Second Class Mail Registration
Number 5073

TCA

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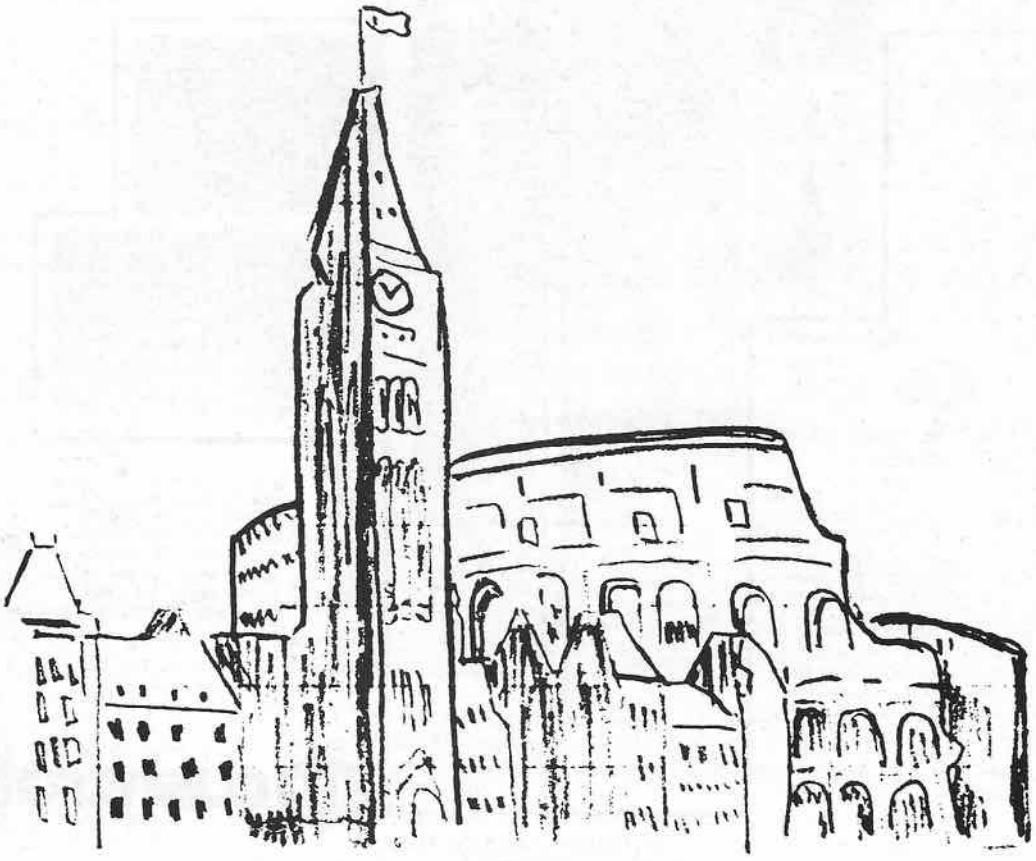
FEBRUARY
1983

