AVV, assisted by Dave, VE7DWA, and others. Dave's articles on planning emergency communications for the islands reveal a strong commitment to ensuring local amateurs will be ready when needed.

Dave and I have corresponded frequently in the past. Recently he asked some thoughtful questions which I have tried to answer. Here are two of them.

Q. What are your comments on the emergency operation of equipment by non-amateurs under the supervision of licensed Amateurs?

A. We don't expect to have to deal with the operation of equipment by non-amateurs. For emergency communications to be effective, the equipment should be operated by persons who have

been fully trained, and this would require that he or she be a licensed amateur. I would expect that DOC would not be too upset if equipment were operated in a major emergency by non-licensed persons. I wonder, however, whether the QRM and general net operations confusion that might be created due to lack of operating experience might seriously affect the overall communications effort.

Q. As most Amateurs don't like telling the public where their equipment is located, would you recommend message centres for the public in an emergency? One of our members suggested putting up a red flag to indicate an ARES station site, but the idea was shot down.

A. I don't think ARES message centres are necessary. Presumably, during the period of the emergency, most messages originated by the public would be inquiries as to the safety of relatives or friends. Such requests for information should be made by the public to Red Cross or whoever is handling registration and inquiries during the disaster. They would be made at any of the reception centres established to take care of evacuated persons. Presumably there would be an ARES station at each centre, and the Red Cross would, using their standard registration and inquiry protocols, prepare the message and ask the ARES operator to send it. I'd suggest you discuss this

with your local Red Cross people to develop a mutual understanding as to how this would work in your area.

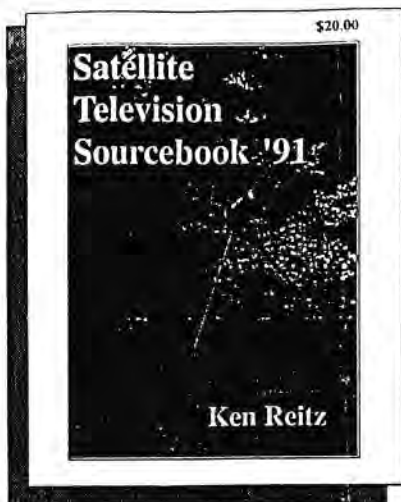
After things settle down in a few days, there may be a heavy volume of welfare traffic to be handled on HF with other parts of the country. I think it would make sense to handle delivery of incoming messages through Red Cross, and to put out a notice to local residents that outgoing messages can be left at specified Red Cross locations. The message centre would therefore be at a Red Cross designated location and this would avoid the problem of telling the public where the amateur stations were located.

What do you think? If your approach to either subject is different, why not drop me a note (on packet, request VE3SV @ VE3CDY) and I'll pass along your thoughts in a future column.

RANDOM THOUGHTS

□ Does the widespread use of cellular telephones reduce the need for ARES? At first glance, any person so equipped should be able to pass emergency traffic. However, cellular suffers from the same limitation as the regular telephone system: if a significant disaster occurs, both systems will quickly become overloaded with personal calls of one sort or another

Public Service—continued on page 18



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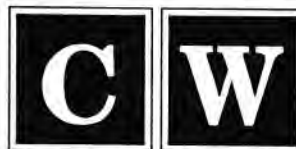
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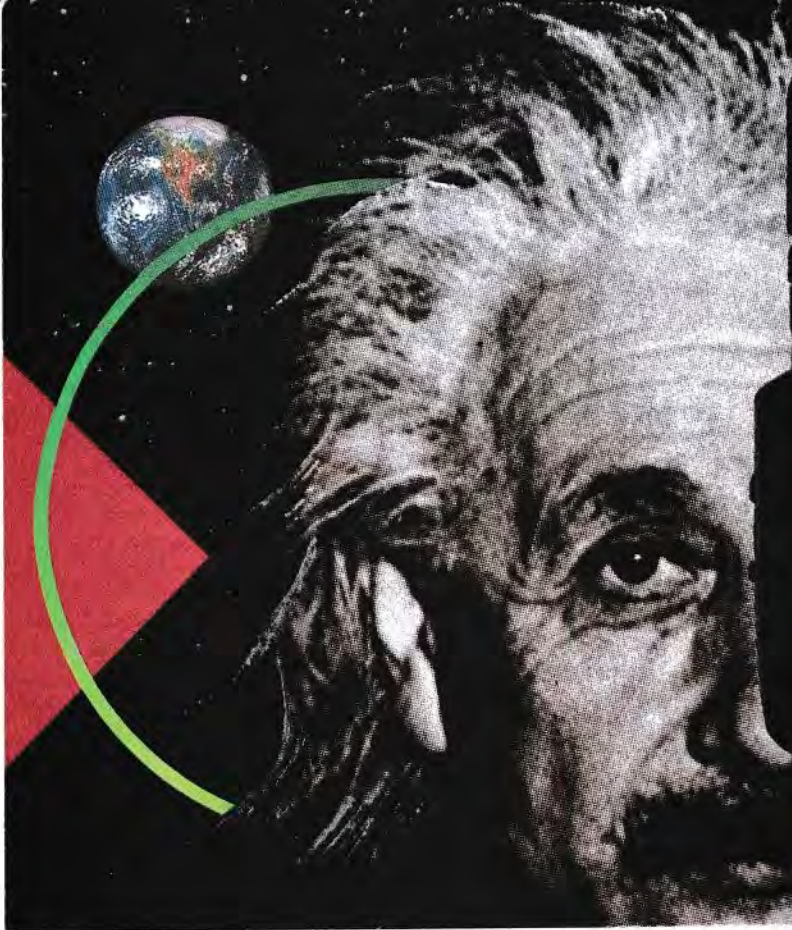
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