INTN'L MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

RADIOSPORTING

MAY 1986 No. 18 8605100 $2.00

DXCA AWARD RULES DX NEWS 160 METERS CLUB LIFE
VP2KC WORLD RECORD RUN VE3SR LOOSES IN COURT
ANTENNAS MEASURE COAX LINE LOSS W2PV 4 El. YAGI
TS940S MODIFICATION CONTEST RESULTS AND RECORDS
TRAFFIC, EMERGENCY PROPAGATION FCC NEWS MAIL ROOM...



AMERITRON

AL-1200

LINEAR AMPLIFIER



1500 Watts Output—All Modes
160 Through 15 Meters

The **Ameritron AL-1200** Linear Amplifier is designed for 1500 watts output (over 2500 watts input) on all modes with high efficiency and total reliability. The **AL-1200** covers the amateur radio bands 160 through 15 meters. It also features wide frequency coverage for MARS and other services authorized to operate at high power.

The **AL-1200** uses the rugged, inexpensive Eimac 3CX1200A7 high-mu ceramic/metal triode in a Class AB_2 grounded grid circuit.

The built-in ALC circuit prevents the amplifier output from exceeding 1500 watts if the exciter gain is inadvertantly set too high.

The power supply has a commercial service rated 32 lb. hypersil transformer and heavy duty rectifiers in a full wave bridge circuit with computer grade capacitors. No load voltage is 3600 V. full load voltage is 3300 V.

Two bias settings allow either high efficiency RTTY and CW operation at 1500 watts of continuous output at nearly 70% plate efficiency or low distortion 1500 watt PEP, SSB, SSTV, or AM output.

AL-1200 SPECIFICATIONS:

Frequency Coverage: 1.8, 3.5, 7, 14, 21 MHz and WARC bands. Export model also includes 28 MHz.

Input Circuit: adjustable pi-network, VSWR 1.2:1 or less at resonance.

Input Bandwidth: 20% for 2:1 VSWR or better.

Drive Requirements: 90 watts typical for 1500 watts output.

Dimensions: 18½"D. x 17"W.x10"H.
Weight: 77 lbs.



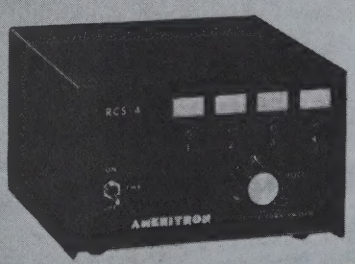
AL-80A LINEAR AMPLIFIER

The Ameritron AL-80A combines the economical 3-500Z with a heavy duty tank circuit to achieve nearly 70% efficiency from 160 to 15 meters. It has wide frequency coverage for MARS and other authorized services. Typical drive is 85 watts to give over 1000 watts PEP SSB and 850 watts CW RF output. A new Pi-L output circuit for 80 and 160 gives full band coverage and exceptionally smooth tuning.

The AL-80A will provide a signal output that is within 1/2 "S" unit of the signal output of the most expensive amplifier on the market—and at much lower cost. Size: 15½"D.x14"W.x8"H. Weight: 52 lbs.

NEW AMERITRON RCS-4 REMOTE COAX SWITCH

Available at your dealer. Send for a catalog of the complete AMERITRON line.



The Ameritron RCS-4 is a remote controlled coax switch that selects one of four antennas by supplying all control voltages through the coax feed line. The elimination of a control cable results in a neat and inexpensive installation.

The indoor control console has bright LED antenna selection indicators.

The remote relay box is tower or mast mounted with a single clamp.

The RCS-4 operates from 120 VAC and covers frequencies from 1.8 through 30 MHz at full legal power.

AMERITRON, DIVISION OF PRIME INSTRUMENTS, INC.
9805 WALFORD AVENUE • CLEVELAND, OHIO 44102 • (216) 651-1740

DXCA The DX Century Award

GENERAL RULES

The DXCA program is sponsored by the International Radiosport Association and RADIOSPORTING magazine for all licensed radio amateurs and short wave listeners all over the world.

All contacts must be made from the same country. Maritime, aeronautical and land mobile stations may operate from anywhere in the world.

Only contacts made after January 1, 1986 are valid for the basic award.

Awards for club stations will be issued to the club and not to an individual operator.

All amateur bands for which an applicant holds a valid license may be used, including new WARC bands.

QSL cards for the awards must be in the possession of the applicant. The application for the award must be certified by two licensed amateurs with a statement that the list of contacts and QSL cards agree. Any altering or forging will result in disqualification. The IRSA Awards Committee has the right to request the QSL cards for verification.

The ARRL DXCC countries list criteria will be used in determining what constitutes a "country." A particular operation or DXpedition does not have to be recognized by the ARRL in order to count for DXCA (i.e. Burma). As long as there is a reasonable proof that the operation took place as claimed, it will be recognized. If it is found in the future that certain operations were not legitimate, the credit for that operation will be removed from all applications claiming the operation in question.

All officially allowed modes of communication may be used: CW, SSB, AM, FM, RTTY, Packet, SSTV and Mixed mode. Also separate categories will be recognized for satellite contacts, QRP, QRPP and Mobile stations. All contacts must be two way, using the same mode, except for the mixed mode. A valid contact must consist of a call sign and signal report exchange.

All claimed contacts must be made by the operators themselves, without the help of a third party, i.e. list or net operation. Non interference with commercial services on shared bands, fair play and good sportsmanship are required of all DXCA holders and applicants. In the event of specific objections relative to continued poor operating ethics, an individual may be disqualified from the DXCA by action of the DXCA Awards Committee.

The application must contain a station's callsign, name and address, type of award applied for and list of contacts. The list of contacts and any QSL cards in possession must include: callsign, date, time GMT, band, two way mode and signal report received.

Callsign of all certificate holders will be published in RADIOSPORTING magazine and a DXCA Honor Roll will be published twice a year.

The first twenty winners of monoband and multi band awards will receive a free one year subscription to RADIOSPORTING Magazine.

The decisions of the IRSA Awards Committee are final.

SINGLE BAND DXCA

Single band DX Century Award is issued for working or hearing a minimum of 100 countries on one band. Endorsement stickers are issued in increments of 20 countries up to 240, increments of 10 up to 300 and increments of 5 above 300 countries.

Contacts made on all amateur bands (1.8, 3.5, 7, 10, 14, 18, 21, 24, 28 MHz and all VHF/UHF bands) as permitted by the license in the country of the applicant are eligible for award. All contacts must be made on one band. No crossband contacts are allowed.

The basic award will be issued for a minimum of 100 countries confirmed on one band. A numbered endorsement sticker will be issued for each mode (CW, SSB, AM, FM, RTTY, Packet, SSTV and Mixed) and category (satellite contacts, QRP, QRPP and Mobile stations).

The holders of Single Band DXCA are allowed to use the abbreviation signifying the type of award and country total on their QSL cards.

Example: "1.8 DXCA" or "1.8CW DXCA (124/265)" which means: Monoband 1.8 MHz, all CW mode, DXCA, 124 countries confirmed since Jan. 1, 1986/ number of countries worked.

MULTI BAND DXCA

6B DXCA, 7B DXCA, etc. awards will be issued for confirmations from a minimum of 100 countries on each of at least 6 bands. A separate awards will be issued for working 100 countries on 7, 8, or more bands.

Also a cumulative total will be kept for an overall countries count similar to the monoband awards. i.e. 7B DXCA (856/1265), which signifies that station has confirmed a minimum of 100 countries on each of 7 bands and the total count is 856 countries since Jan. 1, 1986 and 1265 countries on 7 bands worked. A numbered stickers will be issued for each mode and category.

Stations having monoband DXCA need not submit the list of contacts already credited for monoband awards. It is sufficient to mention the certificate type and number, and only an additional list of contacts has to be submitted.

Stickers for increments of 100 countries will be issued from 600 to 2000, increments of 50, from 2000 and up.

The Honor Roll - listing of top contenders and latest changes in standings will be published in RADIOSPORTING magazine twice a year.

The fee for each award is US $5 or 10 IRCs, and each endorsement sticker is $2 or 4 IRCs. Engraved Honor Roll plaques will cost $25.

A set of application forms and countries list for DXCA awards are available from IRSA for SAE and 3 IRCs.

All applications to be sent to
IRSA - DXCA
Box 65, Don Mills, ON, M3C 2R6, Canada

ve3bmv Radiotorial



This winter has been long and miserable. It is a good thing that we have those radios, so at least we can turn them on and talk to our friends, perhaps about something more interesting than the weather reports or the pains in our backs. Quite often we get too involved in those routine contacts of "Hello, 59, QSL via bureau, 73 Good Bye!" Many times we manage to pass over an individual who might have a lot incommon with us, and we would want to spend days talking together. There is so much to share, discuss and exchange. It is hard to tell just from the callsign who is behind it, unless we already know. Would you guess that EA0JC is the King of Spain, Juan Carlos, if you ran across that callsign on the band? Did you know that actor Charles Bronson is somewhere in the Pacific playing with a radio. Does anyone know his call sign? Would you feel awkward starting up the QSO with person like that? What would you say? I think that these famous personalities would mostly enjoy talking about their other love - radio.

Dayton Hamvention is here and with it the opportunity to meet some more famous people or hams. The spirit of radio is so wonderful. It removes the obstacles, borders and differences and brings us all together as brothers. Here we are on first name basis talking about all those insane things we do with or for the radios. We exchange ideas, tell stories about our unusual experiences, wonder-antennas and that last country we worked. Friends that battled with each other in contests or pileups talk deep into the night speaking the same radio language. Champions share their experiences and "secrets" with others just for the reward of getting that one more contact in the next contest.

You can tell a devoted ham by his operating manners, signal quality, results in the contest or reading about him/her in the magazines. But there are many dedicated operators that we do not trip over so often. They are modest, doing their thing, quite often revolutionary, just for their own pleasure and satisfaction. Since I have started *RADIOSPORTING*, I was pleasantly surprised and discovered that there are so many of you devotees, who are sacrificing your time and money to make your club and our hobby/sport better. Many have come up with discoveries that our commercial radio brothers don't even know about. Thanks to *RADIOSPORTING*, I have had a chance to "discover" and meet such people. It has been a balsam on my sore back and fingers. I can't express enough gratitude for your support, articles, ideas and help. This last year was very hard for us here, the workload and magazine has kept us working from 16 to 20 hours a day. Knowing that there is someone who appreciates our work, striving for quality and can benefit from the ideas conveyed on our pages makes it all worthwhile. We hope that many of you will benefit from our material and we hope to see you on the top of the listings, be it contest results or DX tables.

As they say: "You can tell the friend, when you are in trouble!" Well, you can tell our and your friends by just leafing through the pages of our magazine. They are all in it. Many came on board right from the beginning, some discovered us later. I can only hope that I will have enough strength to continue our trend and give you the best and most interesting reading and education we can. This is the period of test and labor of love. If you enjoy a particular column or an article, drop the author a line and tell him that. He will appreciate it. It will be a stimulus for him to continue and he will feel that he is doing something for all of us.

We are honored and pleased to welcome some new and famous contributors to our magazine: John Devoldere, ON4UN, will be writing about his experiences and magic of low band DXing; Gary Hammond, VE3XN, or longer known as VE3GCO, will be writing about awards and how to get them; and Mincho Petkoff, LZ2DF, will write about the world of Fox Hunt (Direction Finding). We should also have the VHF/UHF column in the upcoming issues, so please stay tuned and renew in time (please check your label for the "last issue code") so that you won't miss any of it. Also I hope to find a bit more time to continue writing articles about my adventures with the Razor beams, propagation and secrets of beating the odds and records.

We are pleased that some advertisers are starting to discover us. We are very happy to talk to a manufacturer or a dealer inquiring about the advertising. In order to improve on the quality of the magazine we need support in the form of advertising. You can tell the conscious company by looking through our pages. They deserve our support, because they care about the quality and the long lasting hobby of ours and not just quick sales and CB like "industry." When you deal with our advertisers tell them how much you appreciate their support and where you saw it.

We are starting a Corporate IRSA Membership, where a company would pay yearly dues which would be used to sponsor a trophy in their name for one of the IRSA sponsored activities or contests. We hope that many will recognize that DXers and contesters are the best hams there are and also the best customers for their products and services. The IRSA will continue its support for quality and sportsmanship by awarding trophies and awards for significant achievements and contribution made by amateurs. I think it's time to reward good-doers rather than just to publicize the bad guys. Please join us!

Looks like one more issue has to go through before we get to our long overdue "face lift." We had some flu in the family and when I started to configure our Fujitsu printer for Word Perfect I got tangled up in control codes and I had to put it aside because it was time to work on this issue.

We are pleased that even with all the obstacles we had, we managed to show progress and improvement on our way to becoming your favorite reading material. According to your comments, so far, you like what you see in *RADIOSPORTING*. Our next step is to keep improving the magazine, increase the circulation and get advertisers interested. We appreciate any help in this direction.

We made a quick trip to W2 land and it looks like we will land in New Jersey, sometimes in July - August. By then we plan to consolidate our workload and streamline the production of the magazine. We are really looking forward to it.

I had a chat with Rich Rosen, K2RR, Editor in Chief of Ham Radio Magazine, about his study and analysis of 80 m DXers and hardware. His article is coming up in the May and June issue of Ham Radio and we have obtained their kind permission to reprint it here. A tremendous amount of data processed and some very interesting things came out of it. Would you believe that there are about 100 rotatable beams on 80 meters in use today? Make sure you read it. If you are chasing some old articles, Rich still has some copies of his bibliography "From Beverage Thru Oscar" listing the articles published up to 1981 in radio magazines. Please see his ad in our classified section.

1986 WPX SSB contest is over and it looks like the bands were half decent, especially the first night. Remember some contesters from US complaining how terrible this contest is for the US hams who are "forced" to work their own country for zero pointers and multipliers? Well, those who did see the positive side of it, managed to have a ball. They found that they can work more contacts than in any other contest in the shorter (30 hour) period of time. Many of them broke continental and other records. It is a fast and dynamic contest. Personally I enjoy it even more than CQ WW. I was plagued with 25 dB over S9 power line noise and it didn't matter what antenna I used on receive. In contest the noise blanker is almost useless due to the many strong signals on the band. I missed many stations especially from Europe, that I never got the second night, when the bands were worse (my line noise stopped). My apologies to those I could not hear. I still netted some 1260 contacts on 80 meters which should top the Canadian and North American records. Thanks to all those who came, said hello and gave the contester a point.

There were some contest haters putting carrier and garbage on contesters during the contest. Perhaps it is time that we start discovering those jammers. It is very easy to do some triangulation and "RF finger printing" on low bands. It is another version of the fox hunt. Perhaps some of the bigger clubs can organize a few of their members equipped with DF antennas, who can zero in on the jammers and identify them. We have the means and we should do this to keep our bands clean from sick people. We will get some articles from LZ2DF on the equipment and the techniques used in Europe, where the fox hunt is very popular. Ken, K7GCO, reports that he has seen the electronic "finger printing" system demonstrated. Any transmission from CW or SSB transmitter can be "grabbed" and analyzed. Apparently, even two different radios of the same model can be distinguished. No need for call signs. There is a room for adventures in the area of DF and identification. So, jammers beware, your days might be numbered!

See the article in this issue on the experiences of girls from New Zealand during the WW II, when they were able to identify the stations and operators by their fists and signals. It is a bit harder to do that today with all those keyers and rock solid radios, but there is still a way, as mentioned above.

Our new World Radio Contest has ran into another collision. This time it is the California QSO Party which is traditionally held on the first weekend of October. We discussed this with members of the Northern California Contest Club, which sponsors the CQP. There is an indication that they might be willing to move their contest one weekend ahead into the spot which we will vacate for them, by combining the CAN-AM contest's SSB and CW portions on the third weekend of September. We appreciate the cooperation and NCCC will have the gratitude of contesters from all over the world. Thanks a million fellows and sorry about any inconvenience. We hope to solve this problem before the second running of WRC next year and keep everybody happy.

Our main reason for wanting this time slot is because of the equinox, which is at the end of September. This is when the propagation is more or less uniform around the world. Remember, we are trying to come up with a contest and scoring system that is as fair as possible to just about everybody in the world. We would like to compare our skills on an equal basis. Would you prefer to have the WRC two weeks before CQ WW phone contest? Would it be handy for the expeditions? Or is it too close? How about the rules? We appreciate any comments which would help to stabilize the contest rules and time slot over the first two or three years. You can express your opinions now, or after the first run of our contest, based on your experience from it. I will elaborate more in the next issue on the reasons and thinking behind the WRC contest rules. The reaction so far, especially from the "big guns," is very favorable. We hope to have a pleasant surprise for the winners.

There are reports that the Kenwood TS-940S has some problems with hash being transmitted on RECEIVE when the radio is used on CW. The problem seems to be in the synthesizer noise leaking through the receiver and being radiated by the antenna. No wonder the bands are so noisy during the contests. Apparently the TS-930S is better, there is less noise coming out. It should be noted that most of the radios with the phase-locked loop synthesizers do that, some more, some less. It is causing problems in multi operator stations and between hams living close to each other. It might be hard to suppress this noise with simple modification, it may require some design changes. I have to look at my TS-930S to see how bad it is, maybe I will wait with the acquisition of the 940.

We have received letters from our most distinguished readers the Prime Minister Rajiv Gandhi, VU2RG, and King Juan Carlos, EA0JC, expressing their support for IRSA and our magazine. We are proud to have them among our readers and we hope that they find time to operate on the bands from time to time.

Please keep your articles coming. We "pay" with *RADIOSPORTING*. For a decent article we give a one year subscription. Other amateur radio publication can use material from *RADIOSPORTING* providing the proper credit to author and publication is given. Send us your club bulletins. We will be happy to trade subscriptions and exchange material and articles.

With our next issue our subscription rates are going up. We are giving a break to our present and past subscribers until the end of May to renew at the old rates. Those subscribing at Dayton can subscribe at the old rates. Please take advantage of it. *RADIOSPORTING* is still the best bargain around.

Thanks a million for your support. Tell your friends and other hams about *RADIOSPORTING*. See you all in Dayton! 73 de Yuri

DX NEWS



ART HUBERT, N2AU

The DX news from around the world as exchanged on the IRSA net and from other sources: KM1H, KE2C, KA2AJT, N2AA, KH6BZK, KI4PL, ND2G, N6AHV, W6CNA, W2NQ/7, WA9BXB, KA2HTV, TG9VT, K5OVC, W5KNE, KE4SK, NW5K, AL7ER, G4DYO, KR7Y, KSOM, K9AJ, W8AH, F6BFI, VE3XN, VE3LZS, VE3LGC, ZL1AMO, DJ6QT, N4JF, N4DUG, KC9NH, NP4A, K5OVC, The W6GO/K6HHD QSL List, QST, CQ Magazine, Long Skip, Inside DX, QRZ DX, Frankford Radio Club, Kansas City DX Club Newsletter, LIDXA Bulletin, NCDXC CW Bulletin, South California DX Bulletin,

The IRSA net operates on Sundays around 14.200 MHz, starting at 2000 Z and 3.830 (Mondays and Fridays at 0200 Z).

So far 1986 promises to be a good year for DXers and Contesters. Many DXpeditions have already appeared on the bands, records are still being set in the contests and this is supposed to be at or near the bottom of Cycle 21. I can remember in past sunspot cycles, when you tuned the 20 meter band, there wasn't a DX signal on the band for several days. With big antennas and state of the art equipment, its very unusual not to hear a DX signal. For the bottom of a cycle, one can not complain about the lack of DX. The active DXer cannot rely on the DX columns in monthly publications such as CQ, QST, etc., because most of the columns are written several months in advance.

The world of DXing is a fast-paced one. Operations pop up and are gone in a matter of days. By the time I get the news, the only real service I can provide is the QSL routes and some facts about the expedition. Being an avid DXer myself, this can be frustrating. I am sure that a large percentage of readers of this column subscribe to a DX bulletin. This is the only way to keep up with the happenings in DXing. For those of you who do not subscribe to one, I will briefly describe the ones that are available in North America. In next month's column I will tell you about the ones available from the rest of the world.

Long Island DX Bulletin - Editor is Harvey McCoy, W2IYX. The oldest bi-weekly bulletin still being published. It is printed on a single sheet using both sides. The format consists of: N4XX propagation forecast, DX listed by Country, QSL info, stations active on RTTY, photos and a mailbag section. An sase no. 10 envelope will get you a sample copy. Send to LIDXB, P.O. Box 173, Huntington, N.Y. 11743-0173.

QRZ DX - Editor is Bob Winn, W5KNE. It is a weekly bulletin with a 4 page format, which includes: propagation forecast by KH6BZF, DX news listed by country, a large QSN section, QSL information, QSL help section, a monthly article on contests and usually one or two articles. No. 10 sase for sample copy to QRZ DX, P.O. Box 834072, Richardson, TX 75083.

The DX Bulletin - Editor is Chod Harris, VP2ML. The oldest weekly bulletin. Was formerly an East Coast bulletin, but was transferred to the West Coast when Jim Cain, K1TN, ceased being its editor. The 4 page format includes: a propagation forecast by KH6BZF, DX news by country, a large QSN section, a page of articles and editorials, and a DX activities calendar. For a sample copy no. 10 sase to The DX Bulletin, 816 Fourth St., Suite 1001, Santa Rosa, CA 95404.

DXers Magazine - Editor is Gus Browning, W4BPD. This magazine format which has been published for the last 17 years, includes: a propagation forecast, DX news by country, large QSN section several pages of articles and QSL information. Many of the older DXers remember being operated by Gus from nearly 100 countries during the fifties and sixties. For a sample copy, drop Gus $.39 in stamps to: DXers Magazine, P.O. Drawer 405, Cordova, SC 29039.

INSIDE DX - Editor is Art Hubert, N2AU. A weekly, single page format on single side, includes: DX news listed by country, QSN section, propagation forecast by N4XX, QSLs received section, Tidbits section, QSL information with a monthly QSL list and a rumors section. A sample copy can be obtained by sending a no. 10 sase to: INSIDE DX, 439 N. Geneva St., Ithaca, N.Y. 14850.

Long Skip - Editor is John Sklepkowycz, VE3IPR. A monthly publication. The format includes written articles, DX news by country, QSN section, awards section, photos, QSL information and a section on membership news. This publication usually is ten or more pages in size. For a sample copy send a green stamp or IRCs to cover postage to Canad-X, P.O. Box 717 Stn. 'Q', Toronto, ON, Canada M4T 2N7.

RADIOSPORTING Magazine, the one you are reading, is the best of both worlds for the DXers and contester: it combines the speed of the bulletin with quality of the magazine. Material is not more than one month old and with more of world class contributors, *RADIOSPORTING* is becoming the most favorite reading for the active ham. Wealth of technical information and antenna articles too.

With a subscription to one or more of these, you should stay on top of the latest happenings in the DX world. If I left any bulletin out, please let me know and I will include it in a later column.

I hope you all had a good time at the West Coast DX convention last month and had an eyeball with all those you compete with in the pileups. Also, hope you all have a good time in Dayton at the Hamvention. This column marks one year in writing the DX column and I hope to be providing you with many more columns in the future.

Good Dxing and Best of Luck - Art, N2AU

AFRICA

CR9 Madeira Island - If you worked CR9EU during the CQ WPX Test, that was Dick, G3RFS, operating with a special call from CT3. QSL via G3RFS.

D68 Comoros - Walt, DJ6QT, operated from the Comoros in March signing D68WS, active on all bands CW, SSB and RTTY. QSL via DJ6QT. Walt's address is wrong in the 1986 Callbook, use 1985 or before.

ET Ethiopia - ET3PG has been reported to be active on 14201 at 1215Z, working Europeans. A station was active in early March, signing DJ6SI/ET3 and was active on 40 meter CW for one day. Slim?

FR/T Tromelin Island - Yoland was very inactive on his trip to Tromelin due to storm damage to the island in February. Most of his time was spent repairing damage to the weather station.

J28 Djibouti - J28EG is very active on the low end of 40 meters, try 7006 at 22-2300Z.

ST Sudan - 6T2BA is on 14195 at 2130Z. 6T2MG is very active, almost daily. Try 14214 and 14236 between 1900-2200Z.

TL Central African Republic - F6DCL/TL8 is active on 20 meter CW usually around 14010 at 2030Z. TL8MEF is quite active on 14182 at 2105Z. QSL via F6FNT.

TU Ivory Coast - TU4BR on 14190 at 0015Z. K1CTK/TU on 14280 at 2025Z where he will be for the next several years. QSL via K1CTK. TU2JJ on 14220 at 2115Z.

TZ Mali - TZ6LPY continues to be active on 14182 at 2250Z. QSL via IOLPY.

VQ9 Chagos - VQ9QM is very active on CW on all bands. Look around 21024, 14025, 7007, 3512 and 1827 for his potent signal. QSL via W4QM. VQ9RB on 14216 at 2155Z and 21025 at 1515Z. QSL via WA6SXL. VQ9SK on 14310 at 1715Z. QSL via WB6SKS.

ZD7 St. Helena Island - Patsy, ZD7XY with strong signals on 14205 at 2030Z. QSL via P.O.Box 54, St. Helena, South Atlantic. ZD7SE on 14027 at 2100Z.

3C1 Equatorial Guinea - Mario, 3C1MB, has been providing a new one on 20 meters quite regularly. Check 14236 at 2300Z. He is very active on 15 and 20

meter RTTY. Also look for Mario on 7185 at 0330Z. QSL via EA7KF.

5N Nigeria - Larry, KA4EPK/5NO, is with the U.S. Embassy and will be active for several years from Lagos. QSL via K4JZQ. 5N3RTF on 14209 at 1100Z. JG1FVZ/5NO on 3785 at 0130Z and 14190 at 2050Z.

5R8 Malagasy Republic - Alain, 5R8AL, has been active on 14160 at 1800Z, 7008 at 0400Z, and 3505 at 0315Z. QSL via WA4VDE.

5X5 Uganda - 5X5GK on 14160 at 1900Z. Jerry will be coming stateside in April for several weeks.

9G Ghana - 9G2XX on 14212 at 2145Z. QSL via Box 6437, Accra, Ghana. 9G1HT on 14196 at 200Z. 9G2ER on 14173 at 2117Z. 9G/DL0MAR was active in late March and early April.

9J Zambia - 9J2BO on 7010 at 0400Z and 7005 at 0305Z. QSL via W6ORD. 9J2LC on 21244 at 1530Z, 14185 at 2015Z and 7001 at 0400Z. QSL via YASME.

AMERICAS

CE0 Easter Island - CE0ZIG on 7009 at 0900Z. CE0ZIJ on 14205 at 0150Z. QSL via Box 1, Easter Island, via Chile.

FO8C Clipperton Island - FO0XX will be activated on May 2 or 3 for 5 to 6 days by W6SZN, W6OAT, W6RGG, AI6V and N7NG. They have the license and landing permission in hand and plan to work all of those who missed them on the last operation.

KG4 Guantanamo Bay - KG4TM has been active on 1.824 at 0630Z on CW. He is using a loaded whip for his antenna.

PY0 Fernando de Noronha - PY7P0 showed from PY0F as promised in late March. He was very active on the low bands on SSB and CW. If you worked him QSL via Box 557, 50,000 Recife P.E., Brazil.

VP8 South Georgia Island - Rumors continue to circulate about a possible operation form South Georgia this summer. No real concrete facts have surfaced.

3Y St. Peter I Island - Received a letter from LA8CJ stating that the information I gave in the February column, that an operation from here would sign the prefix LN was incorrect. The correct prefix would remain 3Y for all Antarctic areas. At the present time there is no plan to activate Peter I or Bouvet Islands by Norwegian hams.

ASIA

BV Taiwan - BV2DA and BV6IA have been active on the low end of 40 meter CW around 1400Z. A station signing BV2AB was worked on 3504 at 1300Z and said to QSL via K5YY. Tim, BV2B, is on 14196 at 0000Z, especially on Mondays.

BY China - BY1QH on14044 at 0120Z, BY1PK on 14049 at 0030Z. BY5RA and BY5RF have been working the West Coast on 21025 and 21227 at 0200Z. BY5RA also has been active on 1.911 at 1100Z. BY4AOM on 14218 at 00218 at 0025Z. QSL via P.O.Box 227, Shanghai.

HL Korea - HL9OB on 14188 at 0100Z and 14201 at 2335Z. QSL via Box 272, APO, San Francisco, CA 96366. HL1EJ on 14160 at 2330Z. HL4CCM on 14190 at 2340Z. HL5BPL has been active on the low bands. Try 1826 at 1200Z, 3505 at 1315Z and 7005 at 1400Z. He runs low power and his signals are weak.

HS Thailand - George, VE3FXT, is rumored to be visiting HS and hopes to obtain operating permission. EA2AA will be in HS land in late April and hopes to operate also.

JA Japan - 7J3AAB, operator John, is on 20 meter SSB nightly looking for the East Coast. Try 14223 at 0030Z. QSL via JARL.

JT Mongolia - JT0APE on 1.911 at 1300Z on CW. JT1BJ is active on 14035 at 2330Z.

JY Jordan - JY9RL on 14190 at 2120Z and 3795 at 2330Z.

TA Turkey - Lots of activity from here, TA1C on 14190 at 1740Z and 14009 at 1830Z. QSL via Box 188, Istanbul. TA1D on 3778 at 0525Z. QSL via Box 1167, Istanbul. TA1T on 14310 at 1745Z. TA1E on 14183 at 1800Z. QSL via Box 794, Istanbul.

VU India - A recent operation on 160 by a station signing VU2GI was a pirate. The real VU2GI is quite active on RTTY on 14093 at 1435Z.

1Z Burma - 1Z9A has been active on 7008 at 1430Z working the West Coast. 1Z9AD has been on 3795 at 1200Z with DU9RG as MC.

4X Israel - KA2HTV will operate from this area from June 15 to July 23. He has the 4X license and will try for operating permission from JY and SU also.

9M2 Malaysia - 9M2HB, operator Hugh, is on 14161 at 2345Z. QSL via CBA.

EUROPE

C3 Andorra - C31LBB, operator Helmut, is on 14019 at 1305Z.

EK Artic USSR - EK0DR, operator Was, active on 20 meter CW around 14035 at 1455Z.

F/MAR France - F9IE/MAR operated on St. Marcouf Island (IOTA EU-81). The operators were F6AXN, BBJ, EDI, GBN, ISD, IVT and F9IE. QSL to home calls.

GJ Jersey - GJ2LU on 21016 at 1545Z. GJ3YHU on 7010 at 2345Z. GJ4ZFM on 14190 at 1930Z. QSL all the above via CBA.

JW Svalbard Island - JW0A has been reported to be active on 3695 at 0100Z. If you worked JW5E during the CQ WPX Test, that was LA6WEA operating. QSL via LA5NM.

OY Faroe Island - OY9J, operator Jogvan is active on 14005 at 1636Z. QSL via K2IJL.

SV9 Crete - SV0AC/SV on 14034 at 2000Z. Mike will be there for two more years. QSL via AA4LU (86 CBA). SV9SK on 14220 at 2020Z.

TV France - TV6BFI, operated by F6BFI on 14204 at 1230Z. The call is being used to celebrate the bicentenary of the birth of Marc Seguin, engineer of the first suspension bridge using steel cables. QSL via F6BFI. TV5SDP and TV6SDP were quite active. QSL TV5SDP via FC1JEN.

ZA Albania - this time OK2RZ, OK2AOP, OK1ALW, OK1RI and OK3CND are to have permission to operate for ten days starting September 20. Let's hope that they can pull it off!

3A Monaco - 3A2GL was creating a pileup on 7003 at 2315Z, possible slim. 3A2EE on 3780 at 0530Z. QSL via F9RM.

OCEANIA

DU Philippines - DU9RG, operator Robin, on 14220 at 2250Z. K4YT/DU1 on 14160 at 2330Z. K1BAZ/DU1 on 14160 at 2330Z. QSL via K1BAZ. KD6TB/DU2 on 14180 at 2315Z.

KG6 Marianna Island - Joel, KG6DX is active on 160 SSB. Check 1.824 at 1300Z. QSL via CBA.

KH9 Wake Island - WD8QYQ/KH9 on 14204 at 0000Z. No other information on this one.

P29 Papua New Guinea - P29PR on 3508 at 1230Z. He is putting up a 160 meter antenna and should be active shortly. QSL via CBA.

T2 Tuvalu - JJ1TZK showed from T2 signing T21ZK in March. Very active on 40 meter CW. QSL via JJ1TZK.

VK9N Norfolk Island - Jim, VK9NS has been active on 1.833 at 1100Z most mornings. Also on 14220 at 0700Z.

VR6 Pitcairn Island - Since VR6JR left, not much activity from this one. VR6TC on 14.178 at 0125Z. QSL via W6HS.

YB Indonesia - YC1FQB on 21266 at 1520Z and YC2CRG on 21267 at 1530Z. YB0TK on 7006 at 2325Z.

ZK3 Tokelaus - ZL1AMO and ZL1BQD operated form ZK3 signing ZK3RW and ZK3RR. QSL via their homecalls.

ZK Cook Island - W7TB operated from ZK1XU in late March and was active on 160 meters. QSL via W7TB. He also signed ZL0AAZ while in N.Z.. ZK1RE on 3785 at 0930Z.

TIDBITS

N4NW wants to clear all QSL requests for his TU2NW and TU73 operation. QSL via Box 197, Delta, PA 17314. N4NW/ZS, N4NW/5N, N4NW/3D6, 7P8DE and ZS6USA cards can verified via this route also.

France will be issuing the FB1 prefix shortly.

KH6BZF, Lee, predicts the bottom of cycle 21 will be February or March of

1987, and could be as late as Fall of 1987.

The station signing 8Q7AP in February was a pirate. N6NI states that he has not used the call since March of 1980.

Need a QSL from 5A5TW (1960-1964)? Try Bill Williams, 1880 70th Circle North, St. Petersburg, FL 33702.

5A1TW (1961-1965) can be verified via N2AA's CBA.

If you have not received a QSL from KC6HA, resubmit to the 86 CBA of KA6V.

Geoff Watts offers his new 15 page listing of world prefixes with CQ and ITU zones. Send $2.00 or 6 IRCs to : Geof Watts, 62 Belmore Road, Norwich NR7 OPU, England.

Officers of the North Arizona DX Association for 1986 are President - KR7Y, Secretary/Tresurer - W7YS, Program Chairman - NN7A.

JJ1TZK operations from the Pacific in March included: JJ1TZK/KH0, JJ1TZK/AH0, C2INI, KC6MR/KC6 (WCI), ZK2JA, JJ1TZK/KH8, JJ1TZK/AH8, JJ1TZK/NH8, 5W1FJ and T21ZK. QSL via JJ1TZK.

Does anyone know where to QSL WB8VMN/HR? A QSL to his WB8 CBA is no good.

To make this column as informative as possible, I need input from RADIOSPORTING readers. In addition to the IRSA net frequencies and times I will also be on 14.250 MHz at 2300Z Sunday evenings and 3.780 MHz at 0000Z weekday evenings. Also, information can be sent to me at my home address and I will reimburse your postage costs if you wish. Thank you for your help.