The Canadian Amateur Radio Magazine

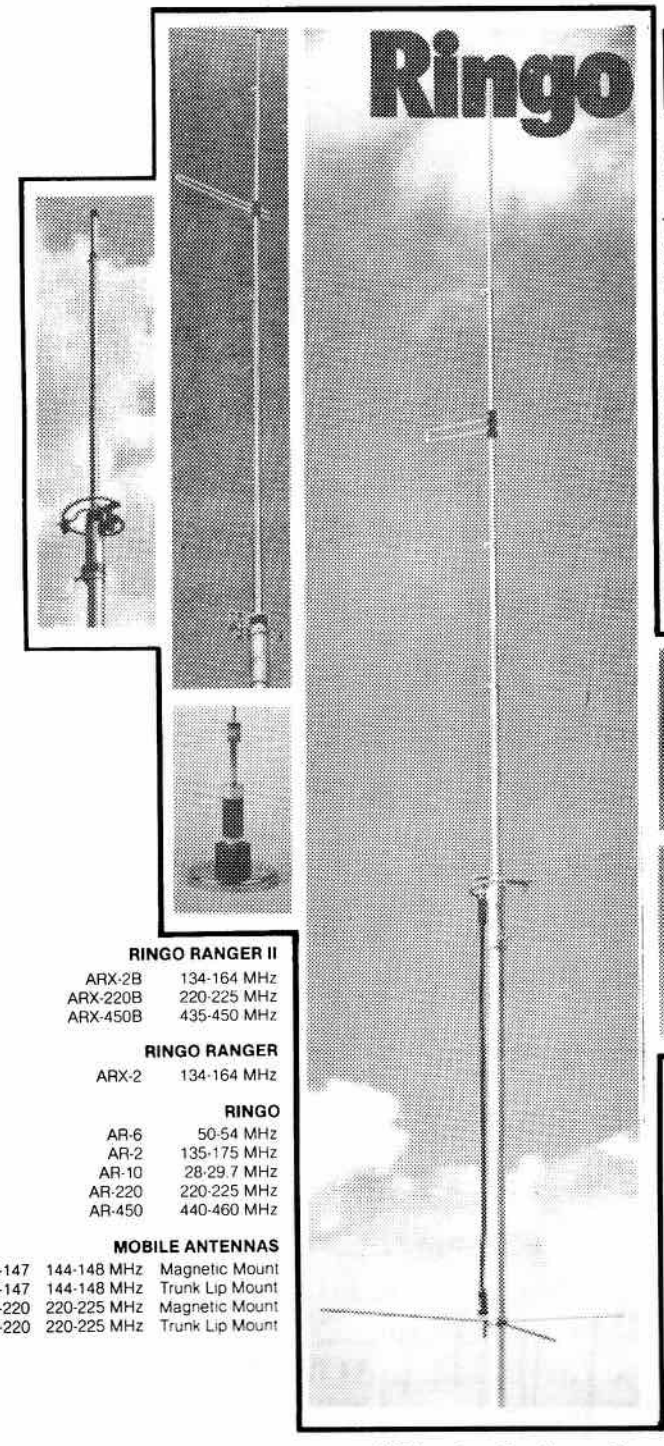


ITALY/CANADA

Reciprocal Operating Agreement
The Story

also
Life on The Ocean Waves Part III

also
Answers to the Amateur Crossword Puzzle



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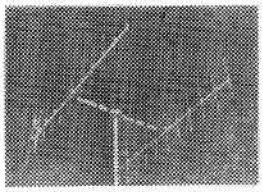

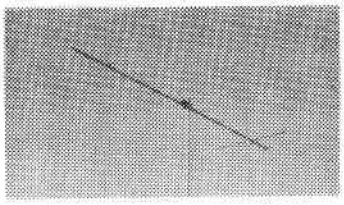

RINGO RANGER II

ARX-2B	134-164 MHz
ARX-220B	220-225 MHz
ARX-450B	435-450 MHz

RINGO RANGER

ARX-2	134-164 MHz

RINGO

AR-6	50-54 MHz
AR-2	135-175 MHz
AR-10	28-29.7 MHz
AR-220	220-225 MHz
AR-450	440-460 MHz

MOBILE ANTENNAS

AMS-147	144-148 MHz	Magnetic Mount
ATS-147	144-148 MHz	Trunk Lip Mount
AMS-220	220-225 MHz	Magnetic Mount
ATS-220	220-225 MHz	Trunk Lip Mount

YAGIS

A147-4	145.5-148 MHz	4 Element
A147-11	145.5-148 MHz	11 Element
A147-22	145.5-148 MHz	22 Element
214-FB	145.5-148 MHz	14 Element
A220-7	220-225 MHz	7 Element
A449-6	440-450 MHz	6 Element
A449-11	440-450 MHz	11 Element

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FOR CW/SSB and FM

A147-20T 144-146 MHz Horizontal
145.5-148 MHz Vertical

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Write for Catalogue Sheets
c/o J.H. Williams VE3XY, Brian Riley VE3JEO

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TCA

THE CANADIAN AMATEUR

FEBRUARY, 1983 Vol. 11 No. 2

TCA — The Canadian Amateur is published in Canada 11 times per year to provide Radio Amateurs, those interested in radio communications and electronics and the general public with information on matters related to the science of telecommunications.