Arthur Hubert, N2AU
436 N. Geneva Street
Ithaca, NY 14850 USA

FOØX - CLIPPERTON

Several members of the 1985 Clipperton DXpedition apparently didn't get their fill of crabs and guano last year, as they are returning to the Pacific atoll in early May, 1986. Clipperton veterans W6SZN, W6OAT, N7NG and W6RGG will be joined by a couple of first-timers for the 86 trip.

Why return to the inhospitable spot so soon after the 31,000 QSO 1985 DXpedition knocked FOOX from 20th to 94th TDXB's Most Wanted List? The 1985 crew came under some criticism for not working some parts of the world, specifically Europe and other long-haul DX, who last year lost out to stateside hams, JAs, mediocre propagation, and some poor operating decisions. For example VERON lists Clipperton as the 18th Most Wanted country in Europe, ahead of Afghanistan and Libya. (It isn't even on the Most Wanted list in Japan.) Thus the 1986 Clipperton DXpedition intends to concentrate on working European DXers. They will need the cooperation of stateside DXers for this task, as the direct propagation path to Europe passes right over the DXer-rich Eastern US. Will the Ws stand by to allow the Europeans to work Clipperton? We'll see....

Another reason to return to Clipperton is the ready availability of the luxurious Royal Polaris fishing boat. This first-class ship regularly cruises to that part of the Pacific in search of prize-winning tuna, and avid fishers fill the other berths on board keeping DXpedition expenses reasonable. This is not to suggest that the 1986 Clipperton DXpedition is a piece of cake; getting on and off the atoll is a dangerous proposition. But at least the non-Clipperton portion of the journey will be pleasant.

Of course, yet another reason to go is a severe case of DXpeditionitis. At Fresno one year ago, Bob Vallio, W6RGG, still burned from the Clipperton sun, swore: "I won't go back there for at least 40 years!" Such is the DX bug that Bob will be returning to Clipperton in only 13 months!

Best of luck and good DX to all!

(The DX Bulletin)

GETTING THEM ON THE WALL

MP4TDM, Sam, was active from United Arab Emirates (now A) from 1971 until he became A6XB in 1973. His QSL manager, Vern Dameron, K1DRN, reports that Sam always retyped his log before sending a copy to Vern, a process that introduced occasional errors in the log. This happened in the case of JH1KRC, who had a five minute QSO with Sam in June, 1972, in which the hams exchanged names and QTHs as well as signal reports. The first QSL card from JH1KRC to Vern was returned, "not in log." On his second card, JH1KRC mentioned the long QSO with Sam and suggested it was a valid contact. Vern wrote Sam and asked him to research the QSO. Sam finally found that he had made a mistake in recopying the callsign. Thanks to the kindness and extra effort of both QSL manager Vern and Sam, JH1KRC received confirmation of his new country only 13 1/2 years after the contact!

(The DX Bulletin)

QSL ROUTES

VP2VCW	-N6CW	ZD9CI	-ZS6DK	5N1/N5CJB	-K4ZKG
VP2VEQ	-N6ZZ	ZF2AF	-WØGI	5N25ALH	-G4HVE
VP2V/KQ2M	-KQ2M	ZF2FK	-K9QVB	5N25RTF	-DK2IF
VP5RT	-DJ9ZB	ZF2FL	-N6RJ	5N25/JG1FVZ	-JF1EEK
VP5/N6EK	-N6EK	ZF2IZ	-KA8FBA	5N3BHF	-OE6LAG
VP8BGO	-GØBAU	ZK1XI	-K5BDX	5NØ/JR8BUU	-JA8FCG
VP8BGX	-G4OYY	ZK1XR	-KG6AO	5NØ/W4HHV	-KR4Y
VP8LP	-G3VPW	ZK1XT	-K5BDX	5NØ/YU3KI	-YU3KI
VP9AD	-W3HNK	ZK1XU	-W7TB	5T5CJ	-W4BAA
VP9/DF9ZP	-DF9ZP	ZL7AA	-ZL1AMO	5T5RD	-F6IIM
VQ9LD	-AJ2W	ZL7UW	-ZL2UW	5T5SL	-DL8DF
VQ9MG	-KD7MG	ZLØACS	-WØJEE	5T5YL	-F6IIM
VQ9QM	-W4QM	ZMØZZZ	-K1ZZ	5V7AS	-IT9AZS
VQ9RB	-WA6SXL	ZP5JAL	-KØZA	5V7RW	-WB4LFM
VQ9YR	-KA4SPA	ZP5JCY	-LU8DPM	5W1CW	-ZL1AMO
VR6BR	-KA9W	ZP5JR	-K3BY	5X5GK	-DJ5RT
VR6JR	-G3OKQ	ZP5LOY	-LU8DPM	5Z4DJ	-G4NJP
VS6DO	-K4CIA	ZP5XDW	-N4DW	5Z4DU	-KE4DA
V2A	-K8BA	ZS3IL	-ZS3HL	5Z4ET	-N5DFT
V2ACW	-WB4OSN	ZS3KC	-K1ZLA	5Z4JD	-KB6AIT
V3A	-KDØFN	ZS3Z	-ZS6BCR	6W1CK	-DL1HH
V3CAG	-WØJLC	ZS5LB	-W2LT	6W1LL	-DL1HH
V3CAI	-KØRWL	ZXØECF	-PY2ASK	6W1NQ	-DL1HH
V3CQ	-WA6VNR	3A2LF	-JH2QFI	6W2EX	-F6EYS
V3FB	-JA1ELY	3A/IK1CJT	-I1FOU	6Y3M	-KT3M
V3QI	-G4LQM	3B8DB	-K5BDX	6Y5IC	-KE3A
V44KAC	-WB2LCH	3D2DM	-KE4OC	8P6OH	-W2FLO
V47A	-KØGU	3D2EE	-WØJEE	8P9AG	-K6ZM
V85NL	-JA4ENL	3D2OG	-SM6FYJ	8Q7AP	-N6NI
XE2KN	-KB5FU	3D6BG	-G3ABK	8Q7CK	-I2CRG
XQ1ADG	-CE1ADG	3D6DX	-WA3HUP	8R1Z	-WI4K
XQ5CFR	-CE5CFR	3D6/VE3FXT	-VE3FXT	9G/DLØMAR	-DJ6SI(CW)
XQØZ/EA4LH	-EA4LH	3V8AM	-DF6RS	9G/DLØMAR	-DJ5RT(SSB)
XU1SS	-JA1HQG	3X1Z	-W4LZZ	9H1EL	-LA2TO
XX9AL	-CT1BH	3X3AN	-F6FNU	9H3DX	-DF2UU
XX9CT	-VS6CT	3XØHAB	-DL8CM	9J2BO	-W6ORD
XX9SP	-KS7P	3Y9WT	-LA9WT	9L1EN	-WI4S
XX9XX	-JA5DQH	4C8J	-XE1J	9L1JW	-DJØGN
YBØARA	-WA6AHF	4D9RG	-DU9RG	9L1RN	-WI4S
YE3C	-YB3CDL	4K1ZZ	-UY5DJ	9M2DC	-G4RZQ
YJØAEE	-WØJEE	4KØB	-UA3UBB	9M2MA	-G3JFF
YK/OE2AWN	-OE2AWN	4OØIYY	-YU2AKL	9M6MU	-N2CW
YK/OE3EMN	-OE3SFW	4S7VK	-DJ9ZB	9M8EN	-G4RZQ
YK/OE7RKH	-OE7RKH	4U1UN	-W2MZV	9N1MM	-N7EB
YN4RC	-WB8SSR	4U4ØUN	-W2MZV	9Q5MA	-PAØGAM
YS1RRD	-W3HNK	4U/G3VNY	-G3VNY	9U5JB	-ON5NT
YS9JY	-NF5J	4V2C	-K4BAI(CQ WW CW)	9X1MS	-K4BC
YT9UN	-YU3BCD	4X37ID	-4Z4ZX	9X5BG	-F6FNU
YV6BXN	-KA3GEA	4X4NJ	-WA4WTG	9X5WP	-WB6VKD
ZB2EO	-K3MNW	5H3BH	-SMØEAI	9Y4AA	-N6TJ
ZB2/OH2KI	-OH2KI	5H3CE	-IK6BOB	9Y4NP	-W3HNK
ZC4CZ	-G4MGQ	5H3CM	-KØLST	9Y4VT	-N6MM(CQ)
ZC4MR	-G4SDJ	5H3ZO	-KØLST		
ZD7CW	-N4CID	5H3ZR	-OH6IQ		
ZD9BJ	-ZS6JM	5L2EQ	-I2CRG		

AS IF WE DIDN'T HAVE ENOUGH TO WORRY ABOUT

Ed Los, KB1JG

"Beware! Nashua's new high-pressure sodium street lights may be radiating more than visible light. As an amateur astronomer, I was delighted to see that three of the street lights near my house had stopped working properly. These lights would ignite for a short period of time and then go out, only to repeat the cycle one to five minutes later. In the meantime, however, I had trouble with S5 noise that completely wiped out the 80 meter band. Because the noise was intermittent, I realized that it might be related to the street lights. I turned up the volume on my rig and watched all three street lights from an adjacent room. Sure enough, the noise coincided with the moments before each one restarted! The high-voltage circuits required to light these street lights generated enough RFI to obliterate the 80 meter band. I corrected the problem by calling the local power company. They didn't even ask for my name and promised to fix the lights within five working days. I now have a neighborhood that is less suited for astronomy by which permits activity on 80 meters, the only band that is worth anything these winter nights!"(Nashua, NH and The DX Bulletin)

DXPEDITIONS AND THEIR EFFECT ON AMATEUR RADIO

(Note: This paper was presented at the 6th IARU Region 3 Conference in Auckland by the New Zealand Association of Radio Transmitters, Inc.)

In recent years, it has become only too apparent that DXpeditions, which are mounted mainly to satisfy contenders for the DXCC-type awards, are tending to bring the Amateur Service into disrepute; not only in the eyes of the Administration but also within the Service itself. This paper seeks to stimulate discussion and comment with a view to formulating proposals to alleviate the problem, should it be agreed that there is one.

The prime motivation for the mounting of DXpeditions and the collection of 'countries' is the DXCC-type of award with particular emphasis on Honor Rolls. This type of open-ended certificate encourages operation from incredible locations to satisfy the egos of a small but vociferous minority of radio amateurs.

Twenty years ago, or less, the world radio amateur population was nowhere as large as it is today and some skill was needed to operate equipment. The 'pile-up' created by the appearance of a signal form a rare country were reasonable and the majority of amateurs (which is those who are not interested in award hunting) were not greatly inconvenienced.

With the greatly increased number of amateur seeking to sue the available spectrum (the above) is not longer true, and the majority are being inconvenienced by the minority. Because the resulting interference, the 'big guns' of the DX World resort to very high and in most cases illegal power to blast others off the air, and operate without regard for their fellow amateurs. Behavior deteriorates rapidly to open abuse, not only of their fellow amateurs, but also of the unfortunate DX station they are trying to work. Such activities are to the disadvantage of the Amateur Service because they:

1. Encourage the use of excessive and illegal power levels to the dismay of the Administration and the inconvenience of the majority, who play by the rules.
2. Make a mockery of the Amateur Code.
3. Provide valuable evidence to be used against the Amateur Service by hostile administrations.

More seriously, these activities deny the amateur in the smaller (and therefore rarer) countries their right to normal operation. Every time they come on the air they are hounded off by the 'paper chasers,' and many ultimately stop becoming radio amateurs usually in disgust at the behavior of some of their peers.

It seems to be beyond the comprehension of the avid DXer that many operators are not interested in spending their lives and their meager resources generating QSL cards. The loss of those who give up amateur radio is the ones Amateur Service cannot afford; particularly as it effects those parts of the world in which strenuous efforts are being made to encourage amateur radio and to persuade administrations that it is a worthwhile asset.

All DXpeditions inevitably contribute to the problem just described. Many are well behaved. They operate within the radio regulations of the host country and do their best to control the behavior of the pile-ups they have caused - just like treating a self-inflicted wound. Some even invite participation by local amateurs but generally nothing is done to involve them or to help them promote amateur radio in developing countries. There is evidence to the contrary.

Unfortunately there are now a number of professional semi-professional 'amateur' operators who openly ask for payment for QSL cards. Some do not use the QSL bureaus of the world and so deny the poorer amateurs the chance of getting a card. This kind of activity does not impress the developing countries at all; the very countries whose support for amateur radio is so desperately needed.

There is an elegant solution. It is for those who offer a DXCC-type award to make it available against proof of contacts with 100 countries; no more, no less. At a stroke of the pen the problem can be solved. An alternative is to stop the farce of amateur radio 'countries' and restrict the status of 'country' to members of the ITU only.

The fight for the Amateur Service is unrelenting and continuous. Anything that brings it into disrepute must be carefully examined and, even if it is painful to some, action must be taken. There is little point in IARU actively promoting amateur radio and at the same time condoning activities which are detrimental to it.

Accordingly, NZART proposes: That this conference recognizes the problems caused by DXpeditions and urges the Administration Council to make recommendations to members to help minimize its effects on the Amateur Service. (The DX Bulletin)

GREAT GANILLY COMING UP

Clive Mumford

Between May 23 and 26, 1986, radio hams the world over will be homing in on a hitherto unsung and unheard of spot, 30 miles adrift in the Atlantic Ocean off the granite cliffs of Land's End, England.

GREAT GANILLY is an uninhabited 20 acre isle in the Isles of Scilly group, floating off the coast of Cornwall. Fifteen Cornish radio enthusiasts are coming to this isolated rocky pinprick to organize a special even station.

The islands are chiefly owned by Prince Charles through the Duchy of Cornwall from whom the heir apparent to the British throne receives his income. The Duchy and the Nature Conservancy Council were unable to let the radio group use the larger island of Samson because of the wildlife inhabitation on the island. After a letter had been written to the Queen's husband, the Duke of Edinburgh, the go ahead for the use of Great Ganilly was given. Scilly Isles, with a population of 2,000, is made up of five inhabited islands with countless barren rocks and islets. It is well known in Britain: as the holiday home of the former British Prime Minister Harold Wilson, for its riviera type climate and for the tanker Torrey Canyon which was shipwrecked there in 1967 giving a new meaning to the words "oil spillage". Great Ganilly, the natural home of rabbits, seagulls and Bronze Age relics, was chosen by the party for its inaccessibility.

Tony Bevington, a forty six year old Cornish smallholder of Cankie, Wendron, says: "There is bound to be pandemonium. We are bringing radios, antennas, generators, tents, water and food across from the British mainland by steamer, then across the sea by ship to Ganilly, out to the eastern flank of the archipelago." He estimates that from Friday night, May 23, to Sunday, May 26, over 5,000 calls will be received in 56 hours. His wife Leila, another radio ham, thinks enthusiasts will be "queuing up to contact us."

The special callsigns are GB4IOS and GB8IOS and station locator square is ON69OX.

Mr. Colin Oakley, a radio enthusiast who is also the local harbourmaster on the capital island of St. Mary's, is acting as the party's coordinator.

This weekend extravaganza has another aim apart from pure broadcasting. It will raise funds of the British lifeboat service the Royal National Lifeboat Institution which is a particularly appropriate gesture in the sea faring Scilly.

Footnote: During the pioneering days of the wireless, Marconi himself came to Scilly working on a signal to the Cornish mainland.

MOUNT ATHOS WAS ON!

Frank, DL7FT/SV/A fired up just before the CQ WPX SSB contest and he made few contacts during the contest. Many did not believe he was there, but this just confirms that nothing is cast in stone. He is said to have necessary permits on hand. He was on for three days and QSL to his home call.

160 m Bulletin

Founder - Stew Perry, W1BB

Top Band News Americas

Dennis Peterson, N7CKD

4248 A Street SE, Sp. #609, Auburn, WA 98002 Tel. (206) 833-7243

BANDPLAN REQUEST

How many of you have really taken a careful look at our TOP-BAND? We have heard different opinions about the newly proposed bandplan for 160 meters.

The truth is very simple. We need a separate CW sub-band. We need this ruling to be made a LAW or GENERAL RULE for everyone. Recently, I discovered several RTTY, AMTOR and various other signals on the 160 meter band. If these signals persist at the current signal level, what is to stop them from getting down into the so-called DX area on CW? This is my utmost concern at the present time.

Consider a very weak CW signal from a DX station and a RTTY or other digital communicating system moves in near the same frequency. It will virtually become impossible to work the DX station. If you haven't written to your director or the ARRL in regards to this, you may want to do it now. The more input we place on the table with respect to this problem, the better off we are going to be. With only 100 kHz of bandwidth to use on a non-share basis, all we need is to add to the ambient noise problems, static and other QRM with these other modes and The Gentleman's Band will soon loose its meaning.

We need more help and there is a definite need for a specified band plan and designated area where only CW is allowed. I enjoy ragchewing as much as the next operator, but I also like to work DX and operate the various contests. Unless we get this CW sub-band, there are always going to be these problems on 160.

Many of you have asked the same question over and over again; "Why do the other bands have a separate CW sub band, and 160 doesn't? It appears that every time this question is asked we get the same answers. The subject of discussion is changed and we are still left hanging in thin air on the original question. No one seems to be able to give an honest answer as to why. Anyone with the answer or some input, please let me know and I'll be glad to include it in a future issue. I welcome any input.

EFFECT FROM OTHER ANTENNAS

Most of us, who reside in an area which restricts the available space for our antennas, may not be aware of the side effects generated by other antennas in the vicinity of another antenna. I would like to share an experience which I recently discovered with my antenna system here, in the mobile home park in Auburn, WA.

At this QTH the antenna is a modified HF6V-Butternut vertical, with the physical length of the antenna increased from 26 feet to 30 feet and a set of three top hat wires of 29 feet long, each added at a point exactly 7 feet down from the top of the antenna. The antenna is insulated from the ground by a glass insulator and is fed against a 55 foot square, 1 inch chicken-wire screen. The feed line is RG-214 military surplus coaxial cable.

This antenna has certainly worked wonders from this location and has yielded me 95 countries worked and 75 confirmed to date. The only problem seemed to be the absence of a lobe in the direction of the South Pacific or even towards JA.

The problem has been discovered when I recently took the G5RV dipole antenna down and wanted to install a Butternut HF4B Butterfly Beam antenna. The G5RV was located approximately 24 feet away and mounted on a 22 foot mast in the center of the roof of the double wide mobile home. After taking it down, I noticed a very significant difference in the tuning adjustment of the vertical antenna. The resonant point of the antenna was previously at 1835 kHz, but has since moved to 1850 kHz.

To prove the whole thing was not a Murphy's quirk, I reinstalled the G5RV only to find that the resonant point dropped back down to 1835 kHz. So, a readjustment of the base tuning network confirmed everything and it was also noticed that the antenna had also gotten quieter.

The toughest areas to work as mentioned before were JA, ZL, VK, P29, H44, VS6 etc., now with the recent changes; these same stations have been worked on the first call as compared to 5 or 6 calls previously. It appears that an absent lobe is now present. Most reports have been up by as much as 3 to 5 dB. Locals and stations over 600 miles, who once gave me reports of S8 to S9 running only 45 watts, now are giving me 5 and 10 dB over S9 reports running the same power. As you can see, the difference is quite obvious when there are other antennas or objects in the close proximity of the vertical antenna.

However, we have to do the best with what we have. My recommendation is simple. For those of you in the same situation, you might want to consider the installation of these other antennas on a hinged plate or base so that when not in use, they can be lowered out of the way and grounded, so as not to introduce coupling into the other antenna system. With the new HF4B antenna up and operating, there are no apparent coupling effects to my vertical with the HF4B antenna up and down.

The G5RV antenna is a very good antenna. However, in a mobile home park the performance is limited when trying to utilize all bands on an antenna this size. A G5RV in the clear space is one of the best all band dipoles. The removal of this antenna in the same field as the vertical has certainly opened my eyes to the overall performance and efficiency of the vertical, not to mention the DREAM OF OWNING MY OWN PROPERTY and living in an area surrounded by tall trees on a high elevation overlooking the sea.

See accompanying charts for SWR comparison of the different antenna configurations.

SWR 1: Original design using 4 top-hat wires at 45 deg. (from the vertical) and spacing approximately 90 deg. apart, using only 35 feet square of 1" mesh chicken-wire ground screen.

SWR 2: Same configuration, using top-hat wires at 30 deg. and spacing around 45 deg., 45 deg., 135 deg., and 135 deg. using an orientation favoring the East-West directions.

SWR 3: Same configuration again, but with only three top hat wires at 40 deg. and spacing of the individual wires as 90 deg., 90 deg., and 270 deg.. (Wind storm took one of the top-hat wires down.)

SWR 4: Same configuration again, but now using the three top-hat wires at 45 deg. and a uniform spacing of 120 deg., 120 deg., and 120 deg..

SWR 5: Same configuration, relay has been removed from inside the coil to a position outside the coil.

The resonant point of the antenna appeared to have stayed much the same throughout the 5 different experiments, but with a variation in bandwidth either increasing or decreasing. The tuning of the antenna is much sharper but tunes rather easily once the base tuning network is properly adjusted.

With SWR 5, there appears to be a broader bandwidth and increased efficiency and a more pronounced spread on both upper and lower frequency segments.

SWR 6: Same configuration, but now with G5RV antenna removed from the vertical field and only an HF4B Beam antenna in its place at the same location but about 10 feet lower.

Here is the chart:

SWR of 6 different vertical antenna configurations using the HF6-V different vertical/top-hat configurations.

Frequency	SWR1	SWR2	SWR3	SWR4	SWR5	SWR6
1800	1.6	2.0	1.7	1.7	1.8	2.1
1805	1.5	1.9	1.7	1.6	1.7	2.0
1810	1.4	1.8	1.6	1.5	1.6	2.0
1815	1.3	1.6	1.5	1.4	1.5	1.8
1820	1.2	1.3	1.3	1.3	1.4	1.7
1825	1.2	1.1	1.3	1.2	1.3	1.6
1830	1.1	1.1	1.1	1.1	1.2	1.5
1835	1.1	1.1	1.1	1.0	1.1	1.4
1840	1.1	1.1	1.1	1.0	1.1	1.3
1845	1.1	1.1	1.1	1.0	1.1	1.2
1850	1.2	1.3	1.1	1.1	1.1	1.1
1855	1.3	1.4	1.1	1.2	1.2	1.1
1860	1.3	1.5	1.3	1.3	1.3	1.1
1865	1.4	1.6	1.4	1.4	2.0	1.1
1870	1.6	1.6	1.5	1.5	1.8	1.2
1875	1.6	1.8	1.6	1.6	1.7	1.3
1880	1.7	1.8	1.7	1.7	1.6	1.4
1885	1.9	1.9	1.9	1.8	1.5	1.5
1890	2.0	2.0	2.0	2.0	1.4	1.6
1895	2.1	2.5	2.4	2.1	1.3	1.7
1900	2.4	2.7	2.5	2.4	1.3	1.9

SURPLUS HARDWARE

Recently, I received a letter from a manufacturer in Twinsburg, Ohio in regard to an earlier article in the March issue of the magazine. I had made a request for suppliers of various types of hardware and surplus electronics. A letter from the EXMET INC. (steel and non-ferrous metals to fit your needs) came in answer to this request. The letter was from their Chief Metallurgical Engineer David Klein.

I thought the information was of importance to many of you wishing to construct your own vertical antennas here on 160. David says that his company caters to small users of metals, and that they advertise 6061-T6 tubing in some of the other magazines. In assisting Amateur Radio Operators in their quest for bigger and better arrays, David states that they help the Ham operators by calculating the OD and wall diameters of mast tubing to hold any particular array. All that is needed is the height of the tower, geographical location, square feet of antenna surface and height on the mast where the antenna is mounted, they do the rest.

David also mentioned in his letter that he is currently in his 8th week of code class and finds the 3 element characters the hardest to learn, but is determined to get the license.

(David if you haven't already tried or learned the code completely, try learning your full name in code. You will find that there are about 11 to 13 letters in an average name and that is half of the alphabet. This is how I did it 11 years ago * N7CKD).

Good luck to Dave as he nears that ultimate goal: the day he passes the final examination and waits patiently for the TICKET to arrive from the FCC.

If you would be interested in obtaining a flyer with the type of material, O.D., wall thickness and a price list; write for additional information (and mention *RADIOSPORTING*!) to the following address:

EXMET Inc.
2170 E. Aurora Road
P.O. Box 117
Twinsburg, Ohio 44087

For those who wondered where to obtain the Digitrex preamps described by Craig, N1ACH in our last issue, the address is:

DIGITREX
1005 Bloomer
Rochester, MI 48063

SUPPLIERS

Here is a listing of some of the suppliers of hardware and surplus components for home construction projects. This listing is undoubtedly only a partial listing, but at least it will help you to get started.

Ameritron, 9805 Walford Ave., Cleveland, OH 44102

Amp Supply Co., 208 Snow Ave., P.O. Box 147, Raleigh, NC 27602

Artz Electronics, Box 222, Airdrie, Alberta, Canada TOM OBO (403) 948-5509

Spectrum Electronics, 5930 Market St., Philadelphia, PA 19139

All Electronics Corp., P.O. Box 20406, Los Angles, CA 90006

Diamondback Electronics Co., P.O. Box 12095, Sarasota, FL 33578

HR Corporation, 401 Erie Ave., Philadelphia, PA 19134

BCD Electro, P.O. Box 830119, Richardson, TX 75083-0119

Daytapro Electronics, 3029 Wilshire Ln., Arlington Hts., IL 60004

Poly Paks Inc., P.O. Box 942, South Lynfield, MA 01940

EMI, 715 Armour Road, North Kansas City, MO 64116

Digi-Key Corp., P.O. Box 677, Thief River Falls, MN 56701

Jim-Pak Electronic Components, 1355 Shoreway Rd., Belmont, CA 94002

Surplus Sales of Nebraska, 2412 Chandler Rd., Bellevue, NE 68005

Antique Electronic Supply, 688 West 1'st St., Tempe, AZ 85281

Mouser Electronics, P.O. Box 9003, Lakeside, CA 92040

Circuit Specialist Co., P.O. Box 3047, Scottsdale, AZ 85257

Jameco Electronics, 1355 Shoreway Rd., Belmont, CA 94002

MC Division Electronic Instrument & Specialty Corp., 5 Lowell Ave., Winchester, MA 01890

Jeffers Electronics Inc., P.O. Box 1692, Nogales, AZ 85621

J.W. Miller Division/Bell Industries, P.O. Box 5825, Rancho Dominguez, CA 90224

Fair Radio Sales Co., P.O. Box 1105, Lima, OH 45802

Palomar Engineers, P.O. Box 455, Escondido, CA 92025

This list supplied courtesy of Henry Luhrman, W4PZV

For those of you who do not know, Henry has the honor of owning DXCC/160 # 22 with 139 countries worked and 138 confirmed. Way to go Henry! He said that he subscribed to RADIOSPORTING because he liked the 160 meter section.

The following information concerns W4PZV's antenna system and some of his achievements:

Henry has been using his Tristao crank up tower with an Omega Match for a number of years. The tower is 54' with a heavy 2" reinforced double wall steel mast which takes it to 66'. At 66', he has a Wilson DB-33. At 55' a HY-GAIN 204B beam. At the 54' level there are three eighty meter quarter wave slopers. Also at 54' is a 160 meter inverted V, as well as two 40 meter half wave slopers. For 160 meters the Omega match wire is attached to the tower at the 20 foot level and is spaced out two feet from the tower. It slopes out and towards the ground and is seven feet from the bottom of the tower. Then it runs back towards the tower where it is connected to the feed line through a fixed capacitor of 280 pF and a 240 pF which goes to ground. It resonates at 1840 kHz. Henry has two and a half miles of radials which are on the North 180 deg[illegible]sidstates that he has the ARRL plaque for the 1980 DX contest on 160 SSB/North America. Certificates for ARRL DX contest 1980 & 1981 - South Florida, 160 Meters; as well as awards from "73" contests 1980-1981 etc. Henry uses a Drake B-line into a pair of 572 B's. He also uses a 500' Beverage antenna and a small loop for receiving.

I would be interested in knowing more about the Henry's receiving loop. Maybe we can talk him into submitting an article for a future issue.

REQUEST FOR MATERIAL

If you like this type of material, then would you please send me your articles and ideas. Activity information, contest observations, propagation notes, technical articles, 160 m DXCC count are especially welcome.

- N7CKD

LIBERIA ON 160?

The following letter is one recently received from Ken Claerbout, KE9A (ex EL2CD). The letter is directed to Ken from Brother Don WB8HFY/EL2AL.

Dear Ken;

Your letter finally arrived at Notre Dame after going to Liberia and back. As things go in that part of the world, it did make pretty good time. Congratulations on your Kenwood TL-922A. That is a nice amplifier. My rigs? Yes, everything was working a hundred percent when I left and, of course, everything stayed there. Brother Edwin, who joined my radio class and received his license, will be using the equipment and will be in contact with us here.

The power supply that was jolted by a surge of voltage had a couple of burned out parts among which was the IC. I got out the schematic and with a little help picked out the parts which were likely to be bad. Brother David, who was here at Notre Dame bought the parts and sent them over. That solved the problem.

The linear (GLA 1000B) was quite a different story. That took half a year. It was arcing through the circuit board, so I had to cut out that part of the board and build a new power supply on another little board which I mounted in there. When that worked my signal reports were very bad and erratic - sometimes fairly good and then so bad that they were not understandable. I took it down and took out all the switches and cleaned them with benzine. No change. I talked to Tony at Voice of America who suggested to change the big filter capacitors. Well, they were hard to get, but when that job was completed it worked like brand new.

160 METERS. I found out later that the 160 meter operation was not legal in LIBERIA. Special permission is needed there to go out on 160. Here at Notre Dame we do not have an antenna for that band at the moment. We are on the air daily with Liberia on 14.225 kHz around 21:30Z.

Hope this finds you OK.

B. Danard/WB8HFY

Ken also stated in his notes to me that he was in Liberia himself in 1984, and hopes to be going back on an extended visit in 1987. With any luck, he hopes to obtain the special permission and license to operate 1.8 - 30 MHz again. (N7CKD)

CQ WW 160 CW OPERATION FROM W1CF

This is a comparison of 1985 and 1986 activity in the CQ WW 160 m CW contest from W1CF, operated by WA2SPL as described by Fred, K1VR and Joe, WA2SPL in YCCC Scuttlebutt:

	1985	1986	Change
Total Qs	848	1084	+27.8%
Dupes	20	79	+39.5%
Valid Qs	828	1005	+21.5%
2 pt. Qs	615	686	+11.5%
5 pt. Qs	50	66	+32.0%
10 pt. Qs	163	253	+55.2%
Total Pts.	3110	4232	+36.1%
Mults	104	121	+16.3%
Score	317K	512078	+61.5%
States	49	50	+2.0%
Provs.	9	11	+22.2%
Countries	46	60	+30.4%

160 m DX News

Wally Stefanoff, LZ2CJ

PO Box 73, Levski, Bulgaria

We are approaching the summer season and the decline of activities on the low bands. Atmospheric noise makes it difficult to operate the bands, except during an occasional contest which spurs activity and may bring some surprises.

Those good openings to North America and Oceania, as we know them in the winter, are very scarce. It is still a bit too early to get good signals from Africa and South America. There a are few stations that can put out a good signals to Europe: PY1RO, CP8HD, ZS5LB and others. These are usually worked by the Europeans many times over. Conditions have improved during 1985 and 1986 so let's hope that the activity from the south will increase this summer. Those who set out to battle the summer QRN are quite often rewarded with an occasional opening to North America and Oceania too. This happened to me in the 1985 WPX CW. Also, I was happy to work a few more multipliers from the US. The 1986 WPX CW contest is coming at the end of May and this might be the time to make lasting impressions on the low band all time record tables. Prepare yourself for a war of patience with the QRN while looking for all those rare ones from the southern hemisphere.

Recently, I received a letter from my friend Mike, RA9AKM, who writes about the activity from zones 17, 18 and 19 which might be of interest to many of you.

Mike, RA9AKM, is 26 years old and got involved in amateur radio when he was 10 years old. He is one of UZ9AWP (ex UK9ABA) club station operators. This station also used 4J9DX and EO9VAM calls. Mike was first licenced as RA9AKM in 1976 and became active on the top band in 1982. Initially, he was only able to work JAs and Europeans on his 160 m long wire which was 20 m high.

Later he erected an Inverted Vee at 25 m and the world opened up for him. He worked NP4A, 5N8ARY, 9M2AX, VKs, ZLs, etc. Mike's final step was to raise that inverted Vee to 40 m. This helped him increase his total to 99 worked and 66 countries confirmed. His most interesting contacts were with LU9EIE, FM5WD, VP2VA and a SSB QSO with VE1BNN (RS 57). Also, he heard many SA stations on SSB but did not succeed in working any. In February, 1982, he heard YV3AZC 58/9 and this past season PT7BZ 57. In the spring of 1985 he heard LU9FFA and LU8DFM 57/9 but both stations could not get his call correctly. Who is the strongest from Siberia? It is Jack, VE1ZZ, who is heard both in Europe and North America. VE1ZZ is the most often heard station in zone 17, too.

Mike says that the propagation in zone 17 is completely different from that which is observed in Europe or even in the parts of European USSR closest to zone 17. When his UA3 neighbors are working W/VEs, most of the time he can not hear it.

The best propagation between zone 17 and W/VE is in the November to March time frame, peaking from January to February. Conditions in 1985 and 1986 so far, have been much better than in previous years in zone 17. The best time to work North America is 30 minutes before and 15 minutes after the local sunrise. Mike's most precious contacts from Oceania and Asia were with: XX9XX, KH6CC, KG6DX and KX6DS; and from Africa: EA9KF, J28EI, TR8JLD and 5Z4.

The following stations from zone 17 are the most active ones on 160 meters: Willy, UA9CBO (Inv. Vee 30 m up, worked 115 and 90 confirmed); UA9FNR (Inv. Vee 60 wkd); UA9AJX (12 m top loaded vertical, DXC 60/33; UZ9AYA, ex UK9AAN (they erected a 35 m vertical, active mostly in contests). Vlad, UA9KAA, is located above the polar circle and has the longest night and quieter reception than others. He is using a 26 m high base loaded vertical and has a DXC 77/34 for one year of activity on 160.

The best signals from the zone 18 are coming from Boris, UV9UWW (club station), UA9UCO (DXC 70/35), UA9ULC and UA9OCR.

Stations active in zone 19 are: UW0MF, UA0QA, UA0QEZ, UA0QEJ, UA0KBW, UA0SGJ, UW0LT, UA0IA and UZ0LWO.

The lack of activity, or good signals from the Central Asia is mainly due to poor transmit and receive antennas. It is hard for them to work many DX stations, they mostly work their neighbors and also UB, UO, LZ, OK, etc. Another problem on SSB is the language barrier. Most of them speak only Russian. The most active stations are RL8PYL or UL7MAN. The best signal out of UH8 is UH8DC, who is very seldom active and a very slow QSLer. Your best catch would be UH8EA or UH8EAP. In UJ8 the most active are UJ8JO and UJ8XJK. Almost daily from the UM8 land the most active are UM8MBA, UM8MM, UM9MZL. From UI land look for RI8AEV, UI8GKW or other stations with low performance antennas, if you can dig them out.