Unsolicited articles, reviews, features, criticisms, photographs and essays are welcomed. Manuscripts should be legible and include the contributor's name and address. A signed article expresses the view of the author and not necessarily that of C.A.R.F. Publications Limited.

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Indexed in the Canadian Periodical Index: ISSN 0228-6513

Second Class Mail Registration Number 5073

The ICOM IC-740 Cadillac

The IC-740 from ICOM contains all of the most asked for features, in the most advanced solidstate HF base station on the amateur market...performing to the delight of the most discerning operator.

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Features of the IC-740 receiver include variable width and continuously adjustable noise blanker, continuous, adjustable speed AGC, adjustable IF shift and variable passband tuning built in. In addition, an adjustable notch filter for maximum receiver performance, along with switchable receiver preamp, and a selection of SSB and CW filters. Squelch on SSB Receive and all mode capability, including optional FM mode. Split frequency operation with two built-in VFOs for the serious DX'er.

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Options include:
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- SM5 Desk Microphone
- UP DWN Microphone
- Linear Amplifier
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- Compact size - (170 mm) W x (64 mm) H x (218 mm) D.

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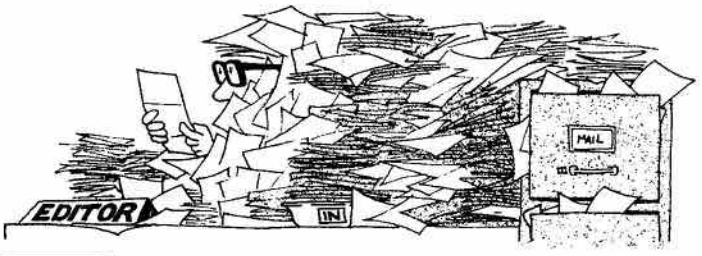
WE PAY THE SHIPPING
ON NEW TRANSCEIVERS

LETTERS



Dear Editor:

The Burnaby A.R.C. has formed a Committee to work on the growing problem of C.A.T.V. Interference.

This Committee, under the Leadership of Dale McGladdery - VE7ENG, will be collecting all the background Technical and Social Information they can to present to the Clubs Executive Committee for the formation of a Club Policy on this matter.

We would appreciate any and all assistance you could supply in this insidious problem. Your Organization will be informed of all our efforts in this matter.

Yours sincerely,

Fred Houghton-VE7FFK
Secretary
Burnaby ARC

The Editor,
Canadian Consumer
Consumers Association of Canada
2660 Southvale Crescent
Level 3
Ottawa, Ontario
K1B 5C4

Dear Sir:

The ubiquitous presence of electrical and electronic equipment in today's living has benefitted mankind immeasurably, but we are paying an ever increasing price for this service, not only in monetary terms but in terms of Radio Frequence Interference (RFI). The very use of this equipment is causing an ever increasing problem in RFI.

All electrical tools using motors cause sparks and any spark is a transmitter of all radio frequencies. It should be noted that most appliances equipped with thermostats cause sparks. Also, much of today's calculator and computer equipment also produce RFI, as does a considerable amount of industrial manufacturing machinery.

All these frequencies being transmitted do cause interference with many of today's radio receivers and television sets. Manufacturers, in their race to be first with the newest, or cheapest, in a lot of cases ignore the problem of RFI and leave it up to the buyer to cope with this insidious problem.

Proper shielding of equipment that may cause, and equipment that could be susceptible to, RFI would alleviate the situation considerably.

Leakage from and into substandard and damaged Cablevision distribution systems is now causing great problems to Licensed Radio Transmissions and, in turn, to residential television sets.

In your product tests, you list only Citizen Band frequencies for your RFI reports. These are low powered units operating only on a very narrow band of radio frequency, which makes for a very inconclusive test. You should test at all frequencies with considerable power to be really objective.

The Department of Communications has a very informative brochure on ths matter. The National and International amateur radio organizations, such as The Canadian Radio Relay League, the Canadian Amateur Radio Federation and the American Radio Relay League are all working very hard to help alleviate this problem and would assist you in setting up more conclusive testing procedures. They will also provide literature to help you educate your readers about this growing problem.

The U.S.A. has recently passed a Bill restricting the emission of and ability to reject RFI on newly manufactured equipment, and it is quite possible that a lot of the offending items will be passed onto the Canadian market and into the hands of unsuspecting Canadian consumers. You would be doing your readers a great service by making them aware of the pitfalls in today's technology.

Yours truly,

(Mrs.) Margaret Kremer
Secretary
Burnaby A.R.C.

Dear Editor:

I have been requested, by KQZL, Alan, to invite Canadian DXers to participate in the Afrikaner Net, held daily on 21.335 MHz, at 1800z.

This net is a North American to DX Net, with North American stations checking in by call area. Canadian stations call in after the seventh call area.

Stations are requested to work up to two stations per day, for new countries only, five band DXCC work is discouraged to prevent monopolization.

The net starts daily with the call area corresponding with the last number of that day of the month. (e.g. on the 13th of the month, the net starts with the third call area.)

This is a well run DX net, which has been in operation for many years, having first class net controllers, and a five variety of DX check ins.

No doubt many Canadian DXers are aware of this net. For those who are not, I can highly recommend it.

Regards,
Tom Roynon VE5UK

Dear Editor:

I would like to bring to your attention, that QSL cards can be sent via airmail worldwide at a reduced rate, the fact, in my opinion is not widely known in Amateur circles.

Canada Postal Guide, Section 41.3, 41.34 says: QSL cards (Amateur call cards) can be mailed as "small packet" for 45 cents up to 20 grams etc.

You might be interested in looking into this matter and let the Amateurs know, through your publication.

Yours truly,

George Raid
VE1AVN

Dear Editor:

Please find enclosed cheque for my subscriptions. I'm getting my TCA magazine when most of the events etc have come and gone. This last one, which is for October came on the 27th of October.

Yours faithfully,
W. Baxter VE3NEI

A First for Moonbounce

by Bob Cushman

The first ever single yagi 220 MHz moonbounce contact took place on December 6, 1982, between Lee Fish, K5FF, Edgewood, New Mexico and Dave Olean, K1WHS, Lebanon, Maine.

K5FF used her home-built 30 foot dish with polarity rotation, while K1WHS used a single CUSHCRAFT 220B Boomer Yagi vertically polarized on the side of his tower.

Signals were quite good in both directions and the contact was completed in a minimum length of time.

Dear Editor:

Recently there has been considerable concern expressed by Amateurs regarding interference to 2 m. reception caused by cable television systems using mid-band channel "E" (144-150 MHz).

Your readers may be interested in the attached CRTC Decision (82-889) which appears to be sympathetic to a request by the Halifax Amateur Radio Club that cable systems be required to take steps to eliminate this interference.

Sincerely yours,
W.A. Stacey, VE3QO

Decision CRTC 82-889

Halifax Cablevision Limited
Halifax and surrounding area, Nova Scotia - 810911800

Following a Public Hearing in Halifax on 3 May 1982, the Canadian Radio-television and Telecommunications Commission announces that it **renews** the licence for the broadcasting receiving undertaking serving Halifax and surrounding area from 1 October 1982 to 30 September 1987, subject to the conditions of licence specified in this decision and in the licence to be issued.