From the Kaukasus region UD6DKW, UD6DC, UD6DBA and many RD6 stations are available. Probably the most notable asian 160 m DXer is Karlen, UG6GAW, who satisfied many hungry 160 m DXers and contesters. If you missed the 160 m contest expedition from UF land, there are RF6QAI, RF6FHA, UF7FWA and RFOFWW available during most of the contests.

For the QSLers the message is this: DO NOT send QSL cards to the address of the local DOSAAF radioclubs as one W2 did! This can sometimes cause problems. QSLs for RA9AKM should go via PA0HIP, LZ2CJ, SM6LRR and of course, via Box 88 in Moscow.

This is the situation with the Asian USSR stations on 160. More information will follow in the upcoming issues.

In answer to Carl's, KM1H, comment made in the March issue of *RADIOSPORTING*: I will be glad to help with establishing contacts with those rare Asian stations. Let me know who you are hearing. I will relay the message to those stations and help them establish skeds with W/VEs. For skeds with 9M2AX you should write to him directly: Ross Tanaka, P.O.Box 2043, Kuala Lumpur, Malasia.

Thanks to Pedro, XE1HHA, for the kind

comments in the column. I will let the Europeans know about your top band activity and I hope you will increase the number of stations worked. If you need LZ, please look for LZ1KDP and LZ2DF over the contest weekends.

After reading K1MEM's article on the K1MM/SV5 operation from Crete, I would like to add that there are two more active stations, SV5TS and SV5RW who are frequently found on 160 meters.

Thomas, K4PI, succeded in working UA9 as his best 160 m contact. He is using two omega matched quarter wave phased towers on transmit and three two-wire beverages for receiving. His present DXC total is 134/124 which places him fifth in North America. Congratulations!

1986 CQ 160 SSB Contest

Two things were very evident this year: propagation to W/VE was much better this year than last year; it has been much more difficult to work low power USSR stations.

The QRM level in the USSR SSB part of the band has increased tremendously due to increased activity and the same signal level from most of the stations. It sounds like the JA QRP pileup on 15 meters! After the QRZ, all you hear is solid buzzing through which you can't pick out a single letter. Signals are of equal strength and the QRM after 2000Z, is unbelievable.

I have worked the following USSR stations during the contest: UJ8XJK, RJ8AAK, RD6DNB, UM8MVF, UM9MZL, UM8MRC, UM8MKI, UI8GKW, RI8OAG, UH8EAP, RG6GBK, RG6GCE, UG6GLK, UL7TCA, UL7ABP, RL7FER, RL7RBT, UL7TCP, UL7ABQ, RF6FHA, RF6QAI, RF6FIR, UF6FHQ, RF6FIQ, RF6FIS, RF6FFW, RF6FIN, RF6FHX, ZONE 18 - UA9UDC, UA9UL2, UV9UAB, UA9ULR, ZONE 17 - UA9MA, UA9MR, UA9YFE, RA9STL, RA9CBI, UA9AMH, UA9AJK, UA9AKO, RA9XFC, RA9SVC, UA9SIF, UA9SAY, UA9ARR, UW9WK, UA9WHU and others.

In N4IN's letter to VE3MFA he talks about the "duds" or calls that seem to be a "mistake" or a dupe because of their similarity. Please take a look at the UF stations I worked this year in the contest. You will see four separate stations, having the same call signs, with only the last letter being different. Just to be sure, I asked their names. Also, I collect QSL cards from stations like this so that I can have proof if an overzealous log checker marks them as a dupes.

Well, even computers are not perfect. Sure, one can copy a page from the Callbook, but there is that declaration, and the truth will surface sooner or later. The top runners can and should be verified by spot checks with stations that did not submit the logs. (Better ask the US stations to log you. They are not required to keep the station log although most of them do anyway. There is a known case of one ham who kept his log on a paper table "cloth". When the "log" was filled, it was thrown away and replaced with a clean one. VE3BMV)

I saw the announcement about the 1986 CQ 160 m contest plaques. There are four new plaques available, which are very much appreciated. We only hope that those plaques will reach their winners. I am still waiting for the WOAW Memorial Trophy for first place in the 1984 SSB contest.

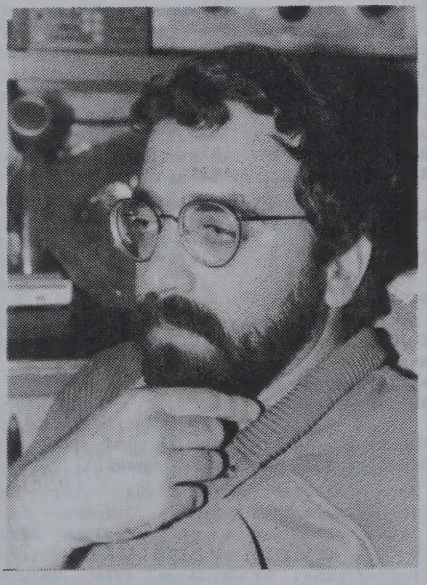
SK0AL has been active in the SSB contest, so I suppose that the SM stations can work SSB on the top band now. Another interesting thing happened when between 1515 - 1545Z, just before the end of the contest, local afternoon here, the band suddenly opened to Asia. It brought a few more rare ones and one more multiplier - 5B4.

It is also quite difficult to work US stations from here, in spite of the good openings on both nights. It looks like there must be much QRM. I kept calling K3ND for 30 minutes and did not succeed in making a contact with him when he was 59 all the time here. All the US contacts were made after several calls over a couple of minutes. The exception was VE1ZZ, who was also the strongest NA station here. (He is almost half way to Europe from here or the rest of the US, plus a good antenna systems. VE3BMV)

The following prefixes have been reported active in this year's 160 m SSB contest: VU, VP5, 6Y5, VP9, V47, HK0, CP8, LZ, DL, YU, HB, LX, EA, EA6, EA8, EA9, OK, T77, I, IS0, G, GI, GW, GM, F, C31, CT, CT3, SV, SV5, SV9, 4X, OE, SP, OH, PA, 5B4, 9H1, UA1-6, UA2, UA9-0, UP, UQ, UR, UB, UO, UG, UD, UF, UI, UJ, UM, UH, UL, UC, UK, Y2, SM, YV, etc.

I worked the following W/VE stations: VO1MP, KC8MK, N4IN, AA4MM, WA4SVO, VE1ZZ, VO1HP, NF2L, K2RD, AA1K, W3BGN, rough score here was about 850 QSOs, 61 multipliers, for about 256,000 points. HB9AMO and 4X4NJ were in the contest "just for fun" this year. GW3YDX, I8CZW, I4ZNU, Y34K, OK1KFQ, OK3KFO, OK3KFF and YU1AAO were in "for blood."

Dov Gavish, 4Z4DX



Dov is well known to most top banders. He was probably the first Asian contact for many. Dov is a contester and DXer, holder of many records in the contests and holder of the DXCC Honor Roll, 5BDXCC, 5BWAS, 5BWAZ and DXCC 160. He is using a Kenwood TS930S with a TL922 amplifier as could be seen from the picture of his shack. The antenna used is an Inverted Vee. He is usually found on the band during the contests or when the new one is supposed to show up. Dov operates both CW and SSB and is always glad to give a 4X4 to those who need it.



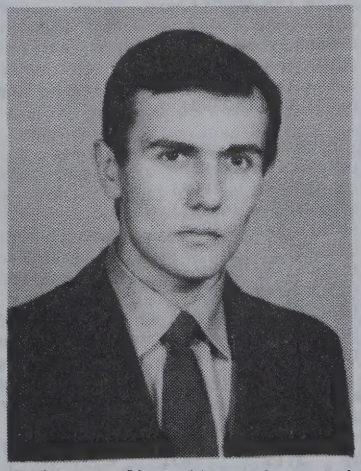
Dov, 4Z4DX and his station

Bin-san, JA3EMU



Has very keen interest in 160 m band, but he is limited with space for his antennas. He is using a 3 el. Yagi on 20 m, 3 el. on 15, rotary dipoles on 40 and 80 m. For 160 he is using a shortened sloper. JA3EMU has DXCC, 6BWAC, WAC 160, 5BDXCC and 199 zones confirmed for 5BWAZ. With conditions getting better on 160 look for his signal and he will be glad to QSL the new one for those who still need JA.

Karlen Grigorian, UG6GAW



Karlen was first licensed as EZ6GAW. He lives in a small town close to the capital city Yerevan. He is the one of most active stations from his country on 160 since 1982. He is a student of Physics at the Yerevan University and he is in his last year. Karlen is using a home brewed UW3DI design transceiver with a Delta Loop, wire vertical and an inverted Vee antennas. His DXC total is 140 worked and 110 confirmed.

ACTIVITY INFORMATION

Before listing the usual information, I would like to explain that only those

stations are listed that have better signals. It is no use to list all of them, especially those that can be worked only from neighboring areas. If the station is a rare or unusual one, it is listed here also.

EUROPE

UZ6HZB	1626Z	1844 KhZ	
RA3DOX	1651	1832	
UA3FT	1725	1832	
UA4ALS	1813	1831	
RA4CLZ	1815	1832	
UA3WBN	1840	1832	
UA3LDX	1830	1941	
UA3ZOV	2031	1832	
UA3DUN	2115	1831	
UA3DIM	2200	1832	
UA6XEI	1635	1836	
UB0YW	2200	1832	
UB5VM	1626	1832	
UB5ZHD	1540	1883	SSB
UB5ZGW	1540	1883	SSB
RB5QWB	1550	1880	SSB
RT4UA	1912	1834	
UO5OMG	1729	1890	SSB
UR1RYY	1635	1834	

Franz Josef Land - UA1OT is active on Fridays after 1900Z on 1835 kHz. Saturdays and Sundays both, UA1OT and the club station RZ1OWA are active on 80 m and willing to arrange skeds for 160 m. QSL for UA1OT goes via UB5KW but through Box 88, Moscow!

TOP TEN USSR STATIONS FOR 1985

SINGLE OPERATOR
1. UA9SA (ex UA9SAX)
2. RB5IM (ex UB5IJK)
3. UL7QF
4. UP2NK
5. UW3AA (ex UW3HV)
6. UA1DZ
7. UA0SAU
8. RB5AA (ex UB5AAF)
9. UJ8JA (ex UJ8JAS)
10. UA0QA (ex UA0QWB)

MULTI OPERATOR
1. UZ4FWO (ex UK4FAV)
2. UP1BZO (ex UK2PCR)
3. UZ9SWY (ex UK9SAY)
4. RW9HZZ (ex UK9HTT)
5. UZ6LWT
6. UZ0QWA (ex UK0QAA)
7. UZ9CWW (ex UK9CAE)
8. UZ6LWA (ex UK6LAA)
9. UL8LWZ (ex UK7LAH)
10. UP1BWW (ex UK2BBB)

OK2DM/P	1827Z	1832	
OL0CRG	1840	1832	
OK3TDU	1841	1832	
OL5BPH	2115	1831	
OK1DXS	2015	1833	
OL7BNQ	2032	1834	
OK3CWQ	2215	1830	
OL9CTG	2120	1832	
SV0AH	1641	1836	
SV5RW	2101	1832	SSB
DL1RK	1725	1832	
DF9TL	2015	1833	
DJ8WL	2016	1832	
DK6MS	2100	1832	SSB
DL3AM	2220	1830	
IT9ZGY	1742	1833	
IV3LAV	2130	1833	
I2YWR	2200	1832	
IK5DVQ	2220	1830	
SM7BIC	1813	1831	
SM6CPY	1924	1834	
OE5KE	2115	1831	
JW0A	2120	1832	
OZ6AQ	2130	1831	
HV3SJ	2140	1832	QSL via IK6BOB
GD3FXN	1928	1833	
OH3SR	1950	1834	
YU7AU	2130	1832	
YU4BR	2200	1834	
HB9ANX	1940	1830	
SP5GH	2145	1835	
GM3WTA	2200	1832	
GM3XTN	2230	1833	
GW3FPF	2220	1833	
G3FNJ	2235	1831	
EA5CF	2225	1831	
F9YZ	2200	1832	

ASIA

5B4OA	2215	1828	
UG6GAK	2031	1832	
UD6DBA	1821	1838	
UD6DKZ	1827	1832	
RA0APK	1635	1834	
RA9XBK	2230	1833	
UA9SNX	2015	1832	
UA9FNR	2020	1834	
RA9CEG	1838	1821	
UA9ARI	1828	1839	
RV9UA	1651	1832	ZONE 18
UA9HB	1700	1831	
UA9SAD	1912	1834	
RA9SSJ	1742	1833	

SOUTH AMERICA

PY2AS	2220	1830	

OCEANIA

ZL3GQ usually listens around 1830 - 1831 and 1840 - 1842 kHz for DX. He will be active in all contests having 160 meters during a year.

KH6XX is still active around 0500 - 0600Z at 1835 kHz for Europeans.

(ZL2CJ)

TRY A VERTICAL

Forget the Inverted Vees and other horizontally polarized antennas if you want to work DX on 80 and 160 meters! Last fall I used a delta loop for 80 meters in CQ WW contests and had a hard time working DX pileups. It took about 10 minutes to crack the pile up or no luck. This year in the WPX SSB contest, I transformed my delta loop into the quad loop in a diamond shape and fed on the side, using a vertical polarization. What a difference. I tied together everything in sight that was metallic, (TH6 on the ground, fences, etc.) and grounded it to the base of the tower. What a difference! Stations came back after one or two calls. No more waiting for the rare one.

On receive I have tried K7GCO's idea using the "AC outlet" receiving antenna. Surprisingly, at times it was better than the beverages. Talking about invisible antenna! I was plagued with 10 dB over 9 power line noise the first night and missed many European stations. Sorry guys! No more excuse for not getting on 80 and 160 meters because of no room! Try it, you'll like it! (VE3BMV)

CONGRATS TO WB4KCG

CONGRATULATIONS to entertainer Ronnie Milsap, WB4KCG, on his receiving of a Grammy Award in the category of Best Male Country Vocal. Ronnie received the award in Los Angeles on Tuesday, February 26, in recognition of his recording of the song "Lost In The Fifties." (Westlink Report)

IF YOU RECEIVED *RADIOSPORTING* AND ARE NOT A SUBSCRIBER
IT WAS NO ACCIDENT!
PLEASE CONSIDER IT AN INVITATION TO JOIN

US ARMED FORCES DAY

In recognition of the 37th Annual Armed Forces Day Celebration, the Naval Air Station W4ODR will be operated by sailors and marines on Saturday, 17 May from 1400Z to 2200Z. The frequencies used will be 7.230, 14.280, 21.370 (+-10 kHz) on SSB, and 21.145 and 28.145 on CW.

Special certificate will be available to those who work W4ODR and mailed the same day. No SASE required. QSL cards go to: W4ODR, PO Box 54278, Naval Air Station Memphis, Millington, TN 38054.

The 3,400+ acre Navy Memphis complex is located 13 miles north of Memphis, TN and approximately 7 miles east of the Mississippi River. NAS Memphis is the home of the chief of Naval Technical Training and other 25 activities. The training begins with the basic training and it continues through various levels of technical skills training and includes instruction for the highly advanced technicians who maintain and operate the extremely technical and sensitive devices found on the Navy's aircraft, ships, and submarines.

Over 3,000 Navy courses of instruction are conducted throughout the command's network of 58 activities, located at 27 different installations, stretching from the East Coast to the West Coast, Great Lakes to the Gulf and across the Pacific to Hawaii. The coordination, supersvision, planning, research, and guidance for these courses take place at the Headquarters of the Chief of Naval Training, Rear Admiral R.C. Austin.

For more information contact:

Bob Donan, KA4FAL, Station Custodian
Chief Petty Officer
(901) 872-2007

Visitors are welcomed to W4ODR on Northside of NAS Memphis at Millington.

CLUB LIFE

Tom Rosebush, VE3KZE

Getting started as the Club Life editor for RADIOSPORTING was easy. I just picked up the phone, called Yuri and volunteered, no problem!

Now comes the hard part, getting a page of useful information together and meeting a deadline for publication.

With a little luck and some bulletins from various DX Clubs and other organizations this page should be on time for the May edition of *RADIOSPORTING*.

Locally, our Durham Region Fleamarket will have come and gone by the time you read this. All indications are, that this will be our best effort yet at putting together a quality event. Representatives from CRRL, CARF, RSO and the QSL Bureau will all be in attendance. Not to be outdone, the DOC has also indicated they will have a display. Add to this various commercial displays and of course the ever popular recycled-electronic-gadgetry vendors and you have the makings for a very enjoyable bash.

Speaking of the DOC, South Pickering ARC has received all the forms necessary from the Department, to conduct the Morse Code sending and receiving exams for aspiring amateurs. It is the Clubs intention to hold an exam night on Wednesday, April 23rd. This will be a first for SPARC and also for the DOC. In my opinion this is a long overdue innovation, (for Canada that is). Testing done in familiar surroundings and at the convenience of the people being tested, should abolish those apprehensions that so plague us all when confronted by officialdom. Not that the recent DOC testing has been unfair or of poor quality, quite the opposite,in fact, has been the case here in Toronto, but never-the-less we all tend to get those pre-exam anxieties that any visit to an official center will produce when our mettle is to be tested. Just knowing that marking will be accomplished on the spot should encourage participation in this program. After all, who wants to wait days to find OUT a test result. Only time will tell how fair and how successful this change will be, but on the whole it is expected to at least encourage Club activity, and we all know that getting people out to meetings is half the battle. What better way than to offer an Official DOC blessed examination program. Also it might just be fun to see if some of us "old timers" could once again take pencil and paper and "sweat out" an exam, if we had to.

Hope you made it to Dayton this year and if you did that you brought home enough spare cash to at least buy the groceries until the next pay day.

Before leaving my "ramble" part of the Club Life page I would like to once again list my address and clarify a point. Be sure to send advance notices of your Club activities to my home address to ensure insertion into this page. Every little bit of lead time I get, will help to ensure your event is publicized and promoted. Once again my address is, 733 Annland Street, Pickering, Ontario, L1W 1B5.

73 and support your Club or group, for without you the organization will be much smaller. Tom, VE3KZE.

Redwood Empire DX Assn.

Doug Bender, WA0JRB has taken over the job of President of the Redwood Empire DX Association, following the resignation of Ron Pipes WB6NBR. Doug will continue to handle the tasks of Vice President as well. Thanks to Ron for his efforts as President, and please support Doug in his dual role.

Northern Arizona DX Assn.

The 1986 officers are: Hugh Phillips KR7Y, President, Bill Schuchman W7YS Secretary/Treasurer and Arthur Phillips NN7A, Program Chairman.

Greater Milwaukee DX Assn.

Syl Janczak, WD9JKZ Secretary Treasurer writes to say that the Greater Milwaukee DX Association has a membership of 27 active members who participate in contesting and are avid DXers. Many of their members subscribe to RADIOSPORTING and as a result the GMDXA has offered to sponsor a contest award through our publication.

HAMFEST ANNOUNCEMENTS

"HAM-O-RAMA '86", sponsored by the Northern Kentucky ARC will be held June 7th and 8th at the Best Western Vegas Convention Center, Erlanger, Kentucky. Take I-75 to exit 184B (route 236 west), just 8 miles south of Cincinnati, Ohio. The Ham-O-Rama will be completely indoors, air conditioned and have free parking. Contact AF4Y or WD4PBF at the gate for market space and prices. Contact Joe Dunnett, WA4WNF at (606) 371-2255 for additional information, or write to: NKARC, PO Box 1062, Covington, KY. 41012. This is an ARRL sanctioned Hamfest and the Best-Western Motel (606) 342-6200 offers reduced room rates if mentioning Ham-O-Rama at time of reservation. Talk in on 147.855/.255 and 147.975/.375.

The Baltimore Radio Amateur Television Society presents:

The FAMOUS BRATS MARYLAND HAMFEST AND COMPUTERFEST to be held on Sunday, July 27th at the Howard County Fairgrounds, Route 144 at Route 32, adjacent to Interstate 70 in West Friendship, Maryland. Advanced reservations a must for vendors, since no tables will be sold on the day of the hamfest. There will be free VE Exams at 11:00 AM on Sunday, with no advanced registration required. Talk in on 63/03, 16/76 and 52. For further information and reservations, write to W3GXK, BRATS, PO Box 5915, Baltimore, MD. 21208.

CONVENTIONS

The Western Washington DX Club will host the 34th Annual Pacific Northwest DX Convention, July 25-27, at the Sheraton Hotel in Renton, Washington. A variety of programs and activities for the DX-er and contester are scheduled, including special presentations, films, a contest panel, slide presentations and a tour of ICOM America, Inc.'s corporate headquarters. Bob Winters, KD7P, portable KH4, who recently returned from his Wake Island operation, will be one of the featured guest speakers. Also, look forward to special prize drawings and social events. Pre-registration tickets purchased before July 1, 1986, for all activities including the Saturday banquet and Sunday breakfast are only $38.00 per person (at the door, $42.50); for programs and the banquet, $33.00; and programs only, $13.00. For further information, contact Andrew Isar, NN7L, Convention Chairman, (206) 467-1277, PO Box 224, Mercer Island, WA 98040.

AMATEUR RADIO AT EXPO 86

VE7EXPO AMATEUR RADIO SOCIETY

A state of the art amateur radio station will be featured at EXPO 86, the World's Fair on Transportation and Communication being held in Vancouver, B.C. from May 2 to October 13 this year. The station will be located in the main exhibit hall of the Canada Pavilion, dramatically "anchored" in one of the world's most spectacular harbor settings.

The station will operate on all bands from 160 meters through 1.2 GHz, and all modes including SSB, CW, RTTY, AMTOR, Packet, FM, ATV and SSTV using the callsign VE7EXPO. It will operate from 10 A.M. to 10 P.M. each day, and provide an exciting and interesting introduction to amateur radio for many of the more than thirteen million visitors expected at EXPO 86.

The station, which will feature ICOM's newest equipment on all bands, will have five operating positions - one each for packet, satellite and VHF/UHF, and two on HF. HF antennas include a Sommer multi band yagi, Butternut verticals and home brew bazookas. The Satellite system will use two 14 turn helixes on 434 and a pair of 22 el. yagis on 144 Mhz.

The station will be active during as many contests as possible and count as a special 20 point bonus station during the July 1 Canada Day contest. All contacts will be QSLed through the VE7 Bureau, with outgoing cards via the CARF outgoing Bureau.

VE7EXPO will be manned entirely by volunteer amateurs and provide not only a massive public relations opportunity for amateur radio, but an information center for many non-local hams. Local repeaters on 146.94, 224.30 and 443.525 MHz will be monitored in case visiting amateurs need directions, etc.

Station Operations

Clubs that wish to operate as a group will be encouraged to do so, with time allocated on a first come basis. Individual amateurs are also requested to make their plans known so that scheduling may be completed and security and day EXPO passes, etc. can be arranged as soon as possible. Foreign visitors are encouraged to drop by and operate (with a valid license or callbook address). Visiting hams who wish to take part as a group, or who wish to arrange skeds for special events should contact the VE7EXPO Amateur Radio Society at:
202-13640 67 Ave., Surrey, B.C. Canada, V3W 6X5. Telephone - 604 - 590 1014.

VP2KC THE RECORD RUN
CQ WW PHONE - 1979

Hugh Valentine, N4RJ and crew

Until October 27th and 28th of 1979, every serious DXer or contester would have deemed it impossible to break the CQ World Wide contest multi-multi record form North America. Everyone except a collection of red-neck QRPers form the Southeastern DX Club, that is. We had the faith and persistence to succeed in accomplishing the improbable.

In March of 1979, discussions began between Paul, N4PN, and the now famous late VP2KC, Kit Carson. Paul and Kit mulled over the possibility of a DXpedition, contest-style, to Mr. Carson's estate on St. Kitts. Kit, a retired businessman, was willing to entertain the idea of assembling a station and antenna farm capable of supporting the effort. At this time the contest record was but a remote dream and was thought to be a possible but highly unlikely prospect. Thus began the enormous task to planning such a monumental endeavor.

During the next seven months, operators, engineers, statisticians, and numerous other "experts" were consulted to organize the effort. The logistics involved in such an undertaking are unbelievable. However, Kit Carson's forte lies here. He was always able to come through with flying colors to solve the multi-faceted problems associated with an operation of this magnitude.

N4PN, K1PBW, K4UEE and N4RJ flew to St. Kitts in May to evaluate the site and to construct and erect the first of the antennas. Kit had already agreed to buy the antennas, with the understanding that the contest team would design and construct them on site. Heights Mfg. Company was chosen to build the towers because their product was light and could be used unguyed. Telrex was chosen to be the manufacturer for the yagi antennas. Weight was of some consideration, even though eventually over 1 1/2 tons of equipment was shipped to St. Kitts.

Fortunately, the station of VP2KC was well situated on the island to allow for a lot of antenna work. Available real estate may not be a big issue on 20 through 10 meters, but it can become a severe limitation on 80 and 160. We knew that any major effort toward a record score would have to include a super effort on 80 and 160. Therefore, there had to be a really sophisticated receiving system on those two bands to counter the numbing effects of caribbean QRN.

Designed by K1PBW, the 160 meter 1/4 wave tower was installed first. We obtained big porcelain insulators, and used these as base insulators in the three legs of the 14 inch Heights aluminum tower. We also made a 16 foot top loading section to extend the electrical length of the tower well past resonance on 1.8 MHz. A special base section was welded together to support the 116 foot tower. We also brought 4 miles of copper wire for the ground system, without which any vertical is a total loss. Kit lined up all the manpower not only to erect the structures, but also to bury all that wire in the ground. There were over 120 buried radials, many of which were up to 200 feet long.

This part of the 160 meter preparation was by far the easiest, because a quick listen on our "Big Ernie" 160 meter vertical confirmed our worst fears about the aforementioned Caribbean QRN. On 160 it averaged 20 to 40 dB over S9 non-stop. The next week went toward erecting and experimenting with beverage receiving antennas, with the hope of alleviating some of our QRN problem. We put up two initially, one on the U.S. and the other on Europe, each being roughly 1100 feet long. They were well isolated form power lines and the vertical and ground systems. This necessitated running a quarter mile of coax to their common feedpoint and the use of special low-noise remote preamplifiers to bring back the signals. In the case of the European beverage, it brought the QRN level down to a respectable average of S-4, with slightly higher levels toward the States. Now we were ready to work almost anyone who called us, and reports on 160 came in from six continents.

We also experimented with a 40 meter five-element vertical array, electrically rotatable. It was made out of what copper wire we had, and was strung between the 160 meter tower and the Vesto tower, on which VP2KC's triband vertical rested. It was not a good location for it, as some of the supports did not allow for perfect positioning of the elements. Although almost anything will work from a salt water locale, it became quickly apparent that our weak link seemed to be 40 meters. Kit was willing to go through the hassle and expense of getting yet another beam and tower down to St. Kitts, to use for 40 meters. It was getting closer and closer to contest time, but this certainly turned out to be an excellent gamble.

In August, Kit picked up K1PBW, N4PN and N4RJ at the Atlanta airport in his Cessna 421. At this time we brought down two more towers for the 10 and 15 meter beams. After a smooth flight to the island, we were immediately busy constructing more antennas. Paul, N4PN, had taken an old 20 meter monobander and had shortened it up for 15 meters. This antenna was quite heavy and went on a 56 foot tower, which we decided to anchor, due to its weight, with a few safety guys. We had planned to use Kit's tribander for 20 meters, but problems developed with it. So, Kit decided to replace it with a 5 element 20 meter monobander, which would have to be erected just before the contest. A new 3 element 10 meter beam had arrived, and it went on a 48 foot self-supporting tower. In spite of all the planning, nothing seems to beat getting it all done at the last minute!

Also during the August visit we constructed the 80 meter array. A little local skepticism prevailed, since the 40 meter version had not exactly been a raving success. We used five 60 foot poles, all base insulated and 3 feet off the ground. The control system consisted of a box of relays in the center of the array that would switch in 8 directions, or every 45 degrees. Initial tests gave us as much as 30 db front-to-back, and our signal in Europe wa such that we were louder there than most of the stations working us. This made it easy to control the pileups on a band where there had been little activity from St. Kitts.

Our power distribution for the contest stations was also force to be reckoned with. St. Kitts has a rather odd electrical system in that power is distributed on the island by means of 11 KV 3-phase lines that make a complete circle and are quite noisy. This is caused by excessive amounts of salt that collects on the insulators. The noise was quite bad on almost all bands and it was really difficult to determine just where it was coming from. VP2KC's service was also 3-phase, but the transformer on the pole was rated at barely enough to handle six stations and linears, much less the rest of the household. That had to be upgraded and some sort of electrical protection had to be incorporated, since it was not uncommon to lose a leg of the 3-phase at any time. In addition, the supply voltage varied, depending on the time of day, and the three 220 volt legs sometimes dipped as low as 190 volts. Rewiring and rebalancing all three legs helped eliminate line noise and wild voltage regulators so that we could guarantee 118 volts AC at all times to all exciters. We also installed boost transformers on all legs to give each linear a minimum of 240 volts.

October arrived, but the time in between our last trip and this final one was not without extensive preparations. Kit had decided to send down a 17.5 KW diesel generator to keep us on the air no matter what happened. He felt that he had invested too much elsewhere to let it all go down the tubes should power fail during the contest. This was certainly a bright idea. K1PBW installed and wired all of this to activate automatically in the event of failure from the mains. He also engineered the power to kick in if the legs become too unbalanced as well.

Meanwhile, back at the Southeastern DX Club, K4PI and many members were giving our operation quite a buildup. This was done in order to drum up activity and those rare multipliers that we would need in the contest. Also, Bob, W4HR, was using his statistical expertise that worked so well during the successful 1973 world record attempt from Curacao. Bob had formulated the countries, zones and score by band and by hour that we would need to break the record. After careful examination of propagation forecasts, he assured us that indeed we could eclipse the existing world record of 29.2 million.

Finally, we shipped down enough operating equipment to augment Kit's collection to 14 transmitters, 12 receivers, 10 linears and 2 transceivers. We used Drake C-Lines exclusively and did not have one malfunction during the entire contest period. Cross-band interference was initially a problem, but was eliminated band by band. Traps and bandpass filters were wound and built for almost every band except 20 meters, where for some reason they weren't needed. Now we were able to operate all six bands independently without interference and overload. We were also able to listen on the spotting frequency almost up to the edge of the transmit frequency.

All operators arrived at VP2KC four hours before the start of the contest. We totaled 20 in all, including our "secret weapon," JA3ODC/N6CCT, known affectionately as the "JA Machine." Masa, at his peak, was able to work 8 JA stations per minute, handing us a 40 QSO log sheet every 5 minutes. When the pessimistic operators saw him at work, they quickly became optimists. After arrival, rigs were tested and everyone familiarized themselves with equipment and antennas. Operating schedules were distributed by W4HR and the teams scanned the band as to become acutely attuned to conditions. Each rig was manned by an operator, logger and spotter. The spotter's job was to locate multipliers, which would be our main tool in attaining the new world record. Our strategy was to concentrate on new countries, as this was the main variable to be capitalized upon in overcoming the 2 point North American QSO handicap. The second strategy was to work as many JA and DX stations as possible, working the U.S.A. only when the DX rates fell off. This paid off handsomely, as our QSO point average exceeded 2.5 points per QSO. The 15 meter band was utilized for 46 of the 48 hours due to much JA activity. This band proved to be the number one producer, just as we had anticipated. Masa was shifted from 15 to 10 meters as the JA demand dictated.

Many rare ones called us looking for a "new country" as VP2K is probably the rarest active country in the he Caribbean. This was a tremendous plus, as we never had to call "CQ DX," begging for contacts. 160 meters was a big factor, with K1PBW plowing away with 500-plus contacts in almost 50 countries. Don't try to duplicate that feat from a motel room with a dipole antenna! The 80 meter team pulled out 1100 QSOs in 95 countries. Our adversaries had predicted disaster on this band due to lack of low band activity. Five Band DXCC in 48 hours would have been a contester's dream and we are proud that we almost pulled it off.

None of the 20 operators will forget their experiences during the "record run" from St. Kitts. We will always have found memories of the island, the Carsons and the lifelong friendships that had their origin so far from home.

Operators were: VP2KC, N4PN, N4RJ, K4PI, W4HR, W4GIW, W3BTX, K3OIH, AA4V, K5PP, N5UR, N4WW, W4LUM, N4NX, W4PPT, K4UEE, K1PBW, K4PHE, WB4RUA, WD4RCO, WA4PBW, JA3ODC.

VP2KC FINAL BREAKDOWN
CQ WORLD WIDE PHONE - 1979

BAND	QSOs	ZONES	COUNTRIES
160	526	11	47
80	1079	22	95
40	1703	28	107
20	4208	39	153
15	5417	39	145
10	4835	36	130

Our final score was 37,770,012 points. We set the following records during our effort at VP2KC:

1. Highest score ever made in any major DX contest: 37,700,012. (Old record: 29.211,300)
2. Most valid QSOs ever made under one callsign in a 48 hour period: 17,767. (Old record: 14,598)
3. Most QSOs ever made on a single band in a 48 hour period: 5,417 on 15 meters and 4,835 on 10 meters. (Old record: 4,616 on 10 meters)

We averaged 6.6 QSOs per minute for the 6 bands for the entire 48 hour period. (N4RJ)

de VE3BMV:

I still remember the "JA Machine" working the JAs long after we could not hear them, even on the pair of Razors. I have seen the log page showing 40 stations every 5 minutes. For comparison, my score was 2339 QSOs, 38 zones and 130 countries on 15 meters. This was the best multiplier of all single op stations, but not enough even for top VE. VE7CML

with a lower multiplier count, but about 500 more JAs in the log, beat the Canadian record. I had to repeat my operation the following year when 141 countries helped to set a new Canadian record and an unofficial world record in 15 m multiplier count.

The VP2KC operation just proves that if there is enough determination and a will to accomplish something, it is possible.

I had the pleasure to visit Hugh, "Val" N4RJ, at his QTH near Stone Mountain, Atlanta and hear the tales of VP2KC. Their score could have been even better if they did not stop operating in order to have a small celebration upon beating the old record. After this break they continued.

The story of Ernie, K1PBW, is very interesting. Many of you remember Ernie's accomplishments on 160. He was the king of 160. A bright, intelligent and dedicated young operator. When he first appeared at the airport, no one of the crew could recognize him. They excluded the possibility that this hippie type, dressed in a T shirt and torn out jean shorts, with two bulging suitcases held together with a piece of rope, could be K1PBW. He carried no spare clothes, but he had lots of goodies for 160, including preamps, wires, etc.

By a process of elimination, the rest of the crew was left with this "hippie" and were surprised to find out that it was Ernie. Their first impression was definitely misleading. After talking with Ernie, they quickly found out what was in that head with a waist long pony tail. It was loaded with knowledge from music and paintings, all the way to UHF. Ernie was the principal designer and installer of all the low band stuff and AC wiring.

What ever happened to Ernie since then? We haven't heard him on the bands. The story is that he has reached his tops by being part of the crew who has done the "impossible" and satisfied his radio goals. Apparently, he is now working with children without parents, helping them in any way he can. We hope to hear K1PBW again working the stuff on 160 we other mortals can't even hear.

Paul, N4PN, and Hugh, N4RJ, came back in 1980, 1981 and 1983 to operate in single band categories as VP2KAA and VP2KAC. They set a bunch of world and continental records on 20 through 80 m which will be very hard to beat in years to come.

Kit, VP2KC, passed away and his estate was put up for sale. This closed the chapter on one of the historical operations in the history of ham radio. Kit's "Ottley Estate" was a favorite place for royalties to visit and it certainly put St.Kitts on the map.

The manner in which the whole operation was carried out and publicity generated, is an excellent example of portraying amateur radio to local residents. The publicity and the donation of equipment to the local radio club has opened doors for many hams and helped to promote St. Kitts as a friendly and hospitable island among the hams and islanders.

The present world record in multi - multi category is now held by the Curacao operation of P41C, operated in 1981 by the crew of N3ED, KA3E, N2BA, WA3LRO, W8LRL, W3XU, N7ZZ, K3JLT, KB2XZ, N8II, AD3V and AE6E. Their score was 41,957,244 points thanks to the 3 point advantage of being in South America. VP2KC still holds the world record of most QSOs and countries in CQ WW DX contest, as well as North American multi-multi record. Who is going to be the new king of the hill during the upcoming sunspot cycle?

FROM ARRL:

At the last Yankee Clipper Contest Club meeting Doug Grant, K1DG, reported on the latest ARRL Contest Advisory Committee activity. Doug is the New England Division representative, while N2LT represents the Hudson Division. Randy, K5ZD, resigned as the chairman of the committee, which Doug now heads. The CAC turned in a recommendation to the Awards Committee and the Board of Directors to not allow Contest QSOs arranged by non-radio means, but the Board has not yet acted on this. The ARRL QSO parties were discontinued by the Board of Directors, with no input asked from the CAC. The IARU has modified the Radiosport contest: name was changed to IARU HF Championship, the contest is now only 24 hours and the headquarters stations of IARU member societies (for example, W1AW) now count as separate multipliers. It is not yet clear how you will be able to identify these headquarters stations.

Several topics are currently under consideration by the CAC. There is a proposal for VE8/VY1 to count as separate multipliers in ARRL contests where the multipliers are states and as one multiplier in those contests where the multipliers are sections (Sweepstakes, for instance); this will eliminate having different rules for the 10m and 160m contests. There are several proposals for changing the club competition rules. For example, should the ARRL change the meeting attendance requirement to include members living inside "local" territory? Should they change how the three types of clubs are defined, perhaps basing it on the number of members operating rather than on the number of members? They are also considering how to change the DX Tests to make them more popular with DX operators, perhaps by allowing DX-to-DX QSOs, sending copies of the rules translated into the correct languages to DX IARU member societies, or by having club competition for DX clubs. The ARRL band plan changes for 160m will be published soon. The 160m Contest may be changed to disqualify operations in the DX window. There is still on-going discussion of QST contents and the amount of contest coverage. There is also still discussion about allowing spotting nets for single operator stations. (YCCC Scuttlebutt)

DXCC DESK:

Don, W3AZD, reported on DXCC matters. The main controversy here is the status of Aruba, now P4. The DX Advisory Committee is being asked for their recommendations. The P4 prefix is now used only by Aruba, not by any of the other 5 islands of the Netherlands Antilles. Final independence from the Dutch is scheduled for January 1, 1996. Separate administration is no longer DXCC criteria. There is no change on the Pribilofs. Extraterritorial outposts, such as United Nations offices, embassies, etc., no longer qualify as separate DXCC countries, so 4U1VIC will not be a separate country. There is talk of an FCC banned-countries list again, to consist of countries where amateur radio is outlawed. Peter I Island meets current DXCC criteria and will count as a separate DXCC country if anyone ever activates it. The backlog of DXCC updates is now down to 11 weeks, with the addition of more manpower. Mount Athos does not currently allow amateur radio. (YCCC Scuttlebutt)

VE3SR LOOSES IN COURT

Jack Ravenscroft, VE3SR, has lost the court case mentioned in our previous issues. This was a surprise for Canadian hams who were quite confident that they were safe from the attack by the cheap appliance owners.

We spoke with Tom Atkins, VE3CDM, ARRL/CRRL Canadian Director, who indicated that Jack, VE3SR (ex VE2NV), was quite devastated by this blow of "justice." The judge has ruled that Jack was guilty and ordered him to pay damages and court costs amounting to almost $ 25,000. The Jack Ravenscroft fund collected about $ 18,000 in donations from US and Canadian hams. Jack is retired and hoped to enjoy this hobby in a new QTH in the Ottawa, Ontario, where he moved to from Montreal. He was ordered not to operate any transmitting equipment from his location. This is even after an embarrassing piece of evidence - a recording produced in court showing that it wasn't Jacks transmission but another ham's living farther away.

Jack has been off the air since August 1985. He has been harassed for about seven months prior to the that date. The Department of Communications was initially very reluctant to get involved. Thanks to pressure from CRRL officials and hams, they investigated the RFI, and established that Jack's station was clean. Even the DOC has been prevented from doing the tests.

The response from hams in Canada and USA has been tremendous. Jack is grateful for all the support and contributions. At this point Jack has two apparent options: to quit, pay the bills and move out hoping for decent neighbors next time, or, go all the way and fight the ruling in the name of all the Canadian hams. After Tom's conversation with him, it appears that Jack might be willing to go all the way if we are behind him. This was the first level court and based on the ridiculous decision and reasoning, it appears that there is a hope.

The implications are far reaching. Tom has already spoken to some representatives in the communications industry. At first they were reluctant to get involved, but after this court decision, they should worry more than hams. What it really means is that now we, hams, can go and sue the pagers, police transmitters, cellular telephone and other companies involved in transmitting and causing a "nuisance" to anybody's appliances, including the intermods to our VHF radios, etc.

It is about time for the DOC to step up their efforts in forcing the manufacturers to clean up the appliances which receive signals they are not intended to receive. The manufacturers should be liable for the poorly designed and RF sensitive gadgets they sell. How can a video recorder receive the RF signals while playing a tape? Just because the manufacturer is too cheap to put two dollars worth of RF suppression components in their product. The argument, that there is only a small chance of interference, is not valid any more. With proliferation of communications equipment around us the products must be RF proofed!

Unreasonably, Jack's neighbor is refusing any help in RFI proofing his appliances. I wonder what would happen if the Ottawa area hams parked their mobiles on the street or walked around the house in question with hand helds and interfered with Jack's neighbor? Would the neighbor sue to prohibit any traffic around his house?

If this case stands, then Ham Radio in Canada may end up on the endangered spieces list. So much for our efforts to bring more hams into ham radio. Why should anyone bother going through the exams, putting up a station, only to find out that his neighbor doesn't like it? This is the thanks to us and our forefathers for pioneering the radio communications, TV and getting it where it is today. The real hard boiled hams will have to resort to a move into swamps and forests, away from the "civilization" that we helped bring together by means of radiowaves.

Jack, and indirectly all of us, are in trouble, if we don't pull together. So far the response from Canada and the US has been tremendous. Donations have been pouring in. The CRRL, at their booth at the Durham Region Amateur Radio Flea Market, has collected $2,200 in donations in only three hours. Still, more is needed. Please mail your contributions to:

Jack Ravenscroft Susceptibility Defense Fund
Box 8873, Ottawa, ON, K1G 3J2, Canada

Contributions toward the fund will also be collected at the *RADIOSPORTING* booth during the Dayton Hamvention. This is the only kind of list we support. Stop by and put your name on the VE3SR help list. (VE3BMV)

ARRL DIRECTORS MEETING

Tom, K1KI, at the last YCCC meeting reported on activities at the ARRL Directors Meeting. The Board voted to change the ARRL 160m band plan to CW and RTTY from 1800 to 1840, and SSB and other wideband modes above 1840, with the segment from 1830 to 1850 reserved for intercontinental QSOs. They will not request this of the FCC, so the bandplan will be voluntary.

The Board voted to change the policy for awards on 24 MHz. This band now counts for DXCC (but not for 5BDXCC or 5BWAS). Field Day will use 24 MHz. These rules will also apply to 18 MHz when it becomes available, but not to 10 MHz.

The ARRL has filed a petition with the FCC to label home entertainment devices that are susceptible to RF (especially VCRs), noting that the voluntary rules are not working. PRB 1 has been successfully tested in court.

The ARRL is proposing to change reciprocal license identification requirements to follow the convention used by most other countries now: the reciprocal designation before the home call, for example W2/VE3BMV.

Tom thinks that perhaps the various ARRL newsletters should be combined; many of the mailing lists for them show great overlap. One member suggested that the combined newsletter be called "QST Classic". (YCCC Scuttlebutt)

WANTED!

RADIOSPORTING is looking for articles, pictures and news items. Also needed are column leaders for the following departments: DX Monoband Reports, IRSA Awards, IRSA Contests, VHF/UHF, Satellite, Computer Hardware/Software, SWL, Contest Results and Records, etc.

ANTENNAS

Ken, "Judge" Glanzer, K7GCO

LOW BAND ANTENNAS

With the LOW BANDS in with declining sunspots here are some hints for effective DXing and contesting. As I mentioned in my article "Low Frequency Ground Wave Antennas" in the February 1986 issue of *RADIOSPORTING*, try to use things around you for very effective receiving antennas.

The main idea is to use a low horizontal antenna for receiving only as it gives very good signal to noise. Use the vertical or vertically polarized antenna for transmit and a low horizontal antenna for receive. Anything metallic close to the ground will work well. It has to be matched to 50 Ohm receiver input and that is where an L-network really performs and there is also good bandwidth with it also. There are many simple ideas in above mentioned article.

One important note on the "Toilet Antenna" mentioned in the above article: it works only with good old metal drains and pipe. The newer homes with plastic pipes won't work.

Another important note about grounding the wire receiving antennas. It should be stated that grounding the wire at the other end is a bit different but all that does is to shift or reverse the current distribution and give a good static drain at the opposite end of the antenna from the receiver - a very important point. We have been brainwashed since the beginning of radio to use insulators. Nonsense! I do a lot of things contrary to standard practice, as they have been wrong all this time. The pattern of the long wire antenna is the same grounded or insulated on the end - bidirectional. Only the properly terminated is it directional off one end. It's like the guy in the apartment and voltage feeding the vertical wire at the top, because that is where he was. The ground was at the bottom. L networks will match anything so use any length. (Length is important for the radiation pattern formation.) Many would run a coax down to the ground level. Absurd.

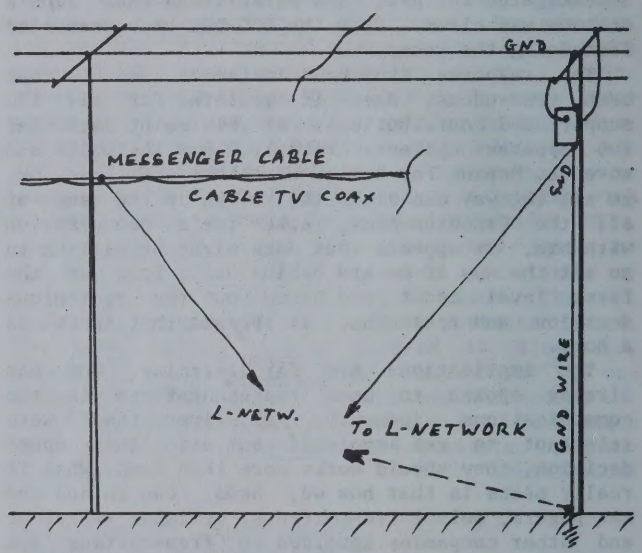
The most startling thing I came across in some time is a Beverage antenna where the wires just lay on the ground. It does not work too well on highly conductive ground. They work better (in terms of signal strength) 10 feet off the ground, but the signal to noise ratio is progressively better closer to the ground. I found that a wire just 25 feet long that runs out to a ground rod with a series capacitor (tuned to 1.2 : 1 by luck) made a good receiving and transmitting antenna on 160 m. We have been using ground wires for the wrong reason all the time. Now 100 ft wires grounded at the other end work better than 25 ft, and 250 ft wires work better than 100 ft ones. The point is to put up what you can and use it.

Strange things happen on 160. My 160 vertical is just too noisy to use for receive. I find inverted Vee about half way in between. Whatever antenna one has, they should short out the feeders and tune it with an L network and see what it will do on 160.

I spent a couple of hours with "160 m Dennis," N7CKD and gave him some ideas. He needs an L network and I will make him one. I will also tune his AC power line for him on 160. What could be a better Beverage than the power line? The telephone wires work well as an antenna for broadcasting band (AM) or 160 and 80. I used it back 35 years ago. Use the noise bridge and a tuner to match it to 50 ohms for receiving.

Using the power line for a receiving antenna is very effective, but I think the pole transformer stops it right there. So coupling to the power lines with long piece of wire or a loop may be more effective.

Some AC distribution on the streets uses pole transformer which has the grounding wire running to the ground rod. This wire is also connected to "common" wire or ground wire that runs together with wires carrying the live phases to the transformer. "Tapping" to that ground wire just below the pole transformer can give good point for the match against the ground and a sufficient coupling to rest of the wires. I am going to try it. But be careful, we are not responsible for any injuries as a result of your experiments.



Since my power lines a buried I came up with another idea for low band receiving antenna. I ran a wire to the messenger wire holding the cable TV coax under the power line. The wire is brought into the shack and I matched it with an L network on 80 and 160 m. I compared it to my 80 m vertical and in certain directions it is as good or better. In others it was 4 to 6 S-units down showing directivity. The messenger cable is only 20 feet high. This is a receiving antenna only, If I transmitted on it, I am sure I would have a lot of TVI. It works really well on 160.

I have also found that we have been hooking the wire that goes out to a ground to the wrong terminal on our receiver all these years. Instead of hooking it to the "G" (ground) terminal, hook it to the "A" (antenna) terminal (with proper matching). It is a fantastic low frequency receiving antenna. I use one wire of the 110 V AC line with a fixed capacitor (for safety and coupling) and a variable capacitor (for matching).

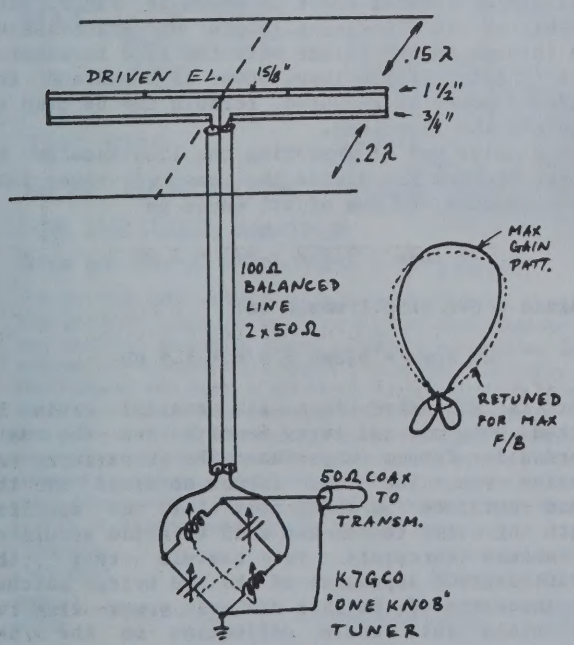
BALANCED FEEDERS AND F/B

I am building my "Balanced L to Coax Tuner" now. There are two variable inductors and two variable capacitors, all varying in an "educated manner" using just one knob. This tuner is for open wire feeders and 100 ohm balanced coaxial cables - two RG8 types connected in series. This type of coax feedline gives very "clean patterns" with minimum side (back) lobes.

There is a 3 element beam design I have that has an unusually clean pattern all the way around the back. It was tuned that way at a slight loss of gain. I heard a demonstration on 20 meters with it one time that was very impressive. It uses an unequal diameter folded dipole driven element with 100 ohm balanced coax into a balanced antenna input terminal. This also reduces the noise pickup because the coax shields are connected at the antenna end to ground (center of driven element) and serves as an electrostatic shielding. Fig. 1

(de VE3BMV: This could work very well with W2PV 4 el. yagi described by K1GQ in this issue.)

Once I had an impressive demonstration on 20 meters, when signals were coming through from different areas of the world. When the beam was on Europe (back in AM days - 1958) one G5 was coming through with S9 signal. The beam was turned towards ZS and G5 faded away with ZS station coming up on the same frequency. Turning the beam south, ZS disappeared and PY came thundering in without QRM from ZS. When beam was turned towards VK the PY dropped out. When turned NW and JA came in with S9+ signal. All five stations were on the same frequency on AM and within a three minute time period. How do you like them apples? That was the greatest beam demonstration I ever heard. I have another configuration that gives excellent F/B and gain at the same time.



I have a chance to get a TEN-TEC amplifier, the older one. It has 50 ohm output and receive/transmit switching fast enough for backscatter. I use the backscatter to probe for band openings. "Dots" on CW are transmitted with quick switch to receive. I can hear my "dots" coming back and by reading their strength and delay I can tell how good the opening in particular direction could be.

This concept is also applicable to antenna testing under various conditions. I can tell how well an antenna will do into any area and if the band is even open. You send out "radar pulses" about 8 a second (CW dits) and "listen" on the scope on the IF's triggered to sweep at the end of each dit. You measure the time between it and the blip and divide by 2 and convert to miles. You need a fast recovery transceiver (break in). If there is a pileup you go off frequency and do a test to see if your radar dit is coming back from that distance or compare antennas to see which one is best for that distance. I say a DXer or contester is limited with one beam. That's why I designed this beam with six polarizations to change the vertical angle of radiation: Horizontal, Vertical, 45 degrees right, 45 deg. left, Clockwise, Counterclockwise. I can test antenna without the contact. This is a powerful concept. W7WVE used to hit the key for a dit and listen for an echo and could hear them if the band was open. Talk about simplicity. He pulsed the band south one time and got an echo back. He called CQ and Russian called him. Later a local station called him and asked him what frequency the Russian was on. He had the beam pointed "natural" direction - north. Who works Russians south?

10 and 15 meters are often open for local or DX communication, even when the band at the times seems "dead." Occasional CQ can bring some real surprises. It seems that every Filed Day 10 m band opens up. This when the "backscatter probing" can really help. It also shows that the shortest path is not always the best. Skewed path or scatter can bring surprising signal levels. Mike Stahl, tells me that their (KLM) log periodics seem to do better on backscatter apparently due to a broader vertical pattern.

Tipping the boom up 30 to 45 degrees can open and close the band some 20 minutes earlier and later, and again, the backscatter probing can tell when to do it or the effect. One 10 meter operator who was using this idea drove others nuts as they could not hear the DX he was working.

Now the ultimate for receiving and signal analysis is a Spectrum Analyzer. Good one costs about $ 40k, but you can see the whole band at once and in 3D. (Cheap version using scope can be home brewed.) This is the most useful DXing aid I have ever seen. You can tell where everyone is and where to zig or zag too. Beg, borrow or steal one if you can!

OTHER IDEAS

I am going to run tests on tubes vs. transistors for sensitivity of my 75A1, SX88 against my IC720 and a Ten-Tec transceivers. Have we made any progress?

Here is a trick I have done on CB sets and 10 meter receivers years ago. It is certainly true that voltages and currents involved when receiving signals are very low, so the large size wire is not needed as in kW transmitters. I have found that enlarging the wire in 15 and 10 meter buffer and and RF coils in receivers adds the sensitivity. You can't feel the loss, but it is still there at any level. I may try silver plated wire next time in 10, 15 and 20 meter receiver RF coils.

I have been overhauling towers. Painting is a pain. The quickest, cheapest and longer lasting solution is to take a rusty tower to galvanizers. Another way is to get the sand blaster to clean the tower from rust and then use good epoxy paint and spray paint it.

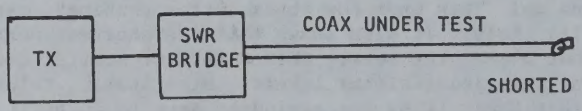
I have three conversions for PropPitch motors to speed them up. They are the best rotators ever made. I also have a maintenance procedure and some novel selsyn indicator ideas. Any interest out there?

Quads can be improved by using heavy conductors instead of the usual thin wire. The RF resistance of the wire is higher than you think and it lowers Q even more and increases losses.

MEASURING COAXIAL LINE LOSS

Quite often the coaxial cables deteriorate with time due to contamination of their dielectric, water getting inside of the coax and other abuses. It is important to check the line loss periodically in order to avoid losing that precious signal we work so hard to extract from the air.

The following is a simple procedure on how to check your coax cable losses using your SWR bridge and it doesn't require the use of dummy load.



The set-up required to measure the loss in dB in a length of coaxial cable.

To explain this test procedure let's have a look at the perfect feed line, that has no loses. We short the far end of the cable, tie the braid and center conductor together. When the power from the transmitter is applied to this line at the open end of the coax, the directional wattmeter (SWR bridge) will read the same reflected power as the forward power since the shorted end (load) reflects all the power back to the generator without loss.

Now consider a line that has a 1 percent loss. For given input only 99 % of the forward power reaches the load, a short. The entire signal is reflected and travels back to the generator, again losing 1 % of its power. Thus a directional wattmeter would read 98 % reflected power. This indicates a 2 % loss, 1 % forward and 1 % in reflected power.

When the feed line losses increase, less and less power is received and reflected by the load (short) and less power is received back at the generator. By measuring the reflected power when the transmission line is terminated in a short the feed line loss can be accurately determined.

As an example, let's have a look at a feed line that delivers 70 % of the input power to the load. With 10 watts input, 7 watts is received and reflected by the load, a short. On the return path the 7 watts reflected also suffers a loss and only 70 % of the 7 watts will be returned to the transmitter, 4.9 watts or approximately 5 watts. Thus for a 10 watt input 5 watts is returned. This represents 50 % reflected power.

To calculate the loss in dB for our example we have

$$\text{loss in dB} = 10 \log P1/P2 = 10 \log 10/5$$
$$= 10 \log 2 = 10\ (0.3) = 3 \text{ dB}$$

where P1 is Input power and P2 is reflected power

Since half of the power was lost in the forward direction and half was lost in the reflected direction, the line has a loss of only 1.5 dB rather than 3 dB as shown above. To determine the loss in the transmission line directly, the formula can be simplified:

$$\text{loss in dB} = 5 \log P1/P2$$

Looking at the SWR versus dB attenuation charts 50 % loss in power is equal to an SWR of 6:1. In order to form a pattern that will enable us to correlate SWR, reflected power percentage and line loss let's consider another example. If a transmission line delivers 5 watts to the load (a short) for 10 W input, only 2.5 W will be reflected back to the generator. This represents 25 % reflected power. The loss of the transmission line is:

$$\text{loss in dB} = 5 \log P1/P2 = 5 \log 10/2.5$$
$$= 5 \log 4 = 5\ (0.6) = 3 \text{ dB}$$

Charts tell us that 25 % reflection of power is equal to an SWR of 3:1 as well as loss of 3 dB on the transmission line.

PRACTICAL MEASUREMENTS

The equipment set up for measuring the loss on a length of coaxial cable is shown in Fig.2. The transmitter is feeding a length of transmission line through an SWR bridge with the line terminated in a short. If the input power is known and the reflected power is measured, formula can be used to calculate the line loss.

A simpler way of measuring the line loss is to measure the SWR and divide the measured value into 9. For example, an SWR of 3:1 would be

$$\text{dB loss} = 9/\text{SWR} = 9/3 = 3 \text{ dB}$$

Again a SWR of 6:1 would be:

$$\text{dB loss} = 9/\text{SWR} = 9/6 = 1.5 \text{ dB}$$

It is suggested that all coaxial cable be checked when new and every 6 months and the data recorded for future comparison. The comparisons may surprise you. The loss figure obtained by the method outlined is valid only for the specific length of cable tested and will be quite accurate. To assure accuracy be certain that the characteristic impedance of the SWR bridge matches the impedance of the line and only power required to obtain full scale deflection on the SWR indicator is used. Also do the test on the frequency of intended use. The line losses in the coaxial cable vary with frequency used. With higher frequency, higher losses are experienced. Now you will be able to tell how much power and signal is consumed by your feedline on particular band.

(K7GCO)

W6SAI BOOKS

published by Bill Orr, W6SAI and Stu Cowan, W2LX

BEAM ANTENNA HANDBOOK

Completely revised and updated with the latest computer generated information on BEAM Antenna design. Covers HF and VHF Yagis and 10, 18 and 24 MHz WARC bands. Everything you need to know. 204 illustrations. 268 pages. ©1985. Revised 1st edition.

☐ RP-BA — **Softbound $9.95**

SIMPLE LOW-COST WIRE ANTENNAS

Primer on how-to-build simple low cost wire antennas. Includes invisible designs for apartment dwellers. Full of diagrams and schematics. 192 pages. ©1972 2nd edition

☐ RP-WA — **Softbound $7.95**

ALL ABOUT CUBICAL QUAD ANTENNAS

Simple to build, lightweight, and high performance make the Quad at DX'ers delight. Everything from the single element to a multi-element monster. A wealth of information on construction, feeding, tuning and installing the quad antenna. 112 pages. ©1982. 3rd edition.

☐ RP-CQ — **Softbound $6.95**

THE RADIO AMATEUR ANTENNA HANDBOOK

A wealth of projects that covers verticals, long wires, beams as well as plenty of other interesting designs. It includes an honest judgement of gain figures, how to site your antenna for the best performance, a look at the Yagi-Quad controversy, baluns, slopers, and delta loops. Practical antenna projects that work! 190 pages. ©1978. 1st edition.

☐ RP-AH — **Softbound $7.95**

Please enclose $3.50 for shipping and handling.

VISA MasterCard

ham radio magazine BOOKSTORE

GREENVILLE, NH 03048 (603) 878-1441

AVAILABLE NOW



THE 1986 ARRL HANDBOOK FOR THE RADIO AMATEUR

Great gift idea for a ham friend or for yourself!

The new 1986 ARRL HANDBOOK is chockfull of projects, ideas, hints and kinks, theory and thousands of other handy things for your hamshack. New items include: switching power supplies, data and telemetry transmission, a section on conjugate matching by Walt Maxwell, data interface and Packet Radio, and remote control aircraft to name just a few examples. New projects include: 30 amp power supply, ATV monitoring instruments, digital frequency synthesizer, 1500 watt output 160 meter amplifier, state-of-the-art preamps for all Amateur VHF/UHF frequencies and much, much more. A grand total of 244 new pages! This is the reference book to have. Order your's today. ©1985. Over 1100 pages.

☐ AR-HB86 — **Softbound $17.95**
☐ AR-BB86 — **Hardbound $26.95**

VISA Please enclose $3.50 to cover shipping and handling. MasterCard

ham radio magazine BOOKSTORE

GREENVILLE, NH 03048

MORE OPTIMIZED YAGI ANTENNA DESIGN

Carl Hueter, KM1H

I have now received four issues of *RADIOSPORTING* and must say I like what I see. In particular I would like to comment on the "Optimized Yagi Antenna Design" article by N2FB in the March issue.

As I was reading the article, my first question was why not the 4-PV (W2PV 4 el. yagi design)? It seems that Yuri, VE3BMV had the same thoughts. Turn to page 8 of the same issue and you will see a real live stack of 4-PV's at my station. The 4-PV has received extremely little publicity, an article by K1GQ in YCCC Scuttlebutt a few years back is the only definitive description that I know of.

(We also published this article in RADIOSPORTING, *but some of the numbers were not very readable. We have obtained the original artwork from Paul, K1XM and we are reprinting the article again in this issue. VE3BMV)*

I selected the 4-PV for many reasons, the foremost being the reputation of the designer. Another firm requirement was that 10, 15 and 20 all had to go on one tower. Jim, W2PV has been the only person to take stacking into serious consideration and, it has been glaringly absent in other articles. The .57 wavelength boom is a winner in this category. The booms are non-resonant on any band and stacking degradation of the front to back ratio is minimal. Jim admitted to a serious effect with his 6 element .75 wavelength antennas, that required readjustment of element length from the stand alone situation.

Let us examine the ham who is going to seriously undertake the construction of his own antennas and can most benefit from published articles.

1. He is probably fed up with the performance of his commercial tribander and getting stumped in the pileups.

2. He has already got his feet wet in DX and/or contests and is ready for the next step in his station improvement.

3. He realizes that most commercial antennas are compromises (even monobanders) and that some designs predate computer analysis.

4. He hopes that a modern design can offer superior performance and even save a few dollars to boot if it is home built. Superior performance does not necessarily mean squeezing the last hundredth of a dB of gain out of a design. It does mean that with todays herd mentality. (We all know hundreds of fellow "hams" wallowing up to every pileup, every day, just to prove their superiority.) he not only must be able to be heard by the DX station but he must do everything possible to minimize the QRM so the DX can be heard. This means superior front to back and front to side ratios.

5. He does not usually have the time or means to build each antenna, evaluate and adjust it in a stand alone environment, take it down and make the stacking corrections, and put it back up again hoping that it will work as well as before. Repeatability is a mandatory criteria.

6. He does not have a tower or rotator capable of handling three quarter of a wavelength boom

monsters, particularly on 20 m.

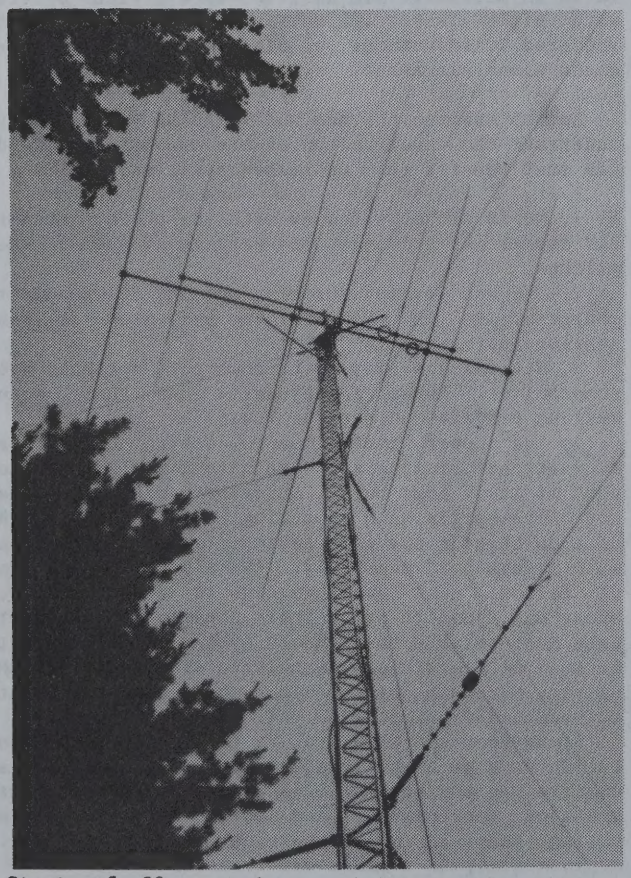
7. He is probably very confused about how good is the computer design. After all the computer is only as good as the human programmer, be it a PC or a Cray or any of the multitude between those extremes. (I have seen three programs designed to run on DEC computers that give three different answers; and they were all written by competent people.)

The case I wish to make for the 4-PV is as follows:

1. Within 0.5 dB gain from the .75 wavelength boom and bit over 1 dB down from the 1 wavelength.

2. Front to back in excess of 40 dB at center frequency and dropping to about 25 dB at the 2:1 VSWR points. Measurements were made with both a 75A4 and R4C, using the S meters for a refrence only, and a precision step attenuator. Under certain operating conditions F/B has exceeded 55 dB, which is within calculations but usually not attainable under varying band conditions. Not exactly lab conditions, but numerous comments of "My God, you went from 10 over 9 down into the noise" tells me this thing works.

3. I built and evaluated each antenna separately at 40 feet and at 100 feet. When finally stacked on the 100 foot tower, virtually no degradation was noted on 15 and 20 m bands. The 10 m beam did show two small tails off the back about 25 dB down. Stacking distance is 9 feet between 20 and 15 and, 6 feet between 10 and 15. No changes to element length were made from the original tests at 40 feet. Increased separation of the 10 meter yagi is indicated but not tested.



Start of 20 m project, visible is 20 m rotary dipole, 15 and 10 W2PV 4 el. monoband yagi antennas

4. A very substantial reduction in windload and weight. The 4-PV utilizes boom length usually reserved for 5 and 6 element designs. The version I built uses a severe taper schedule for the elements. The 20 meter element utilizes 6 different diameters ranging from 1.125 to .5 inches and has survived a hurricane and severe icing. The entire array is turned by a Tailtwister and is on Rohn 25 tower.

5. All elements are mounted directly to the boom with 0.25 inch aluminum plates and plated (plus cold galvanized) hardware. The driven element is fed through a T match and half wave coax balun. (No ferrites permitted at this QTH!) The T match uses no capacitors and all metal is at DC ground potential (T match data came from the a 1949 CQ magazine.) Feed lines are CATV 75 ohm hardline. Lightning has hit the tower on numerous occasions with no damage to antennas or rig. Additionally, the array appears to be almost impervious to precipitation static as well but that is only based on the observation that when other locals are having severe static I have none or barely perceptible at the most.

A disadvantage of the 4-PV is that the VSWR rises rapidly on the high side of resonance. The high side 2:1 points are 14.3, 21.4 and 28.8 respectively, which is well within the DX portions of the bands. Gain and F/B are still very much evident up to the band edges on 15 and 20 and at least 29.0 on 10 meters. My driven element, as are N2FB's are on the short side and even use a less radical taper in an effort to lower the Q.

I believe that N2FB and others are off to a fine start and my hat is off to those who are willing to share their information but let's take it a step further. Define what is meant by optimized. Always plot radiation patterns over 360 degrees; many computer runs do not and thereby miss those little tails off the back. Take a serious look at stacking parameters. How about a modified 4-PV or N2FB exhibiting better mechanical balance. My antennas are mounted at the boom center but the front of the booms are weighted for balance. Plot for various element tapers to compensate for varying pocketbooks, climate and mathematical ability of the readership. Carry the filter comparisons through to the end, a whole new yagi era may be around the corner. Is the angle of maximum F/B reciprocal with the forward pattern; use of three dimensional graphics should yield the answer. How about critical evaluation of commercial monobanders. Is it possible to design a high performance multi band yagi with interlaced elements? How small can a 80 meter yagi be made and still maintain a certain level of performance; or 160! What are the proper dimensions to make multi element, inverted V, wire beams really play well?

Let imaginations run and don't be afraid to experiment. A lot of good work was done before computers.

Maybe *RADIOSPORTING* can become the international clearing house for antenna designs since the readership is oriented to performance. The other magazines have excessive publication lead times and/or are controlled by a clique with a fixed mind set. Why, for instance, has the 4-PV information been suppressed? (KM1H)

(de VE3BMV: I guess W2PV never published the article by himself, this antenna was first circulating in the YCCC circles and thanks to K1GQ it has been put on the paper. Another advantage RADIOSPORTING *has that its editor got his "hands dirty" in the antenna design, building and evaluation and managed to design RAZOR beams that have not been topped yet as far as gain and performance goes. We are looking forward to antenna discussions on pages of* RADIOSPORTING, *so lets hear your experiences.)*

Carl, KM1H was first licensed in 1954 and has held numerous calls in the US and abroad prior to 1970. From 1970 to 1982 building a career and raising a family precluded any ham activity. Starting over again in 1982 he has been slowly building a competitive DX oriented station and has numerous DX and contest awards including the world record for 80 meter multipliers (81) in the ARRL DX contest (1985). He is currently employed by Wang Laboratories in a management position dealing with broadband local area computer networks. Carl has managed to build a very effective all band antenna installation using only one tower. We are looking forward for his articles describing the construction of his antennas.