At the hearing, the licensee confirmed its intention to carry ATV-2 programming. Speaking on behalf of the licensee, Mr. William Sayers stated: "That's the only thing that remains to be answered...there is no question we will be carrying it. And I would offer that since we are already into augmented channel services; whether it's a priority service or not, we would have no objection, either as a priority service or otherwise."

Accordingly, and in line with the introductory statement to this decision, the Commission will expect the licensee to apply for the carriage of ATV-2 on basic service, on an unimpaired channel, before ATV-2 is in operation.

The Commission notes the budget of more than $221,000 allocated by the licensee to the operation of the community channel. The Commission also notes the licensee's commitment to pursue a fair access policy, provide a responsible staff, and improve its facilities with a view to the production of a wider variety of community programming.

The Department of Communications has advised the Commission that, for technical reasons, it is only prepared to renew the licensee's technical construction and operating certificate until 30 September 1984. Accordingly, the five-year renewal period herein granted is subject to further certification by the Department.

In this connection, the Commission notes that the licensee has undertaken an extensive inspection program, in consultation with the Department of Communications, to eliminate sources of signal interference enamating from within the cable system.

In an intervention presented at the May hearing, the Halifax Amateur Radio Club expressed a specific concern regarding radiation interference experienced by its members which it attributed to the licensee's use of channel E of the augmented channel service. As an immediate step, to minimize any potential interference caused by the use of channel E, the Commission will expect the licensee to ensure that the channel is not in operation when programming is not being distributed on it. If this measure should prove unsatisfactory, the licensee should consider the use of another channel to distribute the programs currently distributed on channel E.

At the hearing, the Commission questioned the licensee on its failure to provide service to the communities of Portuguese Cove, Ketch Harbour, Sambro and Sambro Head which were added to its authorized service area by Decision CRTC 80-379. The licensee

Continued on page 11

explained that the principal reason for the delay was the difficulty it had encountered in reaching an acceptable support structure agreement with Maritime Telegraph and Telephone Company Limited, but that it was negotiating a separate pole attachment agreement with the Nova Scotia Power Corporation as an alternative means of providing service to rural areas.

The licensee stated further that, at the time of the hearing, the power company and the Provincial Government were considering a reduction in pole attachment charges as a means to reduce rural communications costs. The Commission understands that this reduction, since announced, should enable the licensee to conclude all necessary negotiations.

Accordingly, it is a condition of licence that service be provided to the communities of Portuguese Cove, Ketch Harbour, Sambro and Sambro Head within twelve months of the date of its decision. The licensee is also required to submit quarterly reports on its progress.

The licence is subject to the condition that the licensee own and operate, as a minimum, the local head-end, the amplifiers and the subscriber service drops.

It is a further condition of licence that the licensee delete commercial messages from television signals received from broadcasting stations not licensed to serve Canada and substitute therefor suitable replacement material. However, implementation of this condition shall take place only on receipt of written notification from the Commission.

J.G. Patenaude
Secretary General

From Northern Alberta Radio Club

Box 163, Edmonton, Alberta T5J 2J1

Recently, Mr. L.G. Kiefer, VE6LG who is a member of our club residing in Edmonton, was advised by city officials that his 48 foot self supporting tower and antenna array exceeded the maximum 10 Meters prescribed by local by-laws and in response to a complaint he was instructed to dismantle the installation or at least, reduce its total height to 35 feet within three days. This tower has been in its present position for the past three and one half years. Subsequent enquiries revealed the complaint had originated with a city inspector who claimed it was aesthetically unsuited to the district.