The following is a reprint of the article by Bill Myers, K1GQ, as it originally appeared in the Yankee Clipper Contest Club bulletin - Scuttlebutt in May 1982. We are also reprinting the original dimension charts. Our thanks to Paul Young, K1XM for providing the original material. (VE3BMV)

W2PV 4 el. YAGI

Bill Myers, K1GQ

Most of you know of the series of articles in ***ham radio*** by Jim, W2PV. In that series, Jim showed that there are particular boom lengths which have naturally good radiation patterns (i.e., small back lobes). The two smallest magic boom lengths are 0.3 and 0.75 wavelengths. The yagi designs in Jim's series are based on these boomlengths, with equally-spaced elements.

For several years there has been a "4-element PV" yagi design drifting about in YCCC waters. The antenna was indeed designed by Jim, but it is not shown in the ***ham radio*** articles, or in his forthcoming book. This design is the exception that proves the rule: the boom is 0.57 wavelengths, yet the front-to-back ratio is exceptional. (Also violated is another old canard that the "optimum" reflector spacing is 0.2 to 0.25 wavelengths; Jim's design uses 0.12 wavelengths!)

The plots show the performance of the PV-4, as calculated by my yagi modelling program, using the original element construction given by Jim to Saul, K2XA. Notice that the front-to-back ratio versus frequency curve has a very sharp peak. (The dashed curve on this plot is a new feature. It is the front-to-sidelobe ratio, for the largest lobe off the back of the antenna — theta from 0 to -90 degrees.)

The gain and VSWR tend to degrade rapidly at the high end of the band. Greg, W1KM, wrote to ask why manufacturers often do not provide dimensions for the cw enthusiast — this is the answer. Most yagis (and particularly the PV-4) will perform well on cw if tuned at the center of the band, but will suffer severe degradation in the phone band if tuned for the cw end of the band.

Nevertheless, some diehards don't own microphones and want to peak up antenna performance for cw. Here's a method which has worked well for me:

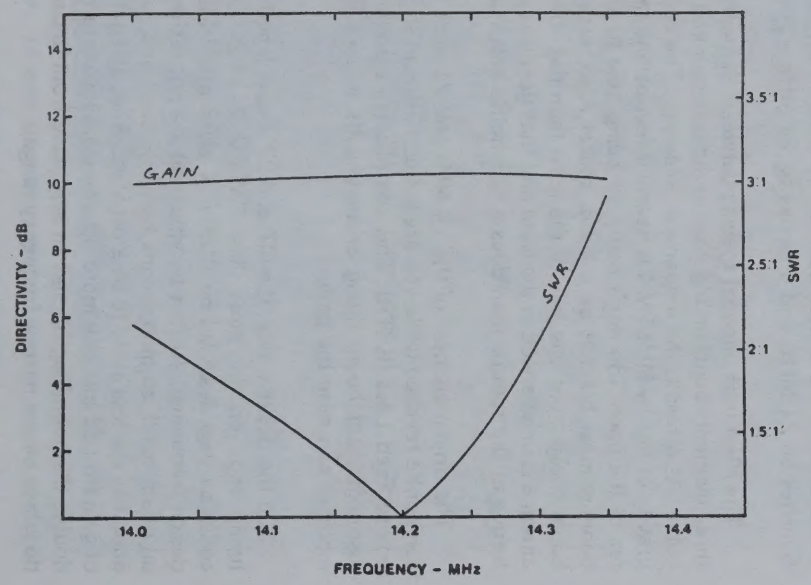
1. First, determine the frequency where front-to-back is maximum. To do this, find a ham within a few miles and record his signal strength with the beam pointed towards him and away from him, at several frequencies (2 meters is very helpful for test coordination). The difference between readings is proportional to front-to-back ratio; thus, you want to find the frequency where the difference is largest.
2. Compute the change in element length as
   $$dL = (F_{PEAK}/F - 1)L$$
   where L is the original element length, F_{PEAK} is the frequency where front-to-back ratio peaks, and F is the desired frequency for the peak. Add one-half of dL to each half of the element (subtract if dL is negative). Do this for each element.
3. Readjust the antenna matching network for minimum SWR at the center of your subband.

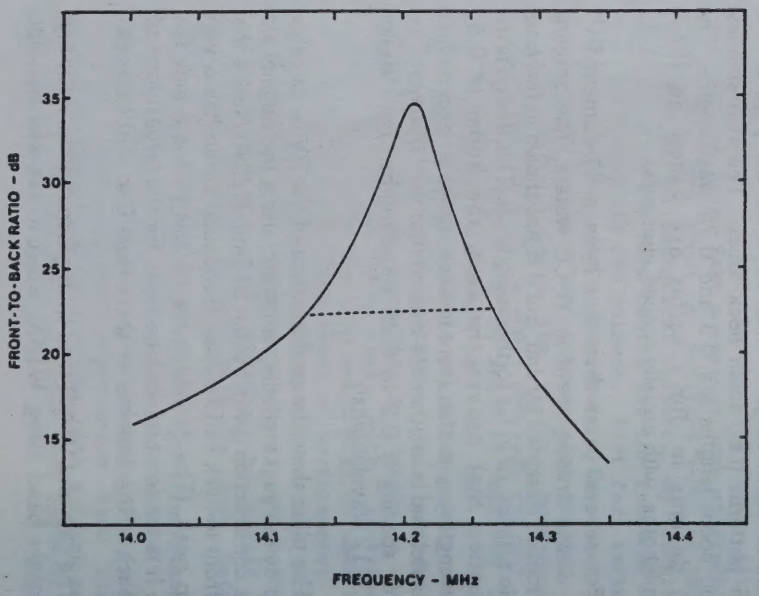
Incidently, if you are only concerned with improving the match between the antenna and transmission line, without shifting the gain and front-to-back curves, you can vary the length of the driven element considerably without changing the other element lengths. The dimensions shown here for the PV-4s have inductive reactance at the design frequency — my gamma matches like to see capacitive reactance so I've shortened the driven elements by 8 inches on 14 MHz, 6 inches on 21 MHz, and 4 inches on 28 MHz.

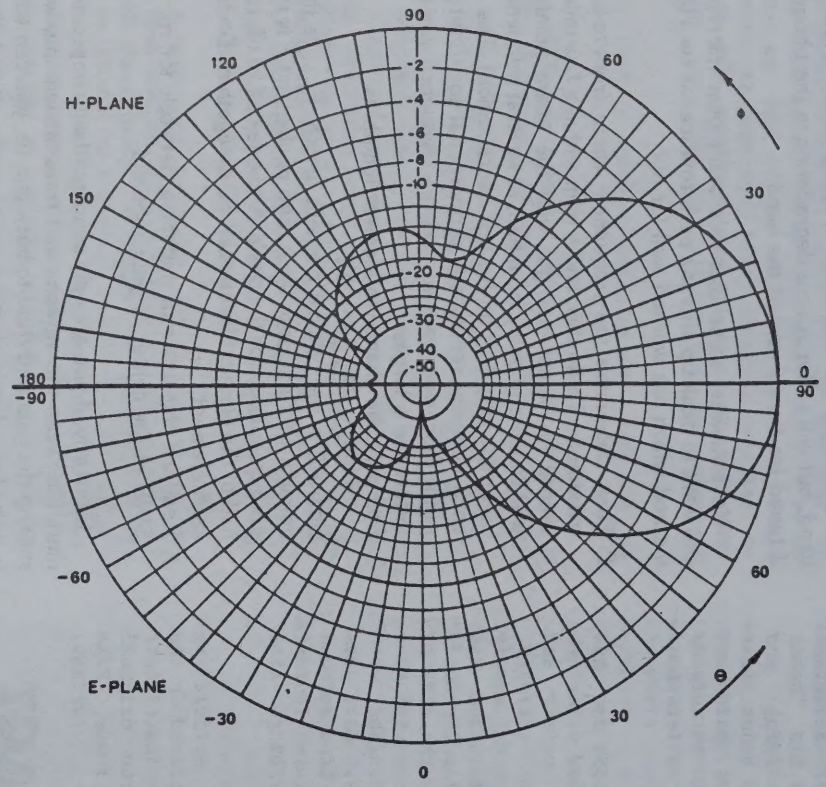
The PV-4 uses unequal spacing between elements, with three elements bunched together at the reflector end of the boom. As a result, the antenna is tail-heavy. The center of gravity of my 14 MHz PV-4 is nearly 2 feet behind the center of the boom. So don't count on being able to use the boom-to-mast bracket as a boom splice! Also, with more boom sticking out one side of the mast than the other, the antenna is unbalanced in the wind and thus generates more torque at the rotator than does a symmetric antenna.

The driven element of the 14 MHz and 21 MHz PV-4s can not be reached while you are belted to the mast, unless you're Fred Lass (K2TR). This complicates matching adjustments, but boom tilting arrangements and/or omega matches can ease the pain.

On the positive side, the 40' and 27' boom lengths (the funny code on the plots, like "W2PV-4-14.2-40" decodes as yagi designed by W2PV, 4 elements, 14.2 MHz design frequency, 40 foot boomlength) are not resonant in any ham band, so interactions between fixed and rotating antennas are less likely to be a problem. And, you get a ton of gain (to add just one more dB you would have to nearly double the boomlength), and an incredible front-to-back ratio (albeit over a narrow frequency range). ■

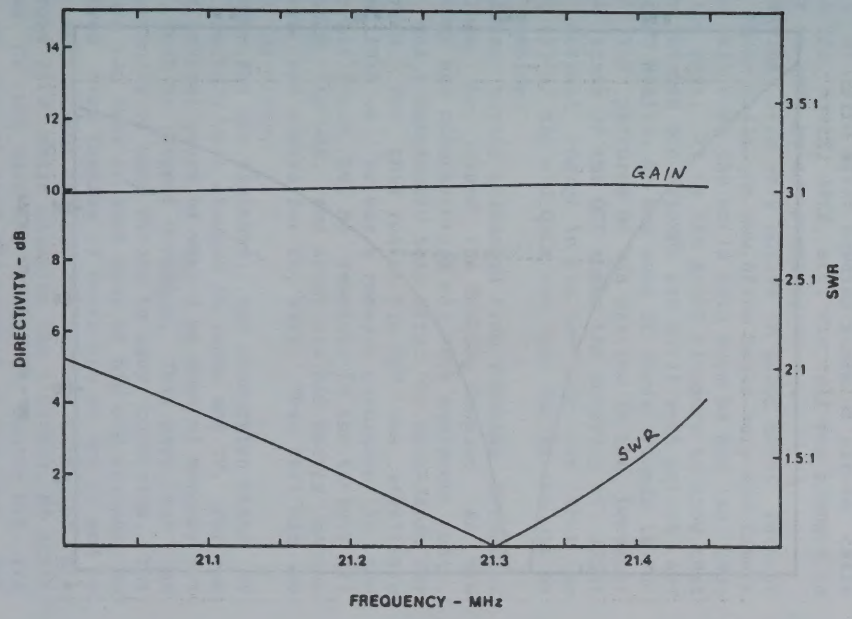


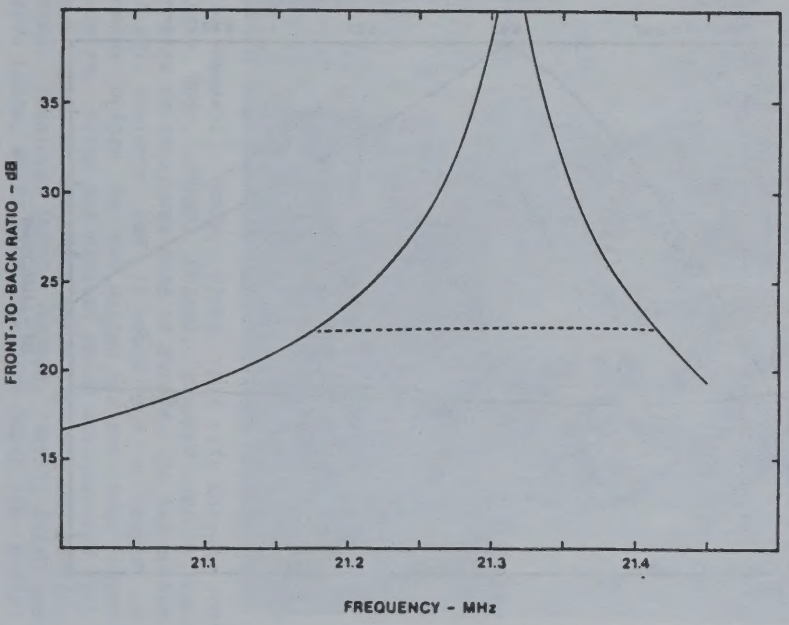


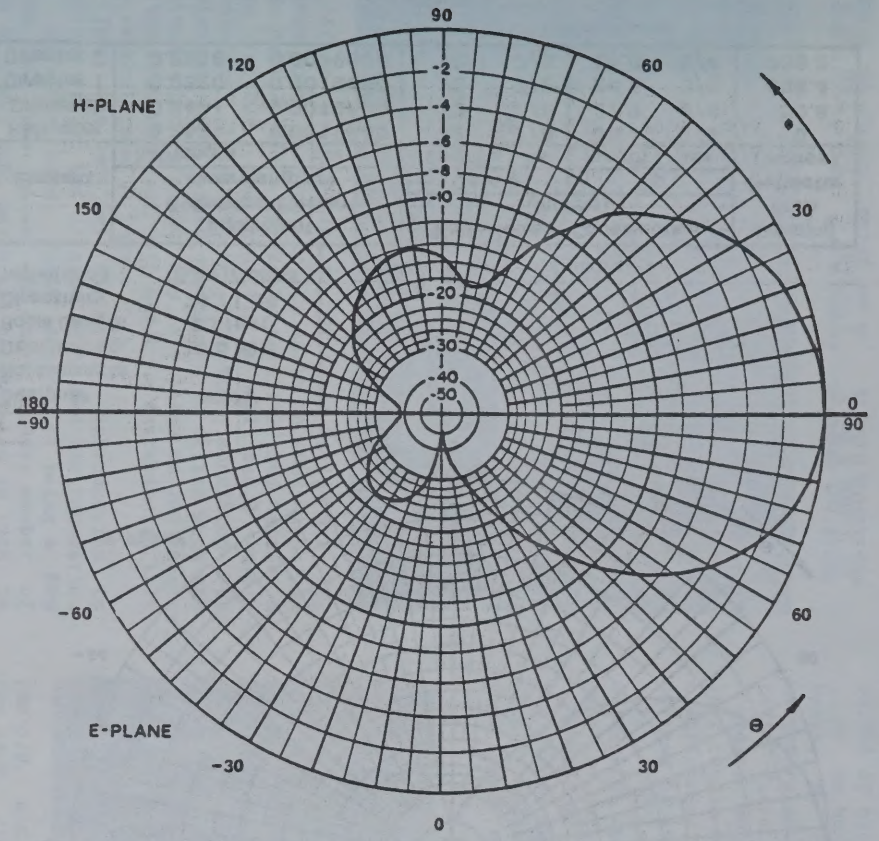


Designer	W2PV
No. Elements	4
Design Freq.	14.2 MHz
Boom Length	40 feet
Directivity	10.14 dB
Impedance	16.6+j6.1 ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)						Spacing From Reflector (inches)
			Center		Middle		Tip		
	halflength	dia	length	dia	length	dia	length	dia	
Reflector	0.2525	0.0010419	72	1	68	7/8	73.2	3/4	0
Driven El	0.2411	0.0010419	72	1	68	7/8	63.5	3/4	102.3
Director 1	0.2341	0.0010419	72	1	68	7/8	57.5	3/4	268.7
Director 2	0.2270	0.0010419	72	1	68	7/8	51.5	3/4	475.8

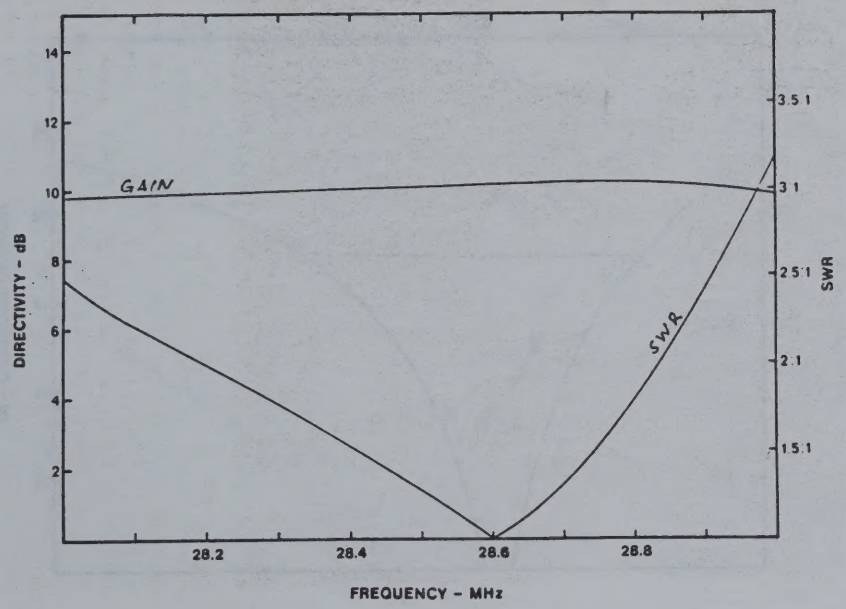


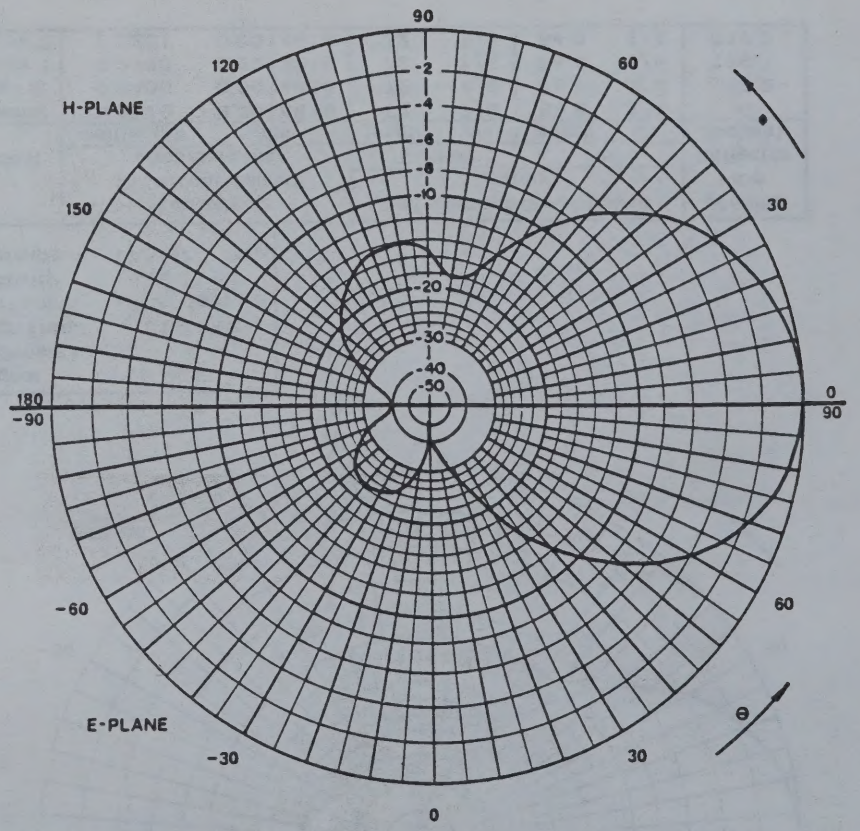


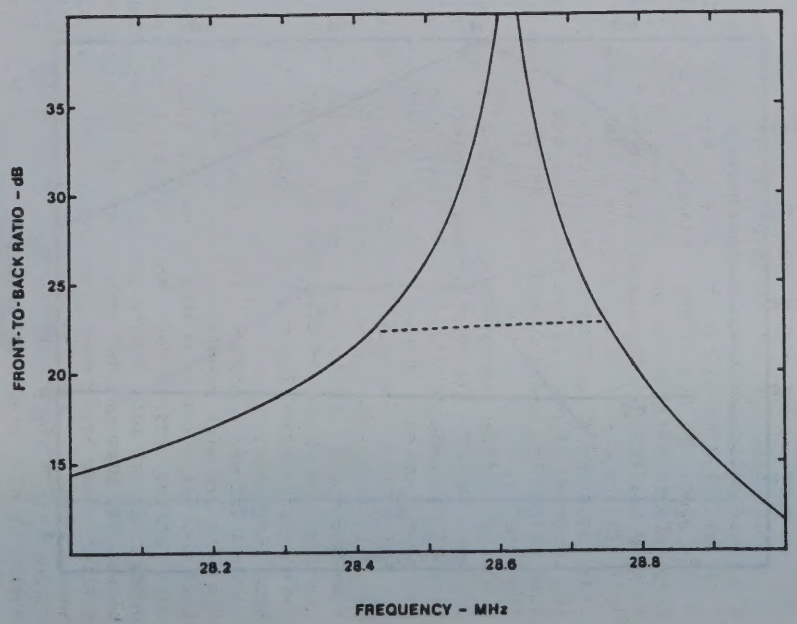


Designer	W2PV
No. Elements	4
Design Freq.	21.3 MHz
Boom Length	27 feet
Directivity	10.11 dB
Impedance	17.1+j7.1 ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)				Spacing From Reflector (inches)
			Center		Tip		
	halflength	dia	length	dia	length	dia	
Reflector	0.2529	0.0014619	72	7/8	69.6	3/4	0
Driven El	0.2406	0.0014619	72	7/8	62.7	3/4	68.2
Director 1	0.2330	0.0014619	72	7/8	58.4	3/4	179.1
Director 2	0.2251	0.0014619	72	7/8	54.0	3/4	317.2



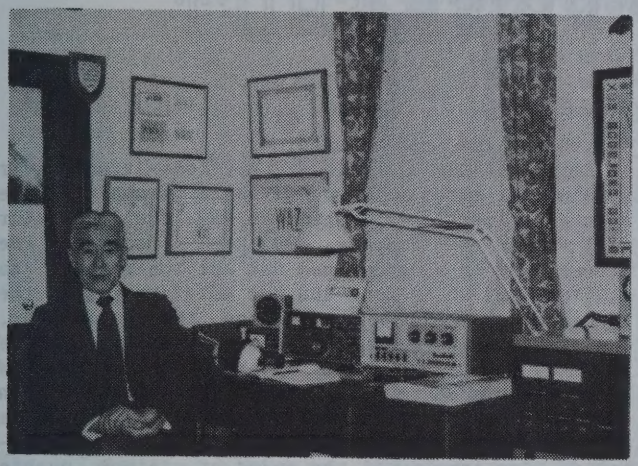




Designer	W2PV
No. Elements	4
Design Freq.	28.6 MHz
Boom Length	20 feet
Directivity	10.11 dB
Impedance	16.8+j7.ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)				Spacing From Reflector (inches)
			Center		Tip		
	halflength	dia	length	dia	length	dia	
Reflector	0.2521	0.0019630	72	7/8	33.4	3/4	0
Driven El	0.2401	0.0019630	72	7/8	27.9	3/4	50.8
Director 1	0.2320	0.0019630	72	7/8	24.5	3/4	133.4
Director 2	0.2238	0.0019630	72	7/8	21.0	3/4	236.2

TAROH YAGI, JH1WIX



After many years of QRT since World War II, Taroh came back on the air again in 1969 with his new call JH1WIX. He was born in 1908 and became a ham in 1924. The first rig he built was a simple radiofone transmitter directly modulated by telephone type carbon microphone in series with the antenna circuit of Hartley oscillator on 200 meters (1500 kHz) band and with which he succeeded to talk to several hams in Tokyo.

This was not only his first introduction to amateur radio but it also initiated the foundation of Japanese hams. Taroh is proud of being a ham from that time. Also, he was a founder member of the original JARL which was established in 1926. In those days there were no official licenses. It was in 1929 when he was officially licensed under the call of J1DO after several years of pirate calls like 1ZB, AJ4ZZ, J4ZZ, etc. His call was changed to J2GX in 1933 by new regulations.

Having been very active in DXing going through all those calls, he now often meets very old timers from all over the world with whom he has had QSOs in the past. It is his great pleasure to know that many of his old friends are still very active and in good health. He has some of these friends in FOC too! The pictures of his station in the December 1934 issue of the QST shows the activity of J2GX! The deepest regret in his ham life was that he lost all of his old QSLs and logs during the war by the bombing.

After having graduated from Yokohama Technical College, he joined the Toshiba Company. As his factory was manufacturing military equipment only, he was tremendously busy after the Sino-Japan War started. For this reason his QRT was inevitable from 1938 on. He was a reserve Lieutenant in the Army-Air Force, but he remained in the factory all through the war, and spent all his energy making radars and sonars for the Navy. This left him no time for sleep.

When the war finished, the production items of his factory were changed to radio and TV. For the last several years he worked as general manager for the Toshiba Export Division. This gave him the opportunity of many visits to many countries, but he was too busy to meet many of his old friends. He retired from Toshiba 13 years ago at age 57 and is now working for another electronics firm for his "second life" while enjoying ham life too. He still loves CW much more than phone. Of course his rig can put through good SSB signals at any time, but 99.99% of his DX QSOs are done by CW.

As he has been enjoying amateur radio for many years, he thought he should do something for the newcomers as his gift in some return to the amateur radio field. This is the reason why he has been spending much time on 21 MHz novice band for the last couple of years. He can imagine from his own experiences what happiness it would mean to the novices if they completed their first Japan, first Asia and sometimes first DX. This would be delightful for him too. He wishes to continue this work for many more years.

Therefore, if you should not hear his signals on the bands while conditions are good enough, you should understand that JH1WIX may certainly be found on 21 MHz or 28 MHz in the novice band.

(via W6OKX)



The old, old timers meet at JH1WIX L to R: JH1WDN (ex J2GY, J1DP), JH1WIX, JH1WKS (ex J2IX, J1DN), JH1XEO (ex J2IS, J1GL), JH1VOE (ex J2HG, J1EC).



Jim Russell, VR6JR, G3OKQ, his wife Noreen and Klaus Hoss, ZK1XO, OE3KOA, stopped over in Los Angeles on their way home to Europe. Jim has worked 11,975 contacts and it would take a couple of months before he can design and get some cards printed. Klaus has visited ZK1CG and operated from Rarotonga. On the photo shown L to R: Dan Davitt, N6CGB, President SCDXC; Noreen; VR6JR; ZK1XO and Steve Locks, W6FRZ Vice President SCDXC.(Tnx KG6IP)

KENWOOD TS-940S MODIFICATION

FIXING CW CARRIER SHIFT

Larry Flavin, W3CV

Here is a modification which I have made to my TS-940S that might be of interest. It provides separate carrier adjustment for CW, apart from the USB and LSB adjustments. I had installed sharp CW and SSB filters and when I set the USB and LSB carriers where I wanted them, I didn't like what I found on CW. When I turned in WWV in the CW mode, with the VBT set for it's sharpest response, I found that the peak reading on the S-meter occurred about 250 Hz higher on the readout than it ought to read. That means that the transmit signal would be 250 Hz higher that the frequency shown on the display. When I set the USB carrier for a peak reading for the correct readout, the SSB signal sounded terrible. Moreover, when using a sharp CW filter, the sidetone, which also differed by 250 Hz, disappeared.

Others, of course, have the same problem. Just call CW in a contest and see how many answers you get on your frequency. Most will be 200 to 600 Hz up or down from your frequency, depending on which sideband is used for CW. The other day I heard a W2, who was a bout 150 Hz outside the 14 MHz band working a European who was about 400 Hz inside the band. I did not want this to happen to me. A correction could be made with the RIT or XIT, but this ties one or the other up and makes it unavailable for what it was meant.

The modification consists of a few changes in the control logic and of the fabrication of a small PC board, which is mounted atop the carrier unit in the space provided for the voice synthesizer. A 30 pF trimmer, a 120 uH choke, a 1 k resistor, a 47 k resistor and a .01 uF capacitor are mounted on the PC board and connected as shown in the diagram.

Three leads come from the PC board. One goes to the cathode of a diode switch, whose anode is soldered to the junction of D1, D2 and X1 inside the carrier unit. The diode must be located as close as possible to D1, D2 and X1 so as to avoid adding stray capacity, which will adversely effect the other sideband adjustments. Initially I mounted the diode on the new PC board but the long leads added so much stray capacity that I could not tune one of the other sidebands. For the diode I used a 1S1587, but others can be used.

A second lead, a ground lead, is soldered to the ground foil in the carrier unit. Both of these leads are brought out through the holes on the top of the carrier unit alongside the tabs for mounting the PC board.

The third lead, the diode switch bias, is brought down the right side of the carrier unit and snaked through one of the cable harnesses, and carefully soldered to the CWG pin on plug 4 in the IF unit. A logic change must be made in the IF unit. One half of diode D109, the side which goes to the foil connected to USB on IF plug number 9, must be disabled. I removed D109 bent the unused lead up along the diode case and reinserted D109. A new diode is then installed, with it's cathode soldered to the foil connecting D109 to AMB on plug 10 and it's anode soldered to the point where the previously removed D109 lead was soldered. Any switching diode can be used.

Alignment is as follows: Let the transceiver warm up for about an hour. We shall assume that the master oscillator is exactly 20 MHz. The calibrator will then be exactly 100 kHz. Connect the transceiver to a dummy load and set the readout to a frequency which is a 100 KHz multiply inside the band such as 14.1 Mhz. Turn on the calibrator, switch on the fast AGC, set the mode to CW, set the VBT to about 10 o'clock and adjust the new CW trimmer for a maximum reading on the S-meter. Then set the VBT for a narrower bandwidth and retune the CW carrier trimmer for a peak reading on the S-meter. Continue until the point of minimum usable bandwidth is reached. I use it to about 9 o'clock. The USB and LSB carriers can now be set with no reaction between any other carrier.

The transmitted signal will now be on the same frequency as the received signal in all modes and the CW sidetone will be the same as the received signal tone.

I have the temperature compensated master oscillator (SO-1) installed in my set so any significant drift is that of the carrier oscillators or the crystal filters. From a cold start the drift is about 30 Hz and after about twenty minutes is reduced to near zero and stays that way until I turn the set off.

This type of modification could be used in other transceivers which make use of offset carriers on CW. (W3CV)

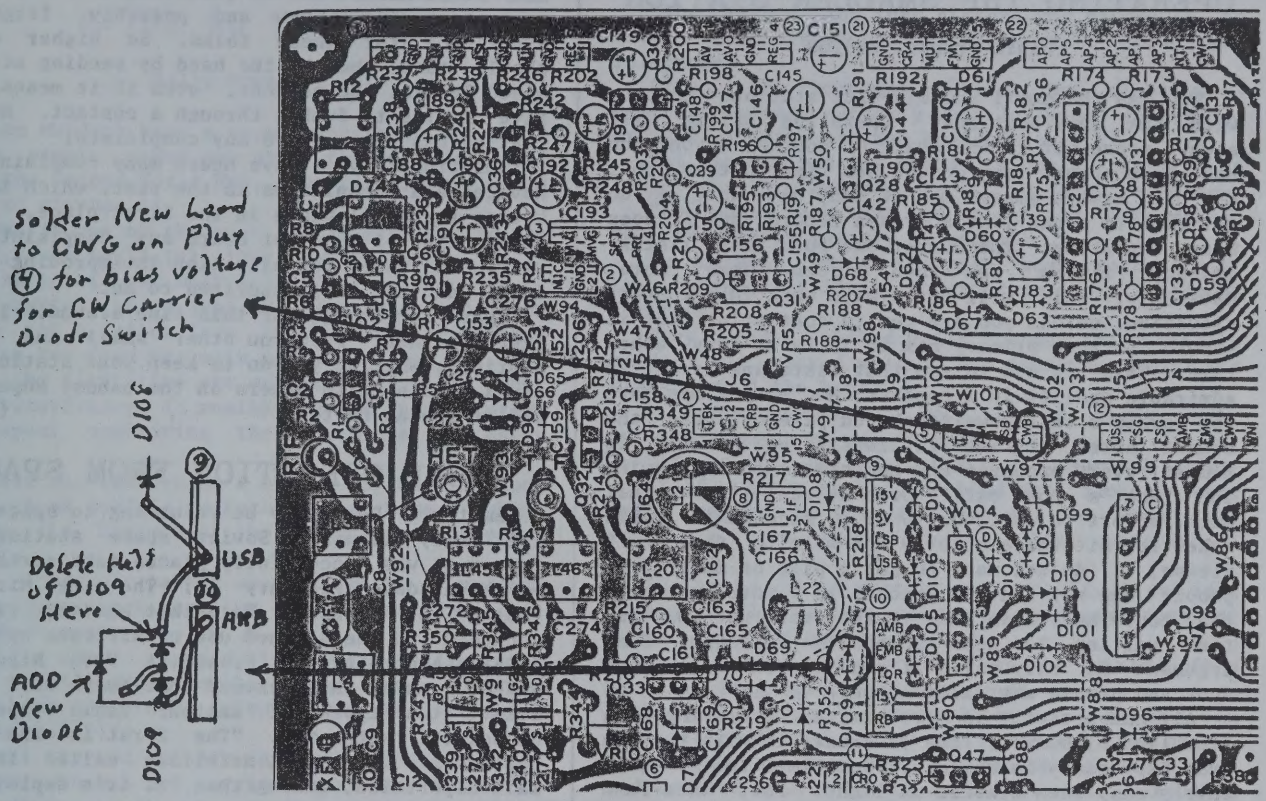
de VE3BMV: This is a very valuable modification on the TS-940S and the TS-930S for the serious CW operator. I have never checked my TS-930S to find out where I was transmitting. I guess I put my faith in the Kenwood assuming that it had to transmit where the dial said. I have noticed though, that most of the stations would call about 100 to 300 Hz lower on frequency. This confirms what Larry has found: if you are close to the edge, you could be out of the band. It also meant that the RIT was used most of the time sitting at -200 Hz. Even when I was calling the stations, I kept it set at -200 Hz.

During a contest, it is especially important to know where your signal on transmit is in relation to the receive frequency. Back in good old days of the Drake twins, you knew exactly were you were by hearing your transmitted signal on your receiver.

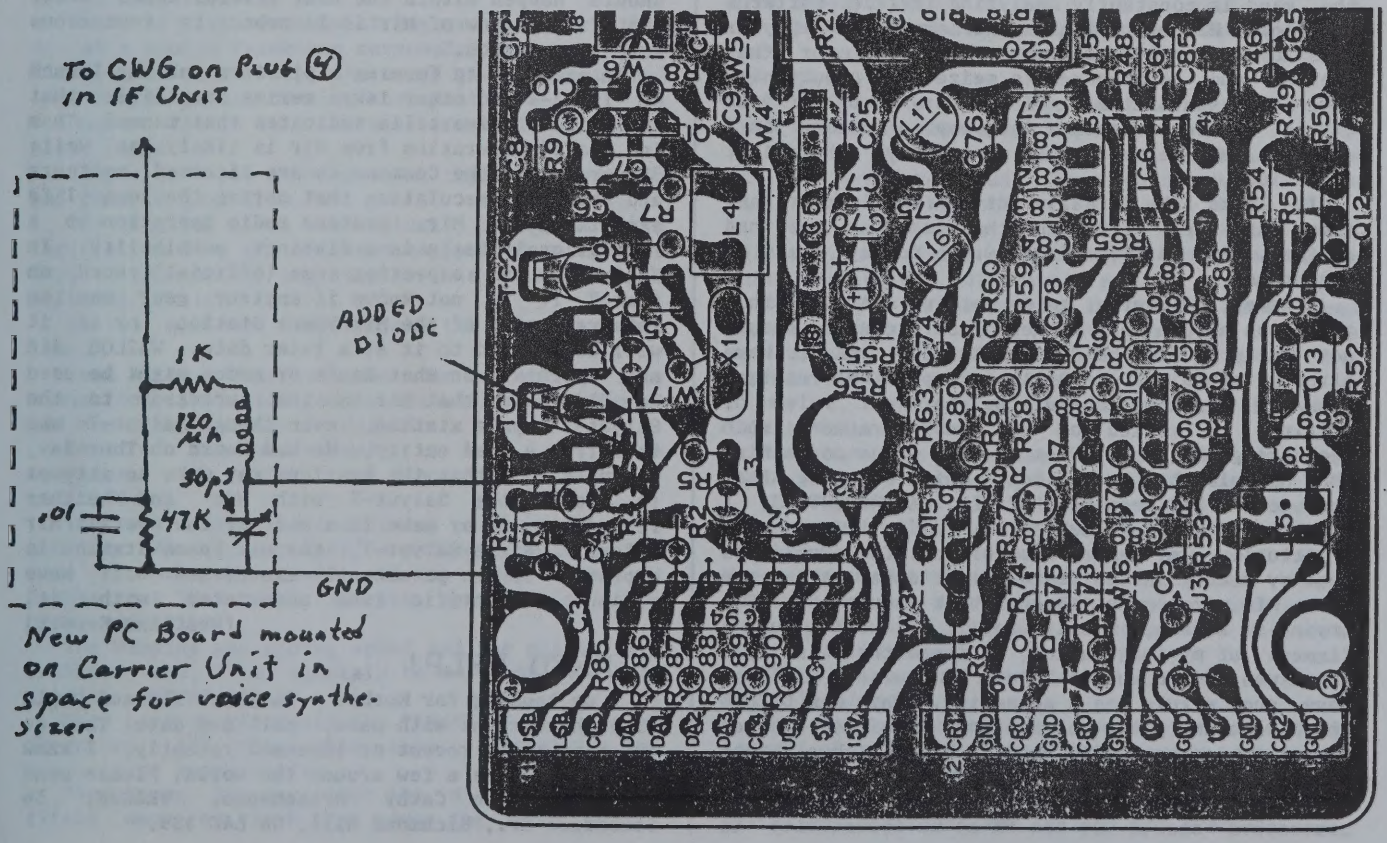
With the use of the narrow CW filters in the contest fire, it is important to call the stations directly on their frequency. During the high speed CW contest, if you call off the frequency, you are almost guaranteed to be asked for a repeat of your callsign. It takes a bit of time to tune your signal in and that means the loss of your prefix. I have experienced stations calling as much as 1.5 kHz off frequency. Those signals are "found" usually when no one else is calling and we make an excursion with our RIT that far, just in case.

We hope that Kenwood will incorporate this modification in their radios and also cure the synthesizer noise coming from the TS-940S.

IF UNIT (X48-1430-00) Component side view



CAR UNIT (X54-1840-00) (A/2) Component side view



OPERATING THE SMALLER STATION

Paula Franke, WB9TBU

How can the small and mid-size stations compete with the superstations? Operating skills will always prove out in the end. Of course, anyone who has been around long enough has figured this out. But it always amazes me how many have not. I do not want to sound like a broken record, but It does bear repeating: The Number One rule is to listen, listen, listen and then listen some more. Obviously, this will not always work in a contest situation, unless you are new to contesting, but it should be your primary ham activity at any other time. This is not to say that listening is not an admirable quality in a contest. How many times have you worked a fairly well-behaved pile-up where the sought after station is identifying himself in almost every exchange and someone comes screaming in, "What's your call?" Does it really take that much effort to wait the 15 or 30 seconds it would take to sit there quietly and wait to find out? Please, I do not want to get a pile of mail from people who say that 30 seconds is 2 more contacts that could have been made if they were not wasting time waiting to hear someone's callsign. That argument is only valid if you are sitting in one spot and people are calling you.

All ham activity is very similar to driving on a four lane highway. I like to equate it with the Dan Ryan Expressway in Chicago. Sometimes the going is fairly easy when traffic is light. But, when rush hour hits, watch out! The smaller station "compacts" and "midsizes" have to watch their steps when out there with the superstation "semis." You have to keep looking for that spot in the traffic to open up. While your eyes never leave the action, the mind is constantly analyzing traffic patterns and flows. Ham operating is the same way. Keep your eyes open, analyze the patterns, look for that opening and be prepared to seize the opportunity when it presents itself. Do not try to bully your way in. Politeness goes a long way in getting you a contact the next time, especially in contest situations.

It looks like I really put my foot into it last time. At first I thought that maybe no one had noticed. But Bill, AI3Q, wrote to say that he caught me.

I refer, of course, to my earlier statement that there was a rule that higher class licensees should not call CQ in the Novice Roundup. As I have already explained to Bill, the problem resulted from my breaking one of the cardinal rules of writing. I relied on my memory rather than rechecking the facts. When the QST issue containing the NR rules hit my mailbox, which was long after the column had been sent off to RADIOSPORTING, I knew that I was in trouble.

Actually, my memory was correct. The problem is that my memory is ten years out of date. After an hour of scrounging through back issues of QST, trying to convince myself that it all wasn't just a figment of my imagination, I found that in 1976 there was indeed such a rule. Of course, in those days such a rule was a necessity. This was before there were any power restrictions on higher classes operating in the Novice bands. I guess some things just stick in the mind.

As Bill gently pointed out to me, experienced contesters should use the NR as an opportunity to set a good example to the less experienced Novices and Technicians. He is quite right in saying that contesting is a new and possibly frightening experience for these folks. So higher classes should take them by the hand by sending at their speed levels. Be patient, even if it means taking five minutes to fumble through a contact. He adds that he has never heard any complaints.

Unfortunately, I have heard many complaints form Novices and Technicians in the past, which is why I wrote the small piece in the first place. I must admit that I have not heard any complaints this year, so maybe the situation is improving to the ideal one that Bill described to me.

That is enough for this time around. I would like to hear from you other small and midsize stations. What do you do to keep your station on an equal footing with others on the bands? Hope to see all of you at Dayton! (WB9TBU)

MORE OPERATION FROM SPACE

Amateur Radio may be returning to space board the newly launched Soviet space station named "Mir." It was successfully placed into earth orbit on Wednesday, February 19. The name Mir means "world" or "peace." Word that amateur radio is included in the planned use of Mir came by way of AMSAT. According to President Vern Riportella, WA2LQQ, AMSAT has learned that there will be at least two types of amateur radio operations associated with Mir. "The first is the likely deployment of a small satellite called Iskra-4," said Riportella, adding that "if it's deployed in a manner similar to the previous Iskras, it will be literally (a case of) open the hatch and throw it out the door. Iskra satellites have contained amateur radio equipment in the past, and we think that this will be the case with Iskra-4. That should happen within the next several weeks after the first crew of Mir is launched to rendezvous with the station."

In addition to forming a platform for the launch of Iskra-4 and other Iskra series satellites that may follow, Riportella indicates that manned "ham in space" operation from Mir is likely as well: "Several of the Cosmonauts are licensed amateurs and there is speculation that during the long life expectancy of Mir, amateur radio operation on a recreational basis is a distinct possibility. In fact, we are expecting some (official) word on that." It is not known if amateur gear was an integral part of the Mir Space Station, or if it will be carried to it at a later date. WA2LQQ did not speculate on what bands or modes might be used He did note that Mir is the successor to the Salyut-7 space station, even though Salyut-7 was far from a dead entity. He had heard on Thursday, February 20, that the Russians may make an attempt to dock the Salyut-7 with Mir and either recondition it or make it a part of the overall Mir effort. Unlike Salyut-7, the Mir Space Station is expected to be permanently manned and will have various scientific labs associated with it.

(Westlink Report)

I NEED HELP!

I am looking for Mother - Daughter YLs and would like photographs with name, call and date. They do not have to be recent or licensed recently. I know there are quite a few around the world. Please send information to Cathy Hrischenko, VE3GJH, 56 Stockdale Cr., Richmond Hill, ON L4C 3S9.

MARION IS FREE OF SILENCE NOW AFTER 40 YEARS

Sally Duggan

Marion Murdoch kept a secret for forty years.

When people asked her about the work she did during the Second World War, the former Wren would refuse to discuss it.

"I was in one of the most secret stations in New Zealand," she would tell them mysteriously.

"I can't tell you what I did."

The mystery ended just over two years ago when Murdoch got a letter from the Ministry of Defense releasing her from her oath of secrecy.

For the first time she was free to tell about the extraordinary 18 months she and seven other women spent monitoring the movements of enemy ships.

Trouble is, there wasn't anyone to tell. Murdoch related some details to author Grant Howard whose book on the history of the wrens was released recently.

"But I haven't talked about it much. You don't usually just start chatting about something that happened 40 years ago..."

All the same, it is a story worth telling. so Murdoch settles down in the pastel luxury of her Remuera home and breaks silence about the strangest period of her life.

It all started one day in March, 1943. Marion Pitt (Murdoch was her married name) was 24 years old and feeling rather dazed as she rattled through the Blenheim countryside in a van on the way to her first military assignment.

"I was bewildered. I didn't know where we were going and I had no idea about what I was letting myself in for..."

Near the tiny township of Rapaura the van pulled up at a wooden farmhouse surrounded by a two meter high barbed wire fence. An armed guard questioned them at the gate, then let them past.

Marion Pitt's next impression was of a group of giggling girls.

"They were all peering at me trying to see who had come to join them."

The giggling girls were actually young women in their early 20s, who had been handpicked to man the Navy's top-secret new venture - a radio finger printing station.

Marion was the last to join the eight member team.

Soon after her arrival when she was ushered into a workroom lined with sophisticated radio equipment and shown how the system worked.

Four of the women were to work as radio operators; the other four (including Marion) as classifiers.

The operators listened into a special radio receiver that incorporated a cathode ray tube and gave a continuous picture of the morse dots and dashes sent by Japanese wireless operators in naval bases and ships.

The display was photographed and the classifiers examined the film minutely to work out who was sending each signal.

They came to recognize the "hand" of some enemy operators and thus were able to monitor the movement of enemy craft.

"Sometimes it was just the difference of a little wave or click that gave the game away," Murdoch says. "And sometimes we just couldn't work it out at all."

"The information they gleaned was passed on to naval headquarters in Wellington via a "scrambler" telephone.

Often the work was routine. But there were times of intense activity when Japanese submarines cruised close to the New Zealand coast.

"At those times the operators would scream at us to get the film and compare it," Murdoch remembers.

"We would work like mad to get the information rung through as quickly as possible."

In between shifts the eight women got on with the business of living together in their secluded farmhouse.

They cleaned, cooked meals, tended the vegetable garden and picked walnuts and cherries from the trees around the house.

A live-in supervisor kept tabs on their work, but the atmosphere was informal.

"It was sort of like a big home," Murdoch says.

Stiff white shirts and blue wool jackets were left hanging in the wardrobes and the women got round in naval-issue shorts, bell bottoms of overalls.

"We all got on pretty well really," Murdoch recalls. "We would spend hours chatting about our future or about boyfriends..."

No visitors were allowed but the girls often went visiting after finishing work.

Murdoch remembers dances, dinners and days out with officers from nearby Air Force and Army bases.

On one occasion they cruised into Cook Strait and watched from a launch as a whale was harpooned and cut up.

"We were right there at the kill," Murdoch remembers calmly. "It was most interesting."

But dates would always end with the women piling into their van and disappearing behind the barbed-wire fences.

"The officers could not imagine what we were doing that was so important and secret," Murdoch says.

"It used to drive them mad that we would not tell them what was going on."

And it used to drive the women mad when the officers tried to guess. They would say: "We know it is a radar station."

"That would make us really hot under the collar... We felt that we were doing something quite special and quite important."

But as the war progressed their jobs became less important. Fewer enemy boats ventured into the waters around New Zealand and the shifts at the Rapaura station grew boring.

May 3, 1944 is entered in Murdoch's diary as "Black Wednesday."

On that day the women got the news that the radio finger-printing station would be closed.

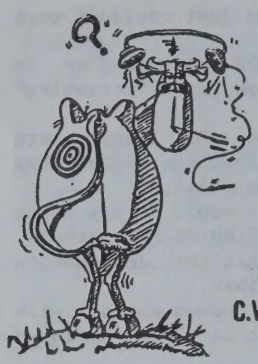
They packed their clothes, sipped farewell sherries with their guards and cried together.

Then, within a few days, they went their separate ways to new naval postings with strict instructions to stay mum about their experiences. Murdoch is sure that all her companions did just that - for 40 years.

"None of us would have talked about it... We all had a loyalty."

The eight women never got together again, though four of them joined forces for a memory session at a Wrens reunion five years ago.

Two of the team have now died and the others are scattered throughout New Zealand and overseas.



Here's The Beef!

C.W. Bug, NØ/FØOL

After a short absence, I am back. I settled a few things and then took a vacation to visit my folks back in old country. They quit drinking Italian vino because it's cheaper to buy antifreeze at the gas station than in the local wine store.

As I was looking at the magazine rack, I couldn't help noticing the 73 Magazine. Looks like it went on diet. Huray, Wayne is back! He is ready to save amateur radio, yet again. If only he could find someone to set up his ham radio station and operate it for him. What a ham! As long as he has all the answers on how to flood our bands with semi-literate, no exam hams, it's OK. Watch out Ham Radio, CQ and QST. Quite frankly, most people are tired of his repetitious transmissions.

Hey deprived, underprivileged, minorities, wake up! There is still hope for you. Don't bother putting up antennas. Join the DX 80 Meter Repeater Club. It's very simple. You call the Robin Hood of Frequency and tell him you need a new one, and he'll get him for you. It works like this:

"DX1DX, W1W is calling you. Do you copy him?"

Silence.

Robin: "Make another call, W1W."

W1W: "DX1DX, this is W1W, W1 Double uuuu."

DX1DX: "W1W, W1W this is DX1DX, go ahead."

Robin Hood says: "Go ahead, W1W, he called you!"

W1W: "OK, DX1DX, this is W1W. When last heard in 1946, you were 3 by 6, one two three, Bravo Yankey, one, two, three, four, five, six, over, over."

Silence.

Robin says: "DX1DX, did you get that?"

DX1DX: "Was that 2 by 4?"

More silence.

Robin Relay Repeater says: "W1W, try again!"

W1W: "Mike, you are 3 by 6, 3 by 6....."

Silence. (DX ain't hearing nothing.)

Robin: "DX1DX, did you get that?"

DX1DX: "Was that 4 by 8? QSL?"

Silence. (W1W ain't hearing nothing, either.)

Robin: "No, try another one"

DX1DX: "3 by 5? QSL?"

Robin: "You got the first digit OK. Try the second one."

DX1DX: "3 by 6?"

Robin: "Roger, Roger, Roooger!"

DX1DX: "QSL the Roger, W1W, you are 4 by 4, QSL?"

Silence.

Robin: "W1W, did you get that?"

W1W: "Get what?"

Robin: "It's a four wheel drive, 4 x 4"

W1W: "Oh, yeah! QSL four by four on the floor."

Deep silence, again.

Robin: "Did you get the QSL, Mike?"

DX1DX: "Yeah, I can see the QSL on my wall!"

Robin: "Good contact. Congratulation on the new one. It was tough, but by George, you did it."

W1W: "Thanks, Robin. I had some QRM, but finally, we did it."

The new ones are worked left and right. With the 80 m Robin Repeater, who needs to bother with all those crazy antennas. Just get organized, join the greater 80 meter (or any band) repeater society and you will work them all in no time. Effort is being made to link the two meter repeaters, so that the masses of the 2 meter hand held operators can work DX, from the palm of their hands.

The last time that Robin was heard on 80 meters, he was using the NQ2D callsign. Look him up. He will help you to many new countries.

This operating technique is catching up in Europe. Some unsuspecting, "old fashion" operators who insist on working them on their own, are being "helped" by good souls relaying reports and thus, destroying the legitimacy of an otherwise good contact. Stay away from this type of operating. For a valid contact, the stations involved have to hear each other, and exchange callsigns and at least the signal reports, without anybody's help.

There was one noticeable new bull in the china shop during the WPX SSB contest. KW8N steamrolled on the frequency of his liking, regardless if it was used, occupied or whatever. Telling him that the frequency was in use was like talking into a dummy load. I hope he gets a lot of handshakes in Dayton.

There is a new contest category emerging called Single Operator - Drive-in. Who may operate in this category? Just about anyone who has a car and who's buddy has a superstation. How does it work? You just drive in to the superstation QTH, and look up your own callsign. The hardest part is over. You operate the superstation using your call. Is this legal? Maybe, if you comply with your country regulations. Is it ethical? I don't know anymore. What do you think? Can we talk?

It used to be that a station license was issued to the station, which usually meant the QTH, antennas, equipment and the person who is licensed to operate that station. Therefore, you would think that this station belongs to that particular license and licensee. What would you do when one of the multi operator crew members wants to operate this station in the contest? You would think that, in this case, the station's call sign should be used. Not so. The operator would like to use his own call sign to show the others, who are not that clever, what he can do with a 5 element beam on 160 meters. He enters the contest and perhaps wins this thing. Many wonder who the guy is, because they never heard him before. Now he has the world record. Wow!

There are loopholes. One can report portable a operation from a place that just happens to have a bunch of antennas and equipment. One can even "move" to a place for the contest weekend, and then "move" out. Maybe, all the operators "live" there, or their stations are "located" there. Or maybe, the owner of the station adopted all the operators. Am I an old fashioned goose or is there something fishy going on?

In my opinion, it is more appropriate to know that, W1CF won the contest and that WA2SPL was the operator. Hats off to Dana, for engineering the station and to Joe, for making those verticals sing.

I will not be in Dayton. I have an unlisted callsign. I love French onion soup. I hate rotten things and lists. You can write me via *RADIOSPORTING* and I will answer you in here. Clara, NO/FOOL.

PILEUP

Mike Smithwick, AA6XI

Early on one Sunday morn I tuned the twenty meter band
On two-oh-two came this faint CQ from some strange and distant land

XYOXX was his call, XYOXX
CQ DX CQ, he said, this is XYOXX

With my heart a pumpin' and my knees a knockin' I gave this guy a try
And when I heard him say my call, I sat back with a sigh

Five by four was all I gave him, nothing more than five by four
Five and nine was his replay, and that five and nine just made me cry

As I sipped my coffee and filled in my log, it sounded as if all hell broke loose
They all called the XYO, and called, and called, until their tongues were hanging loose

Fifteen minutes went by until the calling stopped
The XYO was heard once more, but then all hearts flopped
When not too far and too rare came this dreadful call:

This is W6 Hotel Lima Hotel calling CQ
from the Far Western United States

Blood started to boil as there began such a fuss
And many a natured ham started to cuss

Who is this guy? They wanted to know,
Does he have a deed to the frequency he can show?

Just when the lynch gang was being arranged
And the average ham was becoming deranged
On two-oh-two was heard the call
That no matter how weak was heard by all

CQ DX CQ he said, This is XYOXX
XYOXX once again, XYOXX

Well you can bett your bippy that there was such a mess
Among all the pileups I've heard, this was the best
Kingman Reef couldn't compare
And the one for Bouvet could hold no air

But something must be done to get the people through
Then along came 7PHO to everyone's rescue

Take a list, take a list everyone pled
(Except for 6SSJ, who would rather be dead!)

Give me a call if the last two digits of your social security number are zero-one is all he could ask
As he took on this formidable task

Well, as the clock struck ten, things were getting rough
As the only calls heard were names that were pretty tough

"Kid" and "Commie" were sailing like flies
Then a faint voice cried, "Stop it you guys"

Shaddap ya lid was the general cry
Alright, I will, this is XYOXX was the reply

XXOXX this is K6UA
Can you check my antennas, was all he could say

No one heard the XYO come back
But Dale wouldn't admit that he'd lost his knack

This is antenna number one I heard him shout
As he hoped that the ten thousand hams would begin to pout

Noontime came, but no one went
Voices were strained and some were spent

As PHO asked for number twenty seven
Dale said "Thi is antenna number eleven"

When three o-clock rolled around
The JAs began to abound
Soon ninety thousand joined in the fun
The din was enough to make me run

It was now seven, and the pileup went on
PHO called for sixty five and UA was on thirty one

Midnight came and the band went dead
Voices were hoarse and many hearts bled

"Why" each asked "didn't I get that five and nine?"
But I knew that that five and nine was mine

The next morning the papers reported
That Lower Slobovia had revolted
A red flag now flew over the land
And I knew that radio had now been banned

And to think that it was just yesterday that the country was accepted
But something like this was to be expected

Well, six weeks passed since that fateful day
And this morn the postman gave me a letter as he went on his way
No, it was not an ad, piece of junk or even a bill
For it was covered with Lower Slobovia stamps which gave me a chill
With childlike glee I tore it open
And beheld a hand-made card from that land so foreign

Now there comes a time when a man must face
The ultimate of all disgrace
And men like six AM, ZO, or DC
All flocked to my house to see
The big one that got away
Unlike Abu Ail, Spratley, or Bouvet

And so they leave my house a tad bit humbled
"Slim it was" was all that they mumbled
Shaking their heads and kicking the ground
They hoped that for me bad luck would abound

But I waved good-bye a big grin
For you see, for DXCC, that was my number ten!

(via K3ZR)



RESULTS
1985 CQ WPX CW CONTEST

WORLD TOP SCORES
SINGLE OPERATOR
ALL BAND

YZ4GD	3,554,460
NP4CC	3,163,455
KC1F	3,140,592
KT3Y	3,104,192
KQ2M	2,961,855
5Z4MX	2,922,318
KR0Y	2,814,336
K1GQ	2,766,726
KI6P	2,676,297
OK1RI	2,660,690
K3ZO	2,398,870
G3FXB	2,357,043
NR5M	2,329,077
UH8EAA	2,255,680

28 MHz

YO3KWJ	96,882
YT3P	58,259
LZ1KIC	57,120
RB4IRO	21,423
4M7QP	15,972
SP8EMO	15,520
OH2EJ	12,610

21 MHz

YT3L	514,150
UW3UO	395,843
G4CNY	343,226
JF2EZA	272,750
UA3PDW	226,032
UL7CM	197,253
RC2AM	182,880

14 MHz

YX5A	3,016,155
YT3A	1,850,320
UA9YE	1,711,080
YU7AV	1,670,032
N2AA	1,658,469
AZ8DQ	1,434,630
7S2SSA	1,380,480

7 MHz

DF9ZP	1,998,372
YZ9A	1,920,960
N5RZ	1,754,664
KR2Q	1,555,048
YT7W	1,541,980
K1MM	1,390,720
4N3E	1,389,647

3.5 MHz

UP2NK/UF	701,012
I4IND	526,812
RB5IM	488,557
VE3BMV	311,080
RB5BA	305,970
UA9CBM	277,764
YU1ZZ	261,870

1.8 MHz

UP3BP/UF	125,240
LZ2CJ	93,800
UA2FF	84,420
UB5ZAL	41,600
OK1DXS	34,980
LA7JO	25,272
Y37XJ	24,464

QRP/p

4X6IF	A	231,210
YU7RU	A	228,150
KA2AEV	A	228,144
EA3EGV	28	13,689
EA8ACL	21	168,873
JA2DN	14	133,254
G3VMY	7	96,036
HA3GZ	3.5	45,344
UA3AQP	1.8	10,950

MULTI OPERATOR
SINGLE TRANSMITTER

LZ2KTS	6,658,796
HH2WW	5,050,032
UP1BZZ	4,998,336
EA3VY	4,342,005
HG5A	4,051,974
NA5R	3,907,730
HG7B	3,568,866
GB2MM	3,542,175
RL8PYL	3,504,039
HG9R	3,488,772
HG6N	3,445,542
UZ9FWR	3,273,210
IO3FIY	2,928,360
AI6V	2,761,048

MULTI OPERATOR
MULTI TRANSMITTER

KH6XX	8,551,399
OK7AA	8,440,839
KL7Y	6,462,747
YU1ELM	4,619,202
JA2YKA	4,573,585
NM5M	4,302,972
JA7YAB	1,976,316
YU4EZC	1,077,234
K6XO	502,588
JA4YJA	172,634

U.S.A. TOP SCORES
SINGLE OPERATOR
ALL BAND

KC1F	3,140,592
KT3Y	3,104,192
KQ2M	2,961,855
KR0Y	2,814,336
K1GQ	2,766,726
KI6P	2,676,297
K3ZO	2,398,870
NR5M	2,329,077
W3GM	1,807,200
K1XA	1,542,840
K5RX	1,477,020
K4JPD	1,429,233
K1VUT	1,397,300
KM9L	1,358,048

28 MHz

KE5CV	5,544
NU4Y	5,467
W8AKS/6	288

21 MHz

KA5W	64,750
KS9J	11,616
N0BSH	8,094

14 MHz

N2AA	1,658,469
K2TW	1,319,004
AI7B	1,229,500
N1CQ	1,077,945
W5WMU	1,035,826
N3BJ	852,202
W5FO	850,560

7 MHz

N5RZ	1,754,664
KR2Q	1,555,048
K1MM	1,390,720
KZ2S	1,173,940
NI6W	1,048,775
KM3T/2	920,205
AA6XX	451,200

3.5 MHz

N2AU	119.232
NE6I	52,628
KJ9D	26,460
WB6JMS	25,020
K3TW	19,680
NV60/2	2,184

1.8 MHz

K5UR	13,668
KA1SR	884

QRPp

KA2AEV	A	228,144
W8VSK	A	162,150
K1CGJ	A	107,950
KB7G	14	54,284

CQ WPX CW ALL TIME RECORDS

BY STEVE BOLIA, N8BJQ/6

WORLD RECORD HOLDERS

Single Operator

1.8	UP3BP/UF('85).....125,240	101	
3.5	UP2NK/UF('85).....701,012	221	
7.0	DF9ZP('85).....1,998,372	482	
14	YX5A('85).....3,016,155	557	
21	HD0E('80).....3,544,416	496	
28	LU8DQ('80).....1,627,660	388	
AB	L8DQ('83).....4,128,084	548	

Multi-Operator Single Xmtr.

VP2EC('84).....7,599,480 664

Multi-Operator Multi Xmtr.

YZ1EXY('83).....9,858,240 756

USA RECORD HOLDERS

Single Operator

1.8	K5UR('85).....13,668	102	
3.5	N2AU('85).....119,232	184	
7.0	N5RZ('85).....1,754,664	452	
14	N2AA('85).....1,658,469	527	
21	K6LL/7('81)....1,433,457	459	
28	N4ZC('81).....136,086	222	
AB	KC1F('85).....3,140,592	546	

Multi-Operator Single Xmtr.

NA5R('83).....3,986,592 634

Multi-Operator Multi Xmtr.

NM5M('84).....4,432,883 637

CLUB RECORD — WPX (Prefix) RECORD — QRPp RECORD

N.Texas Contest Club('84) 53,012,561 — YT4I('83).....760 — 4Z4UH('82)..1,028,904

CONTINENTAL RECORD HOLDERS

AFRICA

1.8	No Entrant		
3.5	EA8RL('84).....453,456	201	
7.0	EA9GT('81).....579,824	217	
14	EL2AV('82).....906,840	330	
21	5Z4CS('82).....2,104,245	429	
28	ZS6BUX('81).....8,850	50	
AB	5Z4MX('85).....2,922,318	486	

ASIA

1.8	UP3PB/UF('85).....125,240	101	
3.5	UP2NK/UF('85).....701,012	221	
7.0	UP3BI/UF('85)...1,106,222	271	
14	UA9YE('85).....1,711,080	504	
21	UL7QF('83).....1,220,083	373	
28	4X4UH('81).....1,081,262	338	
AB	UF6CR('84).....3,084,480	540	

EUROPE

1.8	LZ2CJ('85).....93,800	134	
3.5	I4IND('85).....521,812	286	
7.0	DF9ZP('85).....1,998,372	482	
14	YU4GD('84).....2,147,148	564	
21	YU3BO('81).....1,550,390	394	
28	9H1CH('81).....307,433	259	
AB	YZ4GD('85).....3,554,460	651	

Multi-Op Single Xmtr.

AF	ZS6CT('84).....3,129,216	464	
AS	UZ9A('80).....5,500,135	511	
EU	LZ2KTS('85).....6,658,796	745	
NA	VP2EC('84).....7,599,480	664	
OC	KH6XX('84).....4,646,859	553	
SA	L8DQ('84).....5,952,111	627	

NORTH AMERCIA

1.8	VE3MFA('85).....23,302	61	
3.5	VE3BMV('85).....311,680	202	
7.0	N5RZ('85).....1,754,664	452	
14	CY3BMV('83)....2,341,680	528	
21	KP4EQF('83)....1,816,416	476	
28	KP4EQF('81).....577,500	300	
AB	KP2A('80).....3,463,593	483	

OCEANIA

1.8	No Entrant		
3.5	T32AF('83).....93,480	95	
7.0	T32AF('85).....1,249,176	276	
14	VK4QK('80).....1,276,584	344	
21	N6HR/NH6('83)..1,203,552	378	
28	KG6DX('81).....1,238,806	334	
AB	KG6SW('79).....2,848,320	345	

SOUTH AMERICA

1.8	PY5AAX('81).....96	6	
3.5	4M3AZC('83).....142,780	121	
7.0	OA4AWD('82)....1,752,254	329	
14	YX5A('85).....3,016,155	557	
21	HD0E('80).....3,544,416	496	
28	LU8DQ('80).....1,627,660	388	
AB	L8DQ('83).....4,128,084	548	

Multi-Op Multi Xmtr.

AF	EA9CE('84).....4,383,308	482	
AS	JA2YKA('83)....5,895,628	614	
EU	YZ1EXY('83)....9,858,240	756	
NA	KL7Y('85).....6,462,747	621	
OC	KH6XX('85).....8,551,399	647	
SA	HD1A('79).....6,052,032	474	

CQ WPX CW RESULTS

KB7NV	14	26,335
KB9S	14	23,862
KU7Y	7	70,824
AA2U	7	57,814

MULTI OPERATOR SINGLE TRANSMITTER

NA5R	3,907,730
AI6V	2,761,048
KN6M/5	2,628,540
WC4E	2,503,656
N7TT	2,353,176
KU2C	2,172,942

MULTI OPERATOR MULTI TRANSMITTER

NM5M	4,302,972
K6XO	502,588

Score Rumors:

CQ 160m CW:

CALL	QSOs	Ms	SCORE
KA1DWX	274	71	60563
KY1H multi	650	77	154385
AK1L (+KA1X)	452	61	68869
W1YK (KM1P op)	121	43	12470
K8HVT	191	47	20774

ARRL DX CW S/O:

CALL	QSOs	Cs	Score
K1AR	1600	290	
K1BW	1420	250	
KA1CI	780	164	
K1DG	1481	256	
KC1F	1640	286	
W1GG	467	119	166K
W1WEF	1283	227	
KU2M	340	75	
KA2MXO	750	69	
W2RQ	330	110	
K2OY	115	95	
AI3E	302	127	115K
W3GRF (K0DQ op)	1780	285	
K3ZO	1750	268	
K5ZD/1	1272	235	
K8HVT	494	161	238K
WD8IXE	615	227	
WA0TKJ	365	180	
C6ADR (N1EE)	1950	?	

ARRL DX SSB S/O S/B:

CALL	Band	QSOs	Cs	Score
KS8S	10	9	8	
K1MM	20	49	20	
W1WEF	20	1084	102	
N2AA	20	1450	107	
N2AU	20	1240	103	
KR2J	20	1500	103	
K2VV	20	1800	116	
KS8S	20	1064	113	
W4PZV	40	62	37	
AD8C	40	117	52	
KA1GQW	75	60	31	
KM1H	75	230	67	
KM1R	75	112	54	
KA1SR	75	153	54	
KA1XN	75	191	73	
K2EK	75	260	71	
WB2ITR	75	149	64	
WA4SVO	75	158	65	
KS8S	75	140	62	
N8UM	75	148	64	
K1ZM	160	72	40	

ARRL DX SSB M/S:

CALL	QSOs	Cs	Score
NB1H	891	230	
KS1N (+WB1EYL, KB1KG)	470	164	
	1400	280	
AK1L (+KA1X)	1007	196	592K
KA2MXO	516	144	222K
WB2ULI	1400	280	
WB8JBM	1280	308	
KP4BZ	6906	301	
ZF2HI	7159	301	6.5M

ARRL DX SSB M/2:

CALL	QSOs	Cs	Score
N1AU (+K1AR, KC1F)	1688	298	
KQ1F (+K1XM, KM1P)	844	219	554K

ARRL DX SSB M/M:

CALL	QSOs	Cs	Score
KM1C	1069	281	
K1EA	1005	302	
KY1H	657	194	382K

CQ World-Wide WPX/S.S.B. Contest All-Time Records

BY STEVE BOLIA, N8BJQ, Director, CQ WPX Contest

The contest is held each year on the last full weekend of March. The All-Time Records will be updated and published annually. The method of computing final scores has changed several times since 1957. Data following the calls below are: year of operation, total score, and number of prefix multipliers.

WORLD RECORD HOLDERS

Single Operator

1.8	CG3MFA('85) 319,140	162
3.5	OH1RY/CT3('85) .. 2,816,754	453
7.0	CZ3BMV('85) 3,397,962	521
14	VP2EC('85) 5,011,668	646
21	HC9A('81) 6,025,770	615
28	CE6EZ('84) 5,437,936	644
AB	EA9IE('85) 8,744,508	708
QRP/p	H44R('84) 1,575,904	352

Multi-Operator Single Xmtr.

VP2EC('83) 15,238,880 820

Multi-Operator Multi-Xmtr.

KH6XX('85) 24,898,239 837

U.S.A. RECORD HOLDERS

Single Operator

1.8	K5UR('85) 122,664	228
3.5	KQ2M('85) 1,247,906	433
7.0	KI6P('84) 1,158,606	337
14	KG1E('85) 2,906,676	614
21	AI7B('82) 4,151,232	576
28	N5AU('82) 3,094,249	571
AB	KI6P('85) 4,483,792	568
QRPp	W8ILC('82) 1,044,012	459

Multi-Op Single Xmtr.

N5AU('84) 6,301,977 759

Multi-Op Multi-Xmtr.