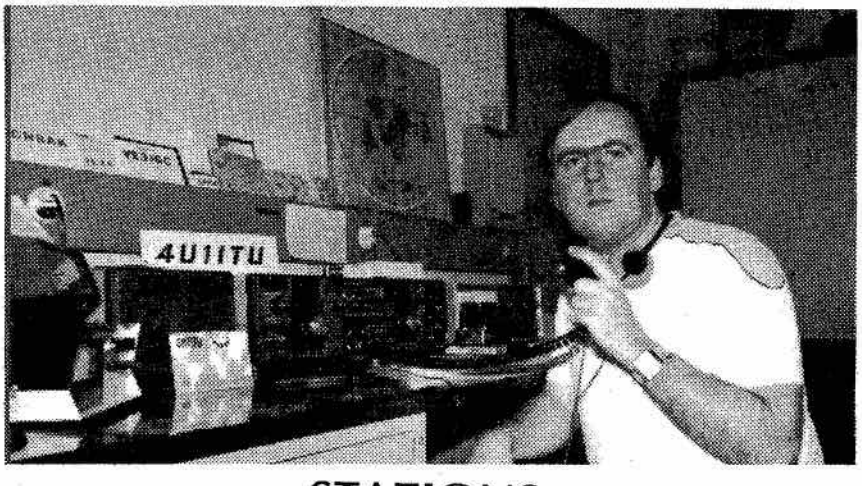
Production of a letter from both the local and regional office of the D.O.C. stating that the antenna system conformed with their regulations failed to effect the city directive. On payment of a $25.00 fee, Mr. Kiefer was allowed to file and application for appeal which was subsequently granted.

In the meantime, Mr. Kiefer obtained correspondence from the C.R.R.L. Solicitor outlining the circumstances of successful appeals to municipalities in eastern Canada. At his appeal hearing, he indicated he was in possession of this correspondence and outlined its contents. Additionally, he pleaded for exemption from the heighth by-law and endeavoured to describe emergency and community services provided by amateur radio operators.

After short deliberations, the appeal board granted the exemption but reprimanded Mr. Kiefer for a failure to secure a building permit prior to erecting his tower and was ordered to do so forthwith. This will require the payment of a $100.00 fee and the submission of detailed drawings of his property and tower. Not wishing to antagonize the board, Mr. Kiefer agreed to this condition and is presently in the process of complying.

The executive of our club feels this incident could set a dangerous precedent for other amateur's in Edmonton and indeed, in all other jurisdictions across Canada. We have asked Mr.. Kiefer to ensure his compliance with the appeal boards directive is done so without predjudice.

We have retained a lawyer well versed in municipal law with considerable experience in federal statutes and have asked him to provide us with an analysis of both.



STATIONS

Gregg Calkin, VE3JGC, shown here during a May, 1982 operation at 4U1ITU in Geneva. Gregg, who was formerly CN8AK and ZB2DW, is now active from Virginia as VE3JGC/W4.

municipal and federal laws pertinent to communcation equipment, particularly with respect to antenna systems and to clearly state the obligations of each party concerned.

We are hopeful this can be used to bring an early demise to any future similar action sinitiated by municipal or provincial authorities.

We propose to etablish a kit containing the legal interpretation of the various regulations, brief histories of previous successful appeals and a number of testimonials from officials of organizations sponsoring various non-profit community sports events where amateur radio operators have volunteered to provide valuable and essential communication facilities.

This kit would be made available to any amateur having difficulties with municipal officers and hopefully, it will serve to avoid further confrontation.

In this regard, it would be extremely helpful if you could provide us with documents or brief histories of similar cases where the amateur has been successful in defeating any municipally imposed restrictions in your geographic area. We would also appreciate any testimonials you have have or can obtain with respect to community service provided by amateur's in your area.

We believe this matter to be of prime importance and your cooperation will be sincerely appreciated.

Yours truly,

J.F. Munsey, VE6 BKW
Secretary.

Editor TCA
PO Box 2610,
Station "D"
Ottawa, Ontario
K1P 5W 7

Dear Sir:

Subject: Cable Radiation/Ingress

After having read Doug Burrill's article in the December 1982 issue of TCA and, having read several bulletins concerning the problem of cable radiation/ingress, I would like to clarify a few points regarding the Department's position on this matter.

First of all, the Department is very concerned with cable radiation/ingress not only as it affects amateurs but also all other users of the spectrum including the actual cable subscribers themselves.

As you are probably aware, the Department, in managing the radio frequency spectrum, has developed standards and regulations designed to avoid compatibility problems between the various users. This is preferable to taking any action that might adversely affect primary radio services or limit the use of supplementary mid-band channels by cable TV systems.

The problem which arose in Halifax was unfortunate but nevertheless happened. Since the Atlantic region is the last region in Canada to introduce augmented channel services, some initial problems could be expected.

It is the Department's position that, like any other TVI/RFI problem, any complaint of radiation/ingress should be brought to the attention of the cable company by the complainant for correction. Only once this step has been taken and has failed to produce satisfactory results should the Department be contacted for assistance.

Any complaints received will then be investigated and resolved in the shortest time frame possible depending on the circumstances. Of course, any interference affecting safety services should be brought to the Department's and the cable operator's attention immediatey for prompt action.

It should be noted that when a complaint of a technical nature is filed with the Canadian Radiotelevision and Telecommunications Commission (CRTC) the issue is turned over to the DOC for appropriate action since all technical matters are the responsibility of the Department under the Radio Act.

I would like to stress that the Department is well aware of CARF's and the CRRL's efforts and their cooperation with the Department and the cable industry in trying to find a solution satisfactory to all.

This region is following the implementation of augmented channel capacity in the mid-band channels very closely in order to minimize any radiation / ingress problems. In order to inform spectrum users on this topic, we presented a paper at last year's Amateur convention in Charlottetown, P.E.I., as well as at a recent gathering of cable technicians (SCTE) in this region.

In closing, I would like to encourage all amateurs to continue their cooperative effort and report any problems of radiation/ingress to their local cable company for correction. Local clubs, provincial and national associations should be kept informed of these problems and their solutions so that all can benefit from the experiences gained.

Yours truly,

F.G. Richard, P. Eng.
Regional Manager
Engineering DOC
Atlantic Region

TCA WELCOMES LETTERS
TO THE EDITOR.
PLEASE SEND ALL
CORRESPONDENCE
TO EDITOR TCA.
P.O. BOX 2610 STATION D
OTTAWA, ONTARIO K1P 5W7

OOPS

Due to the author being misinformed, articles in two recent issues of "TCA MAGAZINE" stated that DOC inspectors no longer had to know morse code. DOC HQ has set the record straight on this. Fully qualified radio inspectors have had to read morse at 20 words per minute but this was recently changed to 15 words per minute.

We pay for technical articles.
Send contributions to:
CARF Technical Editor, Box 356,
Kingston, Ont. K7L 4W2.

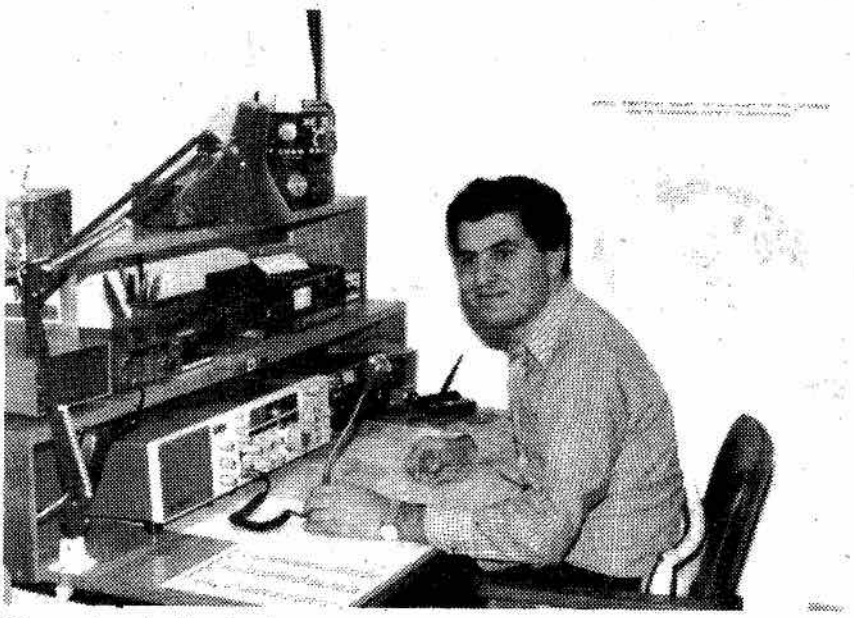
The Fun of Putting up a Seven Element Beam