AI6V('81) 12,529,608 728

CLUB RECORD
YU DX Club ('81) .41,003,768

WPX (Prefix) RECORD
ZZ5EG('85) 992

QRPp RECORD
H44R('84) 1,575,904

CONTINENTAL RECORD HOLDERS

AFRICA

1.8	EA8AFS('85) 282,048	156
3.5	OH1RY/CT3('85) .. 2,816,754	453
7.0	OH1MA/CT3('85) .. 2,775,020	445
14	CN8CY('83) 1,742,569	449
21	EL2AV('81) 4,617,530	557
28	CN8CY('82) 2,947,811	487
AB	EA9IE('85) 8,744,508	708

ASIA

1.8	RA9AKM('85) 79,074	69
3.5	5B4LP('84) 763,458	222
7.0	JA5BJC('84) 771,064	281
14	C44LP('85) 2,467,900	460
21	4X0U('81) 2,823,916	514
28	4X4UH('80) 2,718,760	440
AB	4X1X('82) 3,932,586	529

EUROPE

1.8	LZ2BE('84) 261,504	144
3.5	DJ4PT('81) 745,216	328
7.0	OH2KI/ZB2('85) ... 1,954,210	365
14	4N3ZV('81) 3,586,240	560
21	OH0BH('83) 3,977,684	501
28	YU3MY('80) 3,530,016	412
AB	Y24UK('82) 6,285,436	586

Multi-Op Single Xmtr.

AF	ED8RCT('85) 5,382,780	618
AS	UK9AAN('80) 11,152,020	660
EU	9A1ONU('80) 13,362,486	723
NA	VP2EC('83) 15,238,880	820
OC	KD7P/NH4('85) .. 10,484,712	568
SA	ZY5EG('84) 14,758,625	875

NORTH AMERICA

1.8	CG3MFA('85) 319,140	162
3.5	CZ3XO('85) 1,329,840	360
7.0	CZ3BMV('85) 3,397,962	521
14	VP2EC('85) 5,011,668	646
21	AI7B('82) 4,151,232	576
28	FG@DYM/FS7('80) . 3,304,752	484
AB	N2BA/VP2M('85) .. 5,626,512	656

OCEANIA

1.8	T32AF('83) 16,872	37
3.5	KH6XX('78) 305,080	115
7.0	T32AF('84) 2,991,352	364
14	VR3AH('79) 3,526,153	437
21	VK4QK('80) 2,592,216	396
28	KB7IJ/KH2('82) ... 4,743,144	504
AB	AI6V/NH6('85) 6,677,500	500

SOUTH AMERICA

1.8	YV5JEA('84) 40,320	63
3.5	4M3AZC('84) 1,158,132	309
7.0	YY3BQS('83) 1,664,096	323
14	ZY5EG('83) 3,869,828	596
21	HC9A('81) 6,025,770	615
28	CE6EZ('84) 5,437,936	644
AB	PJ2FR('83) 7,484,994	594

Multi-Op Multi-Xmtr.

AF	9E3USA('69) 2,398,192	296
AS	UK9AAN('78) 10,702,776	532
EU	YZ1EXY('84) 14,503,141	881
NA	NP4A('82) 24,065,600	890
OC	KH6XX('85) 24,898,239	837
SA	ZZ5EG('85) 19,121,792	992



Nick Ikonomov, LZ1JY operating LZ3B (LZ1KDP in 1983 WPX SSB contest

SCORE RUMORS

ARRL DX CW S/O S/B:

CALL	Band	QSOs	Cs	Score
KV8Q	15	185	61	
KP4BZ (NP4Z op)	15	1695	56	
W1IHN	20	712	69	
KA2MXO	20	750	69	155K
K2VV	20	1326	92	
K3LR	20	1165	95	
KS8S	20	823	77	
KR2J	40	604	89	
K2SX	40	19	9	
KS8S	40	295	73	
W1FV	80	457	74	
W8LT	80	123	52	
N8UM/4	80	221	60	

ARRL DX CW M/S:

CALL	QSOs	Cs	Score
KM1C	1341	274	
K1IU	1279	253	
KA1X (+AK1L)	759	166	377K
K1YR	1630	270	
N2MM	1350	302	
P40M	5232	300	4.709M
4U1UN	3700	269	

ARRL DX CW M/2:

CALL	QSOs	Cs	Score
KY1H	1203	232	837K
K1RX	974	191	
K1XM	1264	260	1M
N5AU	1867	337	1.88M

KY1H ops: KY1H, KB1W, K1RQ, WB1EYL WB2VLM, KJ1K, WA1ZAM, and packet net.

ARRL DX CW M/M:

CALL	QSOs	Cs	Score
K1EA	1050	230	
N2ME (at K3JLP)	2510	412	3.1M
K2TR (9 ops)	2353	380	2.68M
W3LPL	2429	395	2.86M

ARRL DX SSB S/O:

CALL	QSOs	Cs	Score
K1AR	4	3	
N1CPC	49	?	
K1DG	1488	280	
W1GG	726	165	359K
K1IU	1000	244	
K1KI	1969	329	
K1MEM	50	40	
K1RQ	100	61	
K1VR	1255	248	
K1VSJ	464	148	206K
KQ2M	562	216	
W2RQ	1235	210	
AI3E	154	93	
KT3M	1590	280	
K3NA	159	62	
K3ZO	1650	299	
WX4G	1449	282	
K4VX	1080	321	
K5ZD/1	1299	291	
K8HVT	241	108	78K
W9RE	1300	?	
WA0TKJ	400	200	

Results of the European DX-Contest (WAEDC) 1985 SSB

Continental Winner	
Single Operator	
Europe	YZ9A
Africa	EA9LZ
Asia	UH8EA
North America	K1ZM
South America	ZZ5EG
Oceania	YB4FW
Multi Operator	
Europe	LZ2KTS
Asia	RL8PYL
North America	N1AU
South America	YV1TO

Top Ten Single Operator

Europe

		QSOs					Multiplier						
Call	**Score**	**80**	**40**	**20**	**15**	**10**	**all**	**QTCs**	**80**	**40**	**20**	**15**	**10**
YZ9A	1437130	74	212	789	84	8	1167	931	160	207	220	84	14
UA4FZ	1177640	42	205	383	213	10	853	1143	76	174	238	86	76
OE6MBG	1078461	22	122	980	66	1	1191	840	68	153	244	64	2
LZ1KDP	983008	41	124	304	281	1	751	751	104	174	178	98	2
I2CZQ	864034	7	198	533	88	1	827	854	20	222	194	76	2
YU3HAM	850608	76	139	621	5	0	841	770	140	168	210	10	0
DL8QS	802899	64	104	269	69	3	509	670	180	207	202	88	4
UQ2GM	707388	39	138	502	125	3	807	711	84	120	194	62	6
LZ2KK	680890	59	73	357	190	5	684	686	168	93	156	70	10
GW4BLE	671075	26	74	937	22	3	1061	517	84	123	184	28	6
Non-Europe													
UH8EA	1362064	179	317	764	282	23	1565	1559	128	114	90	72	32
5B25MF	1116660	177	182	956	203	11	1529	1489	120	84	88	60	18
EA9LZ	941622	112	304	952	16	0	1385	1209	124	141	82	16	0
ZZ5EG	865568	16	226	427	508	60	1237	1222	44	102	80	84	42
UM8MO	781056	95	194	667	227	5	1188	1138	96	87	84	64	8
UA9CG	529104	73	69	617	150	0	909	903	72	84	84	52	0
K1ZM	505336	57	38	1020	7	0	1122	1114	72	48	92	14	0
UW9WK	464448	29	133	697	87	0	946	1888	52	72	86	36	0
LU6ETB	446880	17	144	204	321	49	735	735	48	90	64	64	38
UI8ZAA	395580	95	30	381	240	0	746	642	96	45	82	62	0
Top Six Multi Operator/Single Transmitter													
Europe													
LZ2KTS	2547808	104	266	812	600	10	1792	1300	220	216	256	116	16
DF9ZP	2158533	60	176	1143	169	2	1550	1363	148	207	272	110	4
Y44ZI	1427385	60	134	1011	139	2	1346	867	144	168	247	82	4
DLØDK	1378322	41	95	664	222	1	1023	1009	136	150	276	120	2
UQ1GWW	1092168	22	71	738	417	1	1249	1115	48	96	224	92	2
DLØCS	948315	48	107	631	96	1	772	772	128	147	212	84	2
Non-Europe													
RL8PYL	1641435	184	249	1013	294	65	1805	1680	140	123	96	68	44
UZ9CWW	1400886	178	255	795	419	2	1649	1492	136	132	100	74	4
YV1TO	453172	53	197	511	56	0	817	277	68	93	82	34	0
JE2YRD	276982	6	67	554	92	0	719	687	16	63	78	40	0
JA1YWX	265660	18	35	562	106	0	721	715	28	39	74	44	0
UW9MWO	244976	38	99	239	124	0	493	483	56	87	56	52	0

Single Operator Category

North America

C6-Bahamas

C6AER	72	9	0	8

HI-Dominican Rep.

HIØA	**16740**	**102**	**84**	**90**

HP-Panama

HP1XKR	6	3	0	2

VE-Canada

VE3XN	**89718**	**395**	**392**	**114**
VE1BCF	**73544**	**320**	**314**	**116**
VE8RCS	**11520**	**180**	**0**	**64**

W-USA

K1ZM	**505336**	**1122**	**1114**	**226**
AK1A	**346704**	**950**	**914**	**186**
WC4E	**47690**	**267**	**235**	**95**
WI4K	41984	260	252	82
N4BS	19140	146	144	66
K2QF	**18900**	**162**	**153**	**60**
KA1DWX	18525	131	116	75
W9RE	**10780**	**94**	**60**	**70**
K6EID	9558	91	86	54
KC1F	8532	79	79	54
WK4F	8241	63	60	67
W2DW	7581	67	66	57
N6AW	6816	73	69	48
K4BAI	5712	68	68	42
KA1DSQ	3680	59	56	32
N2FCH	2240	60	10	32
KBØU	1760	55	0	32
WD8QVD	1664	26	26	32
WA5IYX	234	13	0	18

Oceania

VK-Australia

VI2PS	2592	48	24	36

YB-Indonesia

YB4FW	**24012**	**261**	**0**	**92**

South America

HK-Colombia

HK1LOG	792	24	0	33

LU-Argentina

LU6ETB	**446880**	**735**	**735**	**304**
LU1CF	5428	59	59	46
LU3ABX	3002	40	39	38

PY-Brazil

ZZ5EG	**865568**	**1237**	**1222**	**352**
PT2TF	20274	109	109	93
PY2RRG	744	31	0	24

YV-Venezuela

YV6CAX	**157080**	**443**	**397**	**187**
YV6BTF	86296	282	254	161

Multi Operator/ Single Transmitter Category

Europe

4U-UN Vienna

4U1VIC	**141775**	**465**	**70**	**265**

C3-Andorra

C31LDL	1870	16	69	22

EA6-Baleares

ED6MDX	**723450**	**904**	**461**	**530**

G-England

G3CMH	2240	40	0	56

I-Italy

I2MQP	**366064**	**724**	**372**	**334**

LX-Luxembourg

LX9BV	495	15	0	33

LZ-Bulgaria

LZ2KTS	**2547808**	**1792**	**1300**	**824**
LZ1KOZ	174714	209	578	222
LZ1KNP	1120	35	0	32

OH-Finland

OH4RH	**171402**	**385**	**154**	**318**

OK-CSSR

OK1KSO	**871488**	**1037**	**565**	**544**
OK3KII	**586768**	**1052**	**404**	**403**
OK3KAG	**384482**	**565**	**382**	**406**
OK1KCF	960	32	0	30

ON-Belgium

ON6AH	**106708**	**343**	**175**	**206**

PA-Netherlands

PI1GOE	**43248**	**130**	**142**	**159**

SP-Poland

SP5PBE	**363166**	**545**	**461**	**361**
SP9KOU	114870	191	356	210
SP9PEZ	44799	125	202	137

UA-Eur. RSFSR

UZ1ZWO	**79104**	**412**	**0**	**192**
UZ6AWX	4500	50	0	90
UZ4FWD	954	13	40	18

UB-Ukraine

UB4QWW	**345320**	**537**	**433**	**356**
UB4IWC	1800	36	0	50
UB4EWW	960	30	0	32

UC-White RSFSR

UC1WWC	**19725**	**63**	**200**	**75**

UP-Lithuania

UP1BWW	**586568**	**610**	**682**	**454**
UP1BWC	41496	102	297	104

UQ-Latvia

UQ1GWW	**1092168**	**1249**	**1115**	**462**

UR-Estonia

UR1RWX	**19952**	**112**	**60**	**116**

Y2-GDR

Y44ZI	**1427385**	**1346**	**867**	**645**

YO-Romania

YO8KOD	**97920**	**142**	**368**	**192**

YU-Yugoslavia

YU4ECZ	**801975**	**1078**	**809**	**425**
YT3T	**688848**	**651**	**705**	**508**

Non-Europe

Asia

JA-Japan

JE2YRD	**276982**	**719**	**687**	**197**
JA1YWX	**265660**	**721**	**715**	**185**
JA9YBA	**227752**	**698**	**674**	**166**
JA7YAB	**166138**	**552**	**541**	**152**
JA7YFB	112140	412	389	140
JA6YDH	111228	405	401	138

UA9/0-Asiatic RSFSR

UZ9CWW	**1400886**	**1649**	**1492**	**446**
UZ9UWN	142494	580	542	127
UZ9OWD	133008	494	484	136
UZØCWA	117320	419	419	140
UZØAWB	51022	367	159	97
UZ9CYP	32128	251	251	64
UZ9AXT	10094	103	103	49

UL-Kazakh

RL8PYL	**1641435**	**1805**	**1680**	**471**
UL8CWI	178139	500	423	193

UM-Kirghiz

UM9MWO	**244976**	**493**	**483**	**251**

North America

W-USA

N1AU	**37760**	**242**	**230**	**80**

South America

LU-Argentina

LU9FHF	**156310**	**398**	**372**	**203**

YV-Venezuela

YV1TO	**453172**	**819**	**817**	**277**

Checklogs

4N2D, DL2SBY, EA1AWW, EA5CJC, JK1LRH, NØRM, OH1BV, OX3ZM, PAØLIE, PA3BZV, RA1AO, RB5IA, RFØFWW, SM6KMD, SMØCSX, SP1GEA, SP1DPA, SP3XR, SP6ECA, UA6HKN, UA9FZ, UA9XR, UAØQF, UB4AXA, UB5VAA, UG7GWV, UH8EC, UJ8JJ, UJ9JWI, UM8MM, UV3DN, UV3FD, UV6ABB, UWØCW, UZ6HXK, UZØQXH, Y23CO, Y26SO, Y43XE, Y45RN, ZP5JCY

Chuck Clark, K4ZN

TRAFFIC EMERGENCY



NOVICE NETS

"Say, old man, don't you realize that the novices have only this band to work in which is quite narrow. Higher class licensees should not be running their nets here when there is so much room elsewhere. Let's keep the novice bands for novices." Something to this effect was heard one morning on 80 meters as an amateur was lecturing the control station of the Early Bird Net on 3715 kHz.

Logically, such a line of reasoning would mean that extra class licensees should stay within their 25 kHz sections of the spectrum. What this particular critic did not appreciate is the fact that the net uses a frequency in the novice band precisely in order that novices may participate in it. This gives them a chance to work at traffic handling to enable them to put their traffic into the system. In fact, the particular net control station which was being lectured (while the rest of us waited to get on with the net's business and clear our traffic and leave for work) was himself once a novice who took advantage of the net's existence in the novice band to check in and break into the traffic game.

There is a fairly large number of such nets that meet in the novice bands for the same purpose. You will find them listed in the ARRL Net Directory which is available from ARRL for one dollar. They may be listed as novice nets, but they are not just for novices. Others are welcome, experienced traffic handlers to help the newcomers learn to do it right, phone men who want to get back into CW but find the other nets a little too fast for comfort. They include amateurs who find that the meeting time of the novice net fits their personal schedule better, or amateurs who just want to encourage newcomers. These nets try to keep the code speed down to about 12 words per minute, but sometimes we forget, particularly when we have a lot of traffic to move. When that happens, just say QRS and we will slow down. One thing I believe our critic will agree with is that any net that operates in the novice bands should be willing to slow down to a speed that novices can follow. As a matter of fact, almost any CW net will gladly slow down for you if you request it. In many cases it will do so even if you do not request it, if you send at a slow speed yourself. If you transmit at 30 WPM, you invite a reply at the same speed.

In addition to providing them with an opportunity to become involved in the traffic game, novice nets provide another service to both novices and technicians. Traffic handling is one of the best ways to improve your code speed. Casual QSOs do help, but the standard format is soon memorized: signal report, location, name, weather, rig and antenna. Even then, it does not matter a great deal if you miss some of the details. When handling traffic, however, you have to get it all and put it down on paper. Here, 100 percent accuracy is not the ideal to be aimed at. It is the minimum acceptable performance. Operate in the nets a few months and you should not have any trouble passing the code test.

A CORRECTION

In connection with the Net Directory mentioned above, last month's column wrongly identified the ARRL Director who tried valiantly but in vain, to have the directory restored to the list of free materials available from ARRL. Credit for this effort should have gone to Linda Ferdinand, N2YL, an accomplished traffic handler in her own right.

Even if it costs a buck, the Net Directory remains a bargain. If you do not have a copy and you handle traffic or are interested in entering the traffic game, you will find it a good investment.

AUTOMATIC OPERATION

Last month I mentioned the FCC's Report and Order in PR Docket 85-105. The wording of the new rules confirms our worst fears: not only will it be forbidden to handle third party traffic through stations in automatic operation, but we will not even be allowed to handle it via repeaters or satellite unless there is a control operator on duty.

Fortunately, the FCC left us a loophole unintentionally, and it is huge one. It is surprising that nobody has noticed it yet. Paragraph 97.3(v) defines third party traffic as "Amateur radio communication by or under the supervision of the control operator at an amateur radio station to another amateur radio station on behalf of anyone other than the control operator." Applying that definition in its literal sense, if there is no control operator, it is not a third party traffic. So, the new prohibition of sending third party traffic via a station in automatic control, which is defined as a station operating without a control operator, turns out to be meaningless. But don't count on having that loophole open very long. Smart money says that the FCC will do something about it in short order when it is discovered.

CW FOREVER?

There are amateurs who see Morse telegraphy as a museum piece or at least as a dying art. Others may see it as a means of limiting the number of users of Amateur Radio thus keeping our bands from becoming too crowded. Actually, about the only american users other than amateurs, seem to be merchant ships on the high seas. Even here the move is toward satellite communication which gives the larger vessels contact approaching landline phone

and data systems' speed, accuracy and simplicity at a lower cost.

But don't write the epitaph just yet. The old Morse code still has life in it. In the past couple of decades, the military communication schools had been directing their training programs toward other modes, but of late they are gravitating back to CW again. Red Barger, W3CVE, has been teaching Navy and Air Force personnel at his radio school at District Heights, MD. He gets them up to about 25 words per minute during their first period with him. They come back after a break so he can finish them off at the fully professional speed of about 45 WPM.

Another indication that the Morse code is not ready for the undertaker is the Coast Guard's attitude. Just now a complete overhaul of Part 10 of the Coast Guard's regulations covering licensing of deck officers of merchant ships, from unlimited ocean masters and mates to motorboat operators, is under way. The Coast Guard indicates that the 6 WPM test in receiving blinker signals, already required of masters and mates on larger vessels, will be extended to all who desire to be qualified for any ocean-going vessels of over 150 gross tons.

For ordinary commercial communication where economics is the determining factor, CW does not have a chance. Trained operators, who are not always available, are needed and cost money. When cost does not matter, as when lives are at stake, when conditions are marginal and the message has to go through, it is reassuring to know that there are still people around who know how to use CW. It can do the job when nothing else can.

AMERICAN MORSE

In the United States the code used until the middle of this century on landline telegraph systems is now a real museum piece. It is mainly a few amateurs who are keeping it alive. You can find it in older dictionaries and encyclopedias. Eleven of the letters and most of the numerals and punctuation are different from those in the International code. Some of the letters include spacing between the dots. Thus the letter O is two dots, but with wider spacing it is than used for the letter I. You just about have to "copy behind" to read the American Morse code accurately. Is it I, O or EE? Proficient operators used to be able not only to copy it accurately, but make solid copy of intermingled American and International codes. Before World War II, Western Union had a network of radio stations that relayed traffic received on wirelines. These operators regularly mixed up the two codes but somehow got it right. In fact, for the top class of radiotelegraph operator's license, the extra first class, you had to pass a code test in both codes.

There are some groups functioning in the amateur bands that are trying to keep the old code alive. We still use a few characters from the American code, such as the long dash for zero, or the Morse comma (AA) that traffic handlers use in the address of a message. Strictly speaking, novices are not allowed to use the American code (97.7(b)(2)), but it would be nit-picking to fault them for doing what everyone else does when using CW.

It would be nice to keep the American code alive. But, it is more important that we do not lose the ability to communicate by some form of the Morse code as it can be of critical importance in an emergency. (K4ZN)

MORE WONDERS OF MORSE

Bob Smith, G6TQ

I was interested to read the article, in the December issue (West Kent Amateur Radio Society Bulletin) by Alex Comfort MB, DSC, BCH, Radio and Medicine. He will no doubt be interested in reading my comments more of which can be read in the book just published (with illustrations) entitled, "Computer Help For The Disabled People," co-authored by Lorna Ridgway and Stuart McKears. Human horizon series, Bouvenir Press.

This was our project over the last 23 months. Mark Brownfield is a young man, aged 22 years, wheelchair bound, profoundly deaf, blind and with a severe speech impediment, due to his deafness. He has achieved a fantastic ability with the morse code. We talk to Mark at 25/30 WPM but he can read any speed which you like to put to him. Mark is unable to write and he just reads the code in his head like a book. This is achieved by a wheelchair borne computer which is programed to translate any plain language typed into his keyboard into fast morse code which he reads through earphones by bone conductivity. Mark is able to read the vibrations.

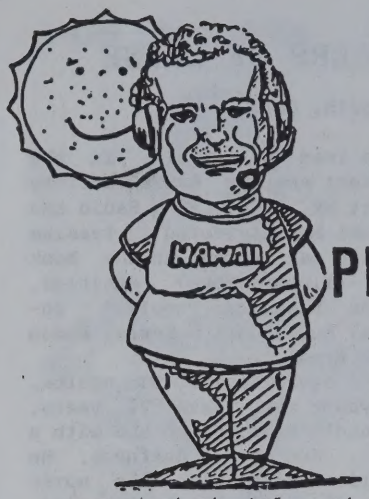
With the help of the local West Kent Amateur Radio Society, the local representative for R.A.I.B.C. have tutored Mark to the stage where he was able to take the Radio Amateur Examination this last December, the results of which are eagerly awaited. Because of this new hobby Mark has put weight on his frail body, became very alert and lively. He can talk with anybody via his keyboard talk. Feedback from Mark comes in distorted speech or, if you read morse code, he uses an auto keyer which he has mastered to perfection, to reply. All this is really amazing because Mark has very little capability in his hands. (WKARS Bulletin)

CANADIAN FEES GOING UP

DOC has informed CRRL that effective April 1, amateurs applying for a station license, for the first time only, will have to pay a fee of $26.00. That fee will drop to $20.00 in the following year - the same fee that remeins in effect for amateurs simply renewing their station licenses. Something new: amateurs who require a station license for only part of a year will not be required to pay a full fee, but can pay on a pro-rated basis. Also effective April 1, candidates for DOC examinations will have to pay a fee of $5.00 for each portion of an Amateur Radio examination they try. For example, a candidate for the Amateur certificate, who tries the theory, regulations, Morse code sending and Morse code recieving, will have to pay an examination fee of $20.00. (Oh, for the good old days when the fee for the examination was 50 cents - and radio inspectors never bothered to collect!)

CRRL ASKS DOC TO KEEP SPECIAL PREFIXES

CRRL has made a formal submission to DOC, asking DOC to continue the practice of issuing special callsign prefixes to help Canadian amateurs publicize significant events in the life of the country. The submission presents a plan whereby amateurs would assist DOC in issuing the prefixes, keeping DOC involvement, and costs, to a minimum. (CRRL News)



KH6BZF PROPAGATION REPORT

Lee Wical, KH6BZF

Statistical information is compiled by KH6BZF and processed on a computer by VE3BMV.

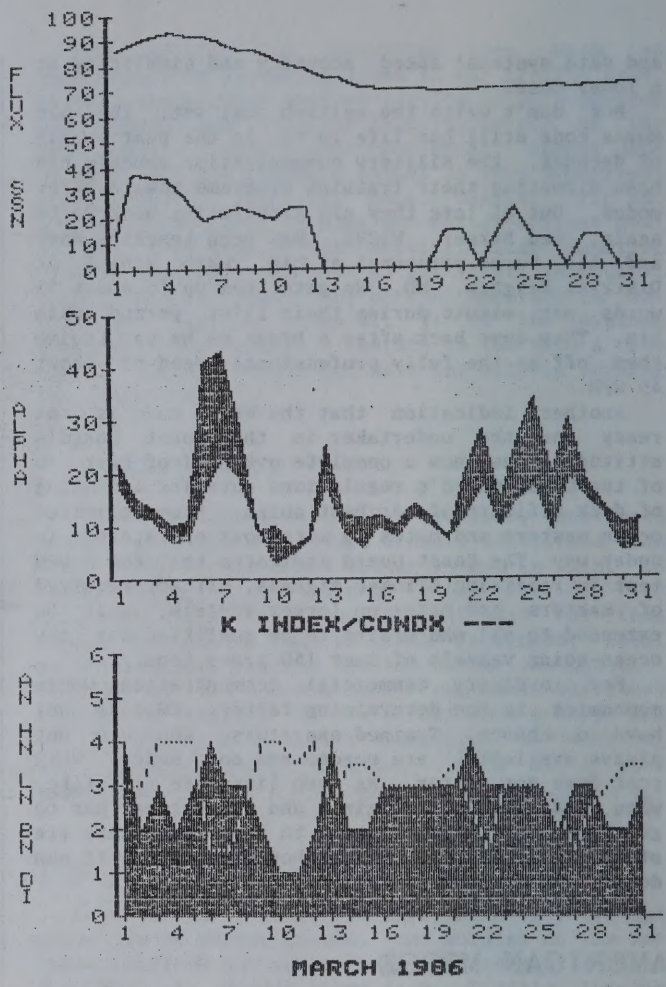
The first diagram shows the value of solar flux (top curve) and SSN - sunspot number (bottom curve). The Y axis and scale is the same for both. The X axis is calibrated in days of the month.

The second diagram shows variation of the Alpha Index for each day. The dark shaded area shows increases, while the white area shows decreases in the value of the Alpha Index for each day.

The third diagram shows the value of the K Index (shaded area) on a scale from 0 to 6. The dotted line represents the propagation quality where the scale is: from 5 = Above Normal to 1 = Disturbed.

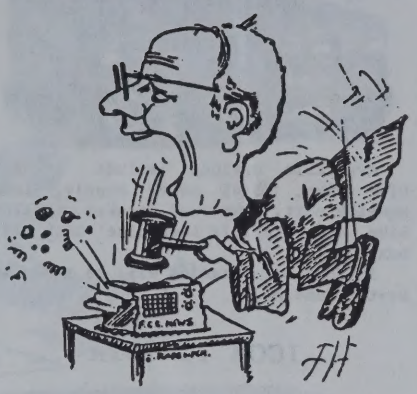
FORECAST:

BEST HF CONDX: MAY: 1 - 3, 8 - 10, 13 - 15, 22, 25
BEST VHF CONDX: MAY: 5 - 8, 21 - 22



MAR '86	CONDX	SOL FLUX LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA INDEX	K INDX	NOTES
01	LN	086 VY LOW	12	ACTIVE	18/22	K=4	RGN 4717(2) N00; E74
02	LN	089 VY LOW	37	UNSETTLED	12/15	K=2	RGN 4717(14) N01, E54; 4718(3) N04, W13
03	HN	092 MODERATE	36	QUIET-UNSETTLED	11/13	K=3	RGN 4717(13) S00, E41; 4718(3) N03, W26
04	HN	093 MOD-LOW	35	ACTIVE-QUIET	07/10	K=2	RGN 4717(20) N01, E28; 4718(3) N03, W40
		(SOLAR FLUX PEAK)					
05	HN	092 MOD-LOW	28	QUIET-UNSETTLED	08/11	K=3	RGN 4717(18) N02, E15
06	LN-DIS	092 LOW	19	QUIET-M.S. LVLS	17/41	K=4	FLARE M1/1B @ 05/0709 UTC
07	LN-DIS	089 LOW-MOD	21	M.S.-ACTIVE	23/43	K=3	RGN 4717(11) S00, W14
08	LN-BN	086 LOW	24	ACTIVE	19/29	K=3	RGN 4717(14) S00, W26
09	HN	086 VY LOW	21	UNSETTELD-QUIET	10/09	K=2	RGN 4717(11) S00, W39
10	HN	083 VY LOW	19	VERY QUIET	03/10	K=1	RGN 4717(09) S00, W52
11	HN-LN	080 VY LOW	24	QUIET	05/06	K=1	RGN 4717(14) S00, W64
12	HN	078 VY LOW	23	QUIET-UNSETTLED	08/08	K=2	RGN 4717(13) S00, W73
13	LN-BN	075 VY LOW	00	UNSETTELD-ACTIVE (POOR H.F.; FAIR VHF)	18/25	K=4	RGN 4717(00) S00, W87 over the W limb
14	HN-LN	074 VY LOW	00	UNSETTLED	09/12	K=2	NO SUNSPOTS; STRATWARM ALERT
15	HN-LN	071 VY LOW	00	QUIET-UNSETTLED	06/11	K=2	NO SUNSPOTS; STRATWARM ALERT
16	LN	070 VY LOW	00	UNSETTLED	10/12	K=3	NO SUNSPOTS; STRATWARM ALERT
17	LN	070 VY LOW	00	UNSETTLED	08/10	K=3	NO SUNSPOTS; STRATWARM ALERT
18	LN	070 VY LOW	00	QUIET-UNSETTLED	12/14	K=3	NO SUNSPOTS; STRARWARM ALERT
19	LN	069 VY LOW	00	UNSETTLED-ACTIVE	10/11	K=3	NO SUNSPOTS; STRATWARM ALERT
20	HN-LN	069 VY LOW	14	QUIET-UNSETTLED	08/07	K=3	RGN 4719(4) S12, W28 NEWEST REGION
21	LN-BN	069 VY LOW	14	QUIET-ACTIVE	12/20	K=4	RGN 4719(4) S12, W41
22	BN-DIS	070 VY LOW	00	ACTIVE-M.S.LVLS-UNSET	18/28	K=3	RGN 4719(0) S12, W55
23	LN	070 VY LOW	13	UNSETTLED-QUIET	10/14	K=3	RGN 4719(3) S12, W68
24	LN	070 VY LOW	23	UNSETTLED-ACTIVE	15/26	K=3	RGN 4720(1) N03, E68; 4719(2) S12, W82
25	LN	070 VY LOW	11	UNSETTLED-M.S. LVLS	18/34	K=3	RGN 4719(1) S12, W68
26	BN-LN	071 VY LOW	11	M.S. LVLS-QUIET	09/19	K=2	RGN 4719(1) S12, W55
27	BN-DIS	070 VY LOW	00	M.S. LVLS-ACTIVE	19/30	K=3	NO SUNSPOTS
28	LN-BN	071 VY LOW	12	ACTIVE-M.S. LVLS	15/18	K=3	RGN 4719(2) S12, W28
29	LN	071 VY LOW	11	UNSETTLED-ACTIVE	12/13	K=2	RGN 4719(1) S12, W14
30	LN-HN	072 VY LOW	00	QUIET-UNSETTLED	05/10	K=2	NO SUNSPOTS
31	HN-LN	071 VY LOW	00	QUIET-UNSETTLED	06/11	K=3	NO SUNSPOTS

FCC NEWS



BILL GRENFELL, W4GF

CREDIT FOR WRITTEN AMATEUR EXAM ELEMENTS HAS BEEN PROPOSED BY FCC (PR DOCKET NO. 86-63). The petition filed by Robert A. Scupp (RM-4991), proposed "to amend Sections 97.25(b) of the (FCC's) Rules to authorize currently licensed amateur radio operators to receive examination element credit upon successfully completing Elements 1(A), 1(B), 1(C), 2, 3, 4(A) and 4(B)," except for examinations for the Novice license. At present credit is given only for the telegraph elements. Section 97.28(e) would be deleted. FCC stated: "We see no reason to continue the procedures of the former examination structure in the existing volunteer examination system." In addition to appropriate amendment of 97.25(b), a draft revision of application Form 610 is included with the Commission's Notice of Proposed Rule Making in Appendix B. Original comments must be filed with FCC by April 30,1986, reply comments by May 31, 1986, and should be sent to the Secretary, FCC, Washington D.C. 20554.

FCC HAS ADOPTED A RULE AMENDMENT (PR DOCKET 85-168) WHICH PERMITS THE USE OF AUDIO TONE IDENTIFICATION FOR REPEATERS OPERATING IN THE 29.5 - 29.7 MHz BAND. Effective 04/23/86, F2B emission is included in Section 97.61(a) with those which may be used between 28500 kHz and 29700 kHz. The amendment provides for use of F2B in all of the repeater bands. Section 97.85 lists repeater bands and Appendix 3 of Part 97 describes the emissions.

FCC'S PRIVATE RADIO BUREAU CHIEF HAD DENIED A REQUEST FOR WAIVER OF THE RULES "FOR USE OF AMATEUR FREQUENCIES FOR NEWS GATHERING FOR BROADCASTING PURPOSES." Broadcasting Lee Shoblom (K6ADA) ..."had sought the waiver to permit the use of his amateur station to gather news for broadcast over his commercial low power television station." The Bureau Chief advised that other frequencies were available to "...persons interested in radio technique, solely with a personal aim and without pecuniary interest."

THE 14 DAY SUSPENSION OF A COMMERCIAL RADIO LICENSE FOR HIS USE OF HIS AMATEUR STATION TO INTERFERE WITH A REPEATER, WAS SO LIMITED BECAUSE IT IS REQUIRED FOR HIS JOB, REPORTS FCC IN ITS 02/18/86 PUBLIC NOTICE OF ITS ACTION. The General Radiotelephone Operator License of Robert J. King, amateur station licensee WB8WKA, was suspended for "his intentional interference to the Detroit Amateur Radio Team's ...repeater operations." "...commercial radio operator licenses can be suspended for licensee abuses involving any radio service, including the amateur service. FCC-licensed commercial radio operators should make sure that all of their radio operations, amateur and commercial comply with the Commission Rules." "...the Commission has also initiated proceedings to suspend King's amateur radio operator license and revoke his amateur station license (WB8KWA). King was also arrested and criminally indicted in connection with this matter."

THE THIRD HEARING ON H.R. 3378, THE ELECTRONICS PRIVACY ACT OF 1985, WAS HELD ON JANUARY 30 BY A U.S. HOUSE OF REPRESENTATIVES SUBCOMMITTEE. The purpose of the bill is to provide an increased level of protection from "eavesdropping" for some of the newer radio communications systems now in use or proposed for use in the near future, such as cellular telephone. (see FCC NEWS two months ago for some of the text of the bill). The ARRL presentation quoted excerpts from the bill's text: "It shall not be unlawful under this chapter...to intercept any electronic communication which is transmitted...by an amateur radio station operator or by citizens band radio operator;..." and stated: "Provided that the specific exemption for Amateur Radio Communications remains in the Bill and that the same is construed and intended to apply to all forms of communication by, between and among licensed amateur stations on frequencies allocated to the Amateur Radio Service, then the League's most basic concerns are essentially satisfied." The League testimony went on to describe amateur phone patches for health, welfare, emergency communications and computer linked message systems and that amateur some times need to listen to other radio services such as NOAA weather broadcasts. (ARRL Letter, 02/13/86). In effect the league was asking that the bill not be capable of being interpreted to preclude or limit the activities we now enjoy. It is essential that provisions in the Communications Act applicable to the Amateur Radio Service be very carefully worded. I have observed some very questionable interpretation of the pre-1982 version being used regarding "amateur" communications. "In 1982, Congress amended then Section 605 (now Section 705) of the Communications Act, 47 U.S.C., so as to clarify the absence of any expectation of privacy in connection with amateur communications and thus the exemption from the reception and disclosure restrictions of 47 U.S.C. Section 705." (ARRL Letter, 02/13/86)

THE ARRL HAS PETITIONED THE FCC TO RECONSIDER THE RESTRICTION THAT "NO AMATEUR STATION MAY BE OPERATED UNDER AUTOMATIC CONTROL WHILE TRANSMITTING THIRD-PARTY TRAFFIC," WHICH FCC INCLUDED IN THE RULE AMENDMENTS PERMITTING "OPERATION UNDER AUTOMATIC CONTROL," (Section 97.80) which it adopted on 01/13/86. (See FCC NEWS last month). Pointing out that most digital use speeds amount to about 1400 WPM the League stated "...it would be impossible for a control operator using a video display terminal (VDT) or a printer to carefully monitor the communications, assuming an average reading speed of 300 WPM." "...to be in compliance a control operator would have to slow the network down to his or her reading speed. The League believes that there must be some safeguards against unsupervised third party traffic, but that such traffic should be controlled at the point of its introduction into a packet network, not at its subsequent repeated automatic relays throughout the network." (ARRL Letter, 02/27/86)

THE FCC HAS RELEASED A REPORT AND ORDER IN FCC DOCKET 85-87 DECLARING FEDERAL PREEMPTION OF LOCAL REGULATION OF SATELLITE ANTENNAS. (ARRL Letter, 02/27/86). We have PRB-1 to protect us licensed radio amateurs from unreasonable antenna regulation (see paragraph two of last month's FCC NEWS, for example). With this new preemption in effect, you might expect local regulations can't interfere with installation and use of a satellite dish on your roof or in your yard. Not necessarily so! Read the following quote of the first part of the rule: Section 25.104 Preemption of local Zoning of Earth Stations. "State and local zoning or other regulations that differentiate between satellite receive-only antennas and other types of antenna facilities are preempted unless such regulations..." etc. What happens if the local regulation does not make any differentiation between antenna types or uses? Such a regulation would then apply to all antennas! Suppose the ordinance banned all outside antennas? When the rule was adopted by the Commission, one of the five Commissioners, Mimi Weyforth Dawson, dissented and issued a statement pointing out the faults of the rule, at the end of her three-page-plus statement, she wrote: "Accordingly, insofar as the mojority's decision allows localities to ban all antennas or to discriminate against TVROs in effect, I dissent."

THE FCC BUDGET REQUEST FOR THE YEAR BEGINNING 10/01/86 IS $96.3M AND 1,855 FULL-TIME PERMANENT STAFF POSITIONS, A SMALL INCREASE OVER THE PRESENT YEAR. Included in the request is the addition of 10 Field Operations positions to

"maintain an acceptable level of response to public requests for information and complaints of interference" and to increase the size of the field monitoring and enforcement staff. The FCC press release explains that it is deregulation, which has stimulated growth to a point where more staff is needed to process the resulting applications for licenses in the various radio services. (ARRL Letter, 02/27/86)

FCC'S "1985 YEAR END ROUND UP OF ACTIONS TAKEN AGAINST HAMS" NEWS RELEASE OF 02/07/85 LISTS THE FOLLOWING AS "THE MOST NOTEWORTHY CASES": James W. Smith, W6VCE, license revoked for "two meter interference" after a hearing; Eugene C. Sykes, W4OO, after a trial, paid a fine and court costs which totaled $2,400, for causing interference to another (novice band) amateur while using excessive power; David Saks, WD4SHP, accused of jamming, obscene language, and use of a subband for which he was not authorized, license revoked based on the unlicensed operation; Keith J. Obermeyer, KA0OOH, cited for interference on a fire department frequency, surrendered his license in lieu of revocation on the condition he could apply for a new license in 9 months. James Brantley, K6KPS, for calling CQ and non existent stations for long periods, he was fined $2,000 for violation of Section 97,113 "Broadcasting prohibited"; Lawrence Kaczmarczyk, W3UQW, for two meter malicious interference, submitted his license for cancellation in lieu of a revocation proceeding, on the condition that he could apply for a new license after one year. J. Fred Riley, WA8AJN, for malicious interference on 75 meters, during the revocation proceeding, he agreed to a suspension of license with the understanding he could request lifting the suspension after a year; Jerry R. Dyke, WD8LEU, after complaints of malicious interference and overpower operation, he was fined $2,000 for operation with excessive power. He was caught operating with more than 20,000 watts!; Bernie Slotnick, KB8RE, caught interfering with a repeater, he agreed to a voluntary suspension of his license (12/03/86); Robert J. King, WB8KWA, caught interfering with a repeater, he became the subject of revocation proceedings, (12/03/86). (W4GF)

END-OF-MONTH LICENSE TOTALS

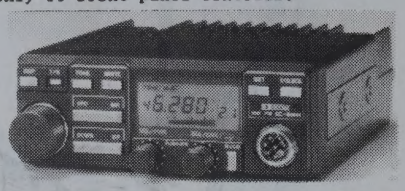
1985 DECEMBER	CLASS	1986 JANUARY
38,495	EXTRA	38,624
97,959	ADVANCED	98,003
117,107	GENERAL	117,110
83,679	TECHNICIAN	83,879
78,616	NOVICE	78,999
415,856	TOTALS	416,615

NEW PRODUCTS

ICOM IC-28A, IC28H

ICOM announces the IC-28A 25 watt and IC-28H 45 watt packet compatible 2 meter rigs with all you need for carefree mobile operation.

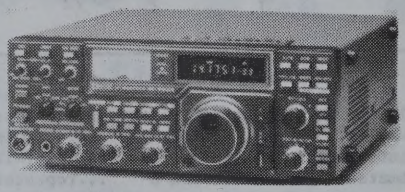
They feature: Compact size 5.25 x 5.5 x 2"; large LCD readout with automatic dimmer; 138 - 174 MHz; 21 memory channels; scanning; easy to operate, only 11 front panel controls.



Available options include IC-HM14 DTMF mike, PS-45 power supply, tone squelch unit, external speaker, speaker mike and flexible boom mike with PTT box.

IC-28 2 meter radios will be shown at Dayton Hamvention.

ICOM IC-751A

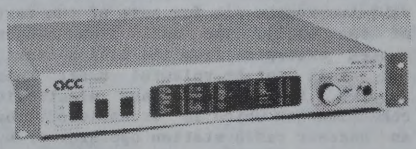


ICOM announces the new IC-751A HF base station transceiver with general coverage receiver (100 kHz - 30 MHz). It incorporates the high performance features of IC-751, is newly designed and has the following features: All modes USB, LSB, AM, FM, CW, RTTY; 100% duty cycle transmitter; 105 dB dynamic range receiver front end; 12 V DC operation; electronic keyer built in; factory installed FL-32A 9 MHz and 500 Hz CW filters; QSK up to 40 WPM; new LED annunciator; 32 memories; thermo sensor; new 9 MHz notch filter; new AGC; improved noise blanker; CW side tone for code practice and low noise receiver.

Accessories include the variety of IF filters. IC751 will be displayed at the Dayton Hamvention and pricing will be announced there.

NEW SOFTWARE

FOR RC-850 REPEATER CONTROLLER



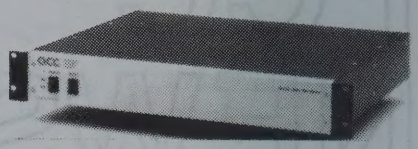
Advanced Computer Controls Inc. announces the new software version 3.4 for the RC-850 Repeater Controller which adds many new features to all repeater systems.

It supports multiple telephone lines, including up to three remote phone lines linked by radio. The autodial capability is expanded to 250 telephone numbers and allows operation with credit card codes and MCI/Sprint. Numerous additional paging formats are supported for selective call to amateurs equipped with decoders or paging receivers.

Operation of electronic mailbox is simplified and enhanced to allow tagging telephone numbers or times and frequencies to messages. The equipment manual has been also rewritten and improved.

For more information contact ACC Inc., 10816 Northridge Square, Cupertino, CA, 95014 Tel. (408) 749-8330

DIGITAL VOICE RECORDER



Advanced Computer Controls Inc. is announcing availability of its new Digital Voice Recorder, which provides remote audio record and playback capability for voice repeaters. The DVR allows the repeater owner to remotely record any of the repeater's programmable messages, IDs, tail messages, bulletin boards, emergency autodial responses, alarms, courtesy tones, etc. In addition, its Touch-Tone activated voice mailbox lets users leave recorded voice messages for other users.

The DVR's direct digital recording technique offers the outstanding no compromise audio quality. It is available with one, two, or three independent record/playback channels and it can service up to three repeaters, or two repeaters and the phone line. It is usable as standalone unit with any repeater but the most out of it can be benefited in conjunction with RC-850 repeater controller.

For more information contact ACC Inc. (408) 749-8330

CQ WW DX TEST PROGRAM

This is a series of BASIC programs and data files for use during and/or after working the CQ WW DX contest. Programs run on IBM-PC and compatibles, Heath Zenith Z100 with two disk drives, printer and at least 192k of memory.

There are five .BAS programs, one DXCC data file and forty zone/country data files. These work together and allow entry of log data into data file, they are checked for validity against country/zone list. Dupe sheets can be printed for any band at any time during the log entry. Logs are printed and scores tabulated at the end, duplicate contacts are marked. A summary sheet is printed after the logs. Data can be save on the disk in drive B.

Programs are public domain, duplication permitted and available to hams for $ 10 from K4PB, 8113 Belgium Dr., Raleigh, NC 27606.

RADIOSPORTING REWARD

RADIOSPORTING is sponsoring its subscription drive. The reward is extension of subscription by one issue for each new subscriber sponsored.

Tell a friend about RADIOSPORTING and encourage him to subscribe. If he does so, he should mention your call sign on his subscription application: "Sponsor: W1ABC." RADIOSPORTING will automatically extend the sponsor's subscription by one issue for each new sponsored subscriber. No special forms required, just make sure sponsor's call is mentioned.

YOU DON'T HAVE TO BE A DXER OR CONTESTER TO ENJOY RADIOSPORTING!



Dear Yuri:

Thank you for publishing my software instructions in your January issue. I had an inquiry before I received my issue in the mail.

I have just finished a similar set of programs for working the ARRL DX contest. I have written a description sheet for each of them and will enclose print-outs of each.

I wonder about something. I sent you that description on diskette. Did you have to retype it or could you enter it directly into your word processing or typesetting system? Why aren't authors submitting manuscripts to magazines on diskette?

On another subject: I don't quite agree with Paul Young, K1XM's solution to the ARRL Section problem in contests. I think the ARRL or somebody should proclaim a set of standard abbreviations for ARRL sections. These should be used in CW contests. This makes for a much more simple data base in a computer program. I have generated such a list for use in my own contest programs. I don't want to proclaim it as the standard but I intend to use it until something better comes along. From North Carolina I have to use signal strength to distinguish Los Angeles from Louisiana when LA is given as a section. I will enclose a copy of my list.

If you don't have time to answer this I will understand. I know how busy you must be. 73, Alan Harp, K4PB

Dear Alan,

Yes, we are busy, but we manage to find the time to answer letters, sooner or later. Yes. I was able to read your diskette into my word processor, it saved us precious time. Some of our contributors with computers are submitting articles on diskettes or over the phone.

We have come up with standard abbreviations for multipliers in the CAN-AM contest. Bring your suggestion up with the ARRL CAC. Maybe they will listen. 73, Yuri

Dear Yuri,

Thank you for responding to my letter of January 26. I have received all of the copies of RADIOSPORTING that I had missed and my address has been corrected. I really appreciate your attention to this matter.

By the way, the magazine is rapidly becoming one of my favorites. I find the articles on contesting, DXing and antennas to be very interesting and informative.

Yours truly, Sam Garbo, K0VGB

Dear Yuri:

Thanks fro the batch of magazines, which were distributed at a Penn Wireless meeting, hopefully with benefit to all. I enjoy RADIOSPORTING and find it most useful even though I am a casual contester and even more casual DXer. I would like to throw in my comments on lists and nets: I don't like them much, though I do work them occasionally, and sometimes they certainly are the lesser of evils. But as long as they are open to all and do not try to crowd out the little guy they certainly hurt no one and take up less space than a mild pileup. So - live and let live. But, I am violently against closed nets, closed lists and closed repeaters.

Thanks for running my little license plate ad. Note: need Ontario for W.A. Provinces. I have taken the liberty of adding you to the X-MITTER courtesy mailing list. Hope you enjoy it.

Now I am giving you the chance (or better, requesting you) to help make the rules! P43GR is chairman of a small committee that has been requested to write up a set of regs for the new Aruba government. He is desperate for input, and has asked me to pass this on to a few whom I think could best assist. You can speak for the contesters-DXers, can't you?

The P4 government wants some regs to adopt, knows nothing about what they should be, and has no initial conditions other than that they want the local clubs to do the testing, etc. (or, better, they just want nothing to do with it). Gary plans, for now, to work generally about the FCC regs, but nothing is firm so far.

There is a rush. Gary wants to have a proposal completed in about six weeks. He can be reached on 21.396 at 1600Z every Saturday. His address is: Gary Roeder, Mont Pelee Str. 1-A, San Nicholas, Aruba. Dave Heller, K3TX

Dear Dave,

Thanks for the subscription. On lists: some people think that smoking is good for them. Yes, we can tolerate the lists, but those that "woke up" enjoy working the DX on their own, rather than "shooting animals in the zoo."

The Ontario license plate can be obtained only from someone who gets a replacement due to damage or loss. Ontario plates are issued to the person and are transferable when cars are changed.

Perhaps P43GR could use the Dutch regulations as a template, or we will suggest Canadian. Thanks for the offer, we will see what we can do. 73 de VE3BMV

Dear Yuri:

Please extend my subscription for two more years, and my IRSA membership as well.

I have been extremely pleased watching your magazine grow over the past year and it appears you will continue to grow in the coming years. I have never been a very active contester, but your new contests are looking good. I am sure I will find the time to participate.

Sincerely, Al Pearson, WA1TOU

Yuri:

The YL and I had a splendid time in Montserrat! She never had phone privileges before and she had pile-ups of YBs to work! I worked 70 countries and had 3000 QSOs in one week of barefoot operation with tribander. I worked Dave Heil portable on OH0. He is a FB op! I love RADIOSPORTING.

I have some DX in my blood now and I hope to become a big gun some day. Present station is a tiny pistol. Hi. My biggest problem with contester/DX operators is trying to figure out why they lack the courtesy to QSL in fifty percent of the cases, even when SASE is sent. Why should I bother to give a contester points when I am not working the contest if he or she is too inconsiderate to give a little pistol something in return?

Keep up the great work. I'm with you for the duration. Don't take ads unless you have to!

QSL cards for our operation K1CLN/VP2M, KA1NTM/VP2M and VP2MU (3/1-2/1986) go to K1CLN. Box 866, Truro, MA 02666.

William R. Welch, M.D., K1CLN

Way to go Bill!

When the DX or contest bug bites, it can be a lot of fun and enjoyment. We hope that you will continue and one day we will see you at the top of the contest results. Thanks for your kind comments and keep reading! 73 Yuri

Dear Yuri:

A friend (W2TOC) recently passed along to me several copies of your publication. I must admit that I find the contents to be of much greater interest than the other amateur magazines. My major interest is DXing with emphasis on 160 meters (148/138). I find that each issue has several articles of interest to me.

Keep up the good work.

73, James L. Cary, W2SM

Dear Yuri:

I do enjoy your magazine. It seems to

focus on many of the activities that I have been interested in over the past fifty years. Hope the next fifty are equally great. Hi.

73, Roger E. Corey, W1AX

Thanks Roger,

I hope that you will make it and that we will still be around when you do. We can only get better. Hi.

73 and long hamming! de Yuri

Dear Yuri:

Reading through the April issue I noticed a few negative comments about the ionospheric disturbance on February 8th, but none about the positive effects it had. What I am referring to is auroral propagation. The opening on that day was extensive on 6 m and 2 m and netted QSOs of over 1500 miles form my station. There were also a number of reports of contacts made on 70 cm. One station in Maine, Lefty, K1TOL, heard the GB2SIX beacon for an hour and half, but no 2-ways were made.

One of my ambitions is to work Europe on 6 m. That almost happened last summer during a Sporadic-E opening in July. A few G stations were heard here, but none were workable this far east. On January 6th, one month before the February 8th opening, I did work a couple of Scandinavian stations on 10 m during another aurora.

As you can tell, I am quite active on VHF. Still, my main interest is and remains DX and contests on HF. I am currently active on all bands 160 m through 2 m, with plans for 70 cm.

You have mentioned that the solar and geomagnetic indices ought to be monitored to properly understand conditions. I have found this invaluable for predicting auroras and the various DX paths on HF. For example, observing the monthly cycle of solar events. Also, several days with a low A-index usually nets interesting extension of paths on HF, even with a depressingly low solar flux.

For your interest, I have noticed an odd occurrence a couple of times the day after an aurora. While the low bands were otherwise not open for DX, there were brief gray-line openings at sunset. In one instance I heard stations form HL, JA and YB working into the states on 40 m. I wonder if this pattern has been noticed by others? I would be interested in understanding this relationship.

Also, I very much enjoyed the article on CW SS by KC8C. I have very little experience operating SS at this end of the country and the strategy required is quite a bit different! I did not appreciate how much the low bands matter. My excessive use of 20 m hindered me in the 1985 contest. After five hours I still had under 200 contacts, in the low power category. Unfortunately, I also got ill then so, I had to quit. My last entry in SS was in 1978 when I made the low power Top Ten on both CW and SSB. I will try again this year, a bit more successfully I hope! I may even try a real-time logging/duping system which I haven't tried since 1977.

73, Ron Schwartz, VE3VN

Congratulations Ron,

I hope more VE stations will catch your fire and we will see them listed in the contest results. Except for few, Canadians are scarce in radio sporting activities on HF or VHF.

Very interesting notes on the propagation. I have experienced good openings to the Indian Ocean on 20 m after the disturbance, when nothing else would be coming through.

Keep up your fire and we wish you luck in making it to Europe on VHF! Yuri

---

Dear Yuri:

Many thanks for printing my open letters concerning the 160 meter band plan in your October 1985 and January 1986 RADIOSPORTING issues. Also, thanks for the comments by N7CKD in his March 1986 160 Meter Bulletin.

Now we are going to have a new voluntary band plan. DXers are supposed to get what they want, 1800-1840 CW and 1840-2000 SSB, except there will be no mandatory FCC rule to this effect. As has been demonstrated in the past, voluntary band plans are doomed to failure.

In his March 160 m Bulletin, Dennis wonders why "they" (ARRL and FCC?) are being so evasive about the much needed FCC rule change. I believe the reason is that the ARRL Directors want to avoid offending the hordes of high power CB types and stubborn OTs who now own the whole band for SSB rag chewing.

I am going to make one more pitch to all ARRL Directors, with some additional comments beyond the ones you have already printed, some time before the June Directors meeting. Unfortunately, by that time 160 m will have settled into its usual summer QRN doldrums. QRN does not hinder the high power CB type SSB rag chewers but it sure does hinder weak signal DX reception. I continue to feel like the Dutch boy trying to stop the ocean with his finger in the dike.

There is a lot of support out there for a mandatory band plan. This is not a question where the majority should be successful in preventing a 40 kHz CW sub band. The ARRL Directors were split (10 to 5, I think) in deciding against an FCC petition. Our job is to try to convince at least 3 of them to reverse their vote next time. Details of who voted how are in March 1986 QST.

Incidentally, any talk about not filing a FCC petition because it costs too much or might be rejected is pure nonsense. I would appreciate any additional support, publicity you can give to the cause.

73, Dave Kennedy, N4SU

P.S. I keep reading about N4IN and his paranoid diddling with 160 m contest logs. Like 4X4NJ, I no longer submit any CQ 160 m contest logs. I simply will not permit any diddling with my carefully kept logs. But this subject will have to wait for another time.

Dear Dave,

I think that with the increase of activity it would be beneficial to have the mode subbands legislated. We know what happened to the DX segment of 80 meter band. It was supposed to be used for DXing, but everyone seems to like operating close to the edge. I wasn't really listening on 160 during the past few years, but I will QSY now and I hope to get a good feeling for the situation down there. The argument I hear from the "other side" is that things are fine, activity is low, so who needs the subbands. But a weak signal operation in the presence of the strong signals needs the quiet segment and split frequency operation. For this reason I believe that legistation would help. Let's hear from the other 160 m operators.

73, Yuri

Yuri,

There seem to be a slight error in the contest claimed scores in your Mail Room page. I am referring to my own letter and that from F6BEE. My own claimed score for single operator all band entry in CQ WW phone should be: 2549 QSOs, 6854 points, 105 zones and 365 countries for a total of 3,221,380 points.

The recent ARRL Phone contest I worked all bands with rough estimated total of 1685 QSOs and 133 multipliers.

Like yours, my QTH is also up for sale, but they tend to be a lot cheaper here in U.K. Hi

Keep up good work, The IRSA WRC contest looks good, although I may not be active if antennas are not up at new QTH, a lot can happen in six month!

73, Steve, GW4BLE

Dear Yuri,

Aside from the New Products Section (I'm prejudiced), April was the best issue I've seen so far. I particularly enjoyed seeing the first person pieces by KC8C, and would hope to see some similar pieces from other areas. Also was interested by W3FG's piece on log duping, although I would have liked to see more usable information. His sorting routines assuredly are quick, but it would have been helpful to have citations that would enable others to find them in the literature too.

I totally agree with your final comment on Walt's article. The whole idea of my "Contester II" program is to do all the "doggy-work" of contesting in real time, including logging, duping, multiplier checking and sending CW. It's a challenge to get that all done, fast enough to be competitive, within the hardware and memory size restrictions of the Commodore 64, which may be why there's no competition (yet).

Would you be interested in an article describing the duping algorithm I use? I can lay it out in a way that would make it possible for people to incorporate it in their own programming.

Pete Smith, N4ZR
(Winner's Edge Software)

Dear Pete,

Yes, we would welcome some programming hints. Many like to do their own programming and would appreciate some help. I keep putting away development of my computerized contester, no spare time. In a way it is a advantage, computers are getting better and cheaper. First I wanted to do it on beefed up Apple II, but now the IBM-PC is much better suited for the job. I want to include also remote radio control and complete integrated control and logging package. 73, VE3BMV

Dear Yuri:

Your publication is super! Keep up the good work. Everyone I talk to enjoys RADIOSPORTING and agrees you have fulfilled a tremendous gap in A.R. literature. Please renew my subscription. I do not want to miss anything. 73, Woody Woodhouse, K2UU



CLASSIFIED ADS

The Classified Ads rate is 15 cents per word. Remittance in full (check or money order) must accompany copy. Each word, abbreviation, model number, and group of numbers count as one word. No charge for Postal or ZIP code. Ads should be typed or clearly printed on a separate piece of paper. The closing date is the 25th of the month preceding publication. A last name or call must appear in each ad with an address or phone number.

Hamfests and Convention ads are free of charge.

Subscribers to RADIOSPORTING are entitled to one free ad per issue (max. 6 lines).

CONTEST FORMS FOR IRSA WRC, CQ WW, CQ WPX AND CAN-AM CONTESTS. Also application sheet and form kit for DXCA award. Each set includes summary sheet, multiplier check sheet, dupe sheets for Europe, VE/W and rest of the world, log sheets with 100 QSOs per page as described in RADIOSPORTING Dec.84. Send business size SAE and $1 per set to: IRSA, Box 65, Don Mills, ON M3C 2R6

WANTED ham call & DX auto license plates from anywhere for collection. K3TX, 250 Alden Ave., Yardley, PA 19067-4849

WANTED HALLICRAFTERS S-53A receiver, NATIONAL NC300TS spkr, 1956-7 Callbook showing KN4KWD, modern power supply for for Atwater-Kent model 30. Malcolm, KN4KWD 305 Buckhead Ave., Atlanta, GA 30305. Tel. (404) 231-0084 (weekdays)

BIBLIOGRAPHY "From Beverages to Oscar" with addendum up to 1981 is still available. It lists all the articles published on various subjects in major magazines. Article titles are sorted and listed by subjects. Set for $ 39.99 postpaid. Rich Rosen, K2RR, 626 Hurricane Hill Rd., Mason, NH 03048

BACK ISSUES OF RADIOSPORTING are still available 1984: DEC, 1985: FEB, MAR, APR, MAY/JUN, JUL, AUG, SEP, OCT, NOV, DEC, 1986: JAN, FEB, MAR, APR. Price includes mailing, cost $2 per issue. Complete your collection. Also reprints of articles are available for 20 cents per page plus postage. *RADIOSPORTING*, Box 65, Don Mills, ON, M3C 2R6 Tel (416) 438-6313

BUTTERNUT TBR-160HD 160 meter conversion kit for Butternut verticals. Like new condition $20.00.
Ed Baznik, WB8CFO, 6499 Crossview Rd., Seven Hills, OH 44131 (216) 447-9738

STOLEN COLLINS KWM380 with H/B Keypad with brass base - serial No. 1228 (Feb 1st, 1986) $500 reward offered for return and or arrest of persons responsible. John, K9UWA, (219) 637-6426

EPSON HI-80 plotter with spare pens, Keychart program and optional RS-232 interface US $590. VE3BMV (416) 438-6313

RADIOSPORTING is on-line. We have 300/1200 Baud Modem (416) 438-6313. You can submit your articles via modem now. We can also accept typed material on diskettes using IBM-PC, Apple II, Epson QX-10, Commodore 64 format, Wordstar, WordPerfect, ASCII files preferred. Write for *RADIOSPORTING* and become famous! One year subscription for 1 - 2 page published article.

VP2MM in CQ WPX CW contest. Operators VP2MM, VP2MIU, W1CDC and AB1U will activate VP2MM station during the CQ WPX CW contest on May 24 and 25, 1986. QSL VP2MM and VP2MIU via AB1U.

VE3BMV will operate CQ WPX CW on 160 meters single band (or if line noise is bad then 40 m). Please come and say hello.

YAESU FT 980-CAT, includes MD-1 Scanning dynamic Mic., 500 Hz CW filter, SP-980 speaker with audio filters. Built in Curtis Keywer, all manuals and shipping container. Will ship for $1100 US. Gueranteed. Joe, K8FC (313) 294-3109 evenings, (313) 827-2282 day.

==========

TAKE ADVANTAGE OF FREE ADS.

==========

YES! Count me in! I want to support RADIOSPORTING ___ IRSA ___ RENEWAL _____
I want to save 1/3 or more and get fast home delivery.
Start with _____ 19___ issue. Sponsored by: _____

SUBSCRIPTION FORM:

NAME:_____

CALL:_____ EX:_____

ADDRESS:_____

CITY:_____

STATE:_____ CODE:_____

COUNTRY:_____

RADIOSPORTING Magazine SUBSCRIPTION

1 YEAR $18

2 YEARS $33

Outside of USA/Canada please add $ 3/year

IRSA MEMBERSHIP 1 yr.$ 4 (incl. certificate)
IRSA ENGRAVED BADGE $ 5

Total amount of $_____ in US funds enclosed by check drawn on US bank or money order, payable to IRSA - Radiosporting. (Or equivalent in Canadian funds.) We also accept IRC coupons from those not able to get US funds. (5 IRCs = US$2)
VISA # _____ MASTERCARD # _____ EXP: _____ Sign: _____
Subscription rates: USA 1 year $ 18.00, 2 years $ 33.00, Canada 1 year CDN$ 24.00, 2 years $44.00, Overseas 1 year US $ 21.00, 2 years US $ 39.00
Price of a single issue and back issues is US $2.00 or equivalent.
Please mail to: RADIOSPORTING, Box 65, Don Mills, ON, M3C 2R6 Canada

8611 S

Temple Hills, MD 20748

BULK RATE
U.S. Postage
PAID
Permit No. 24
Sanborn, NY

DXCA AWARD..... 3
VE3BMV RADIOTORIAL..... 4
DX NEWS, N2AU..... 6
NEWS, QSL ROUTES..... 8
EXPEDITIONS AND THEIR EFFECT ON HAM RADIO..... 9
TOP BAND NEWS, N7CKD..... 10
160 M BULLETIN, LZ2CJ..... 12
CLUB LIFE, VE3KZE..... 15
VP2KC, THE RECORD RUN, N4RJ..... 16
ARRL, DXXC NEWS..... 18
VE3SR LOOSES IN COURT, VE3BMV..... 19
ANTENNAS, K7GCO..... 20
MEASURING COAXIAL LINE LOSS, K7GCO..... 22
MORE OPTIMIZED YAGI DESIGN, KM1H..... 23
W2PV 4 EL. YAGI, K1GQ..... 25
TAROH YAGI, JH1WIX..... 29
TS940S - FIXING CW CARRIER SHIFT, W3CV..... 30
OPERATING THE SMALLER STATION..... 32
MARION IS FREE OF SILENCE, S. DUGGAN..... 33
HERE'S THE BEEF, NO/FOOL..... 34
PILEUP, AA6XI..... 35
SCOREBOARD, WPX CW, RECORDS, RUMORS ARRL..... 36
RESULTS WAE DX 1985 SSB..... 39
TRAFFIC, EMERGENCY, K4ZN..... 40
PROPAGATION REPORT, KH6BZF..... 42
FCC NEWS, W4GF..... 43
NEW PRODUCTS..... 44
MAIL ROOM..... 45
CLASSIFIED ADS..... 47
IRSA OBJECTIVES..... 48

INTERNATIONAL RADIOSPORT ASSN.

P.C. Box 65, Don Mills, Ontario, Canada M3C 2R6 Tel. (416) 438-6313

Purpose and objectives:

1. To promote international friendship and goodwill through sportsmanship, radio contesting and DXing.

2. To improve the quality of amateur radio operators and operating through education and experience, by voicing the opinions of radio amateurs that are experienced and have contributed to the hobby.

3. To promote amateur radio contesting and other operating-related activities as a sport, and to provide the publicity and recognition that it deserves in the public media.

4. To publish timely articles in the monthly magazine "RADIOSPORTING" on various subjects of interest to Contesters, DXers, SWL, VHF, UHF and microwave enthusiasts, on RTTY, SSTV, computers in communications, fox hunting and anything of interest to the active ham striving for self-improvement. To feature technical articles on equipment design and modifications, antenna construction, radio-wave propagation, and commercial equipment reviews by qualified people.

5. To organize, as an annual event, the "International Contest Symposium," which runs parallel (evenings) with the Dayton Hamvention; to feature timely topics with the participation of some of the world's leading amateurs at the Syposium.

6. To hold an annual Awards Dinner with an entertainment program, where awards for various achievements will be presented.

7. To maintain and publish all time record tables for significant contests.

8. To sponsor and run an annual World Contest Championship, based on results of a number of major contests, with the annual "Contester of the Year" awards in various categories.

9. To administer the "Contest Hall of Fame" and vote on awarding membership to those who have significantly contributed to the sport of contesting.

10. To coordinate and assist in the scheduling of international contests.

11. To hold regular weekly meetings on air on 20 and 80 m. (14.200, 3.830)

12. To provide an automatic, computer controlled bulletin station that transmits the latest DX and Contest news on CW and RTTY.(14.098)

13. All in all, the IRSA is dedicated to the pursuit of excellence and quality in amateur radio by promoting, publicizing and leading the way.

14. Attractive numbered membership certificates and badges are issued to members.

15. IRSA is run by contesters who are selected for their accomplishments and it is independent of any national or commercial organizations.

16. IRSA will assist and sponsor Contests/DXpeditions, Trophies and other radio sporting and publicity events.

17. IRSA is a non profit organization, with all proceeds to be used to finance events and awards sponsored by IRSA and to cover expenses incured by Association.

18. IRSA members can display the IRSA logo on their QSL cards and correspondence; members agree to obey the Contester's Code of Ethics and to promote it.

The initial fee to join the IRSA is US $12; it includes the cost of a certificate and a badge. The yearly membership dues are US $5. (Or 24 and 10 IRCs resp.)

Honorary Life Membership will be awarded to those who significantly contribute to IRSA and the sport of contesting.

Members are entitled to be elected and to elect officers of IRSA. They will also enjoy many services and privileges offered exclusively to members.

RADIOSPORTING

INTERNATIONAL MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

Editor/Publisher	Yuri Blanarovich,VE3BMV
DX News	Art Hubert, N2AU
Propagation	Lee Wical, KH6BZF
Antennas	Ken Glanzer, K7GCO
Contest Rules	Frank Anzalone, W1WY
Traffic/Emergency	Chuck Clark, K4ZN
FCC News	Bill Grenfell, W4GF
Awards, Tech News	Mike Spenuk, VE3JTQ
DXpeditioning	Carl Henson, WB4ZNH
YL	Paula Franke, WB9TBU
Club Life	Tom Rosebush, VE3KZE
VHF/UHF	John Kitchens, NS6X
WRC Contest	Walt McGugan, W3FG
Teaching	Alan Kline, KB1DJ
160 meters	Dennis Peterson, N7CKD
	Wally Stefanoff, LZ2CJ
Europe	Erik Sjolund, SM0AGD
	Franz Langner, DJ9ZB
Asia	Tack Kumagai, JE1CKA
Africa	Sam Ford, ZS6BRZ
Canada	Bob Nash, VE3KZ
Radio Funnies	Mike Crabtree, AB0X
Photo production	Richard Staron, VE3FAC
Advertising, producton.	Sonya Blanarovich
Cartoonists	Eugene Radewych
	Dave Heil, K8MN

Published monthly by RADIOSPORTING

Editorial offices: RADIOSPORTING
(Subscriptions) Box 65, Don Mills
ON, Canada, M3C 2R6
Telephone - (416) 438-6313 (24 hrs)

===== Copyright 1985 RADIOSPORTING =====
PRINTED IN CANADA

SUBSCRIPTION RATES:
CANADA: single copies $2.50, 12 issues $24.00, 24 issues $44.00
USA: single copies $ 2.00, 12 issues US $18.00, 24 issues US $33.00
Foreign: 12 issues US $21.00
AIR MAIL: add $8 per year
Postmaster: send address changes to *RADIOSPORTING* Box 65, Don Mills,ON M3C 2R6, Canada

or in US to: *RADIOSPORTING*
Box 259, Sanborn, NY, 14132

Second class mail registration pending.
US Bulk Rate permit No. 24, Sanborn, NY