ZAREH AMADOUNY
VE2 DWH

Back in May 1982. I had no idea that I was going to spend most of my summer putting up a tremendously huge beam. 124 foot Boom with the longest element being 31 feet)

It all started on our way to the Rochester (New York) Hamfest with my brother VE2 DTH (LEON), as we were discussing the fact of having a good antenna. and being able to work all those nice DX stations. He immediately suggested the new HYGAIN super Thunderbird model TH7DX which didn't take him long to convince me since we were on our way back to Montreal with it the same day.

The next item on the agenda was how and when to start digging the base of the tower. It finally turned out to be the easiest part, since there was a construction crew on the other side of the street, and all it took to have my 4' x 6' x 4.5' was a short walk across the street. Canada Day was celebrated with the filling of the base with three cubic meters of cement proudly displaying the call sings: VE1 DTH - VE2 DWH July 1, 1982. The rest of the month was spent putting my puzzle together, some 128 pieces that almost all looked alike. Whew, was I ever happy when that was all over. I must have read the instruction manual some 28 times and I still managed to have the spacings between the elements all wrong, but thanks to VE1GAM (Lionel) and VE2 DLX (Patrick) they figured it out and everything was ready to be hoisted up. What a team spirit, way to go fellows.



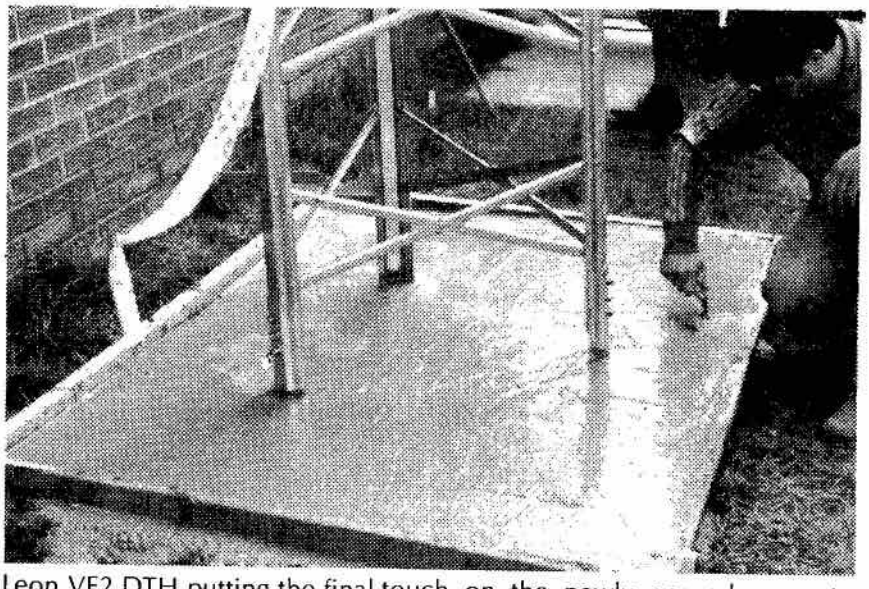
The author in his shack.

Leon (DTH) left, Lionel (GAM) right with Patrick (DLX) middle.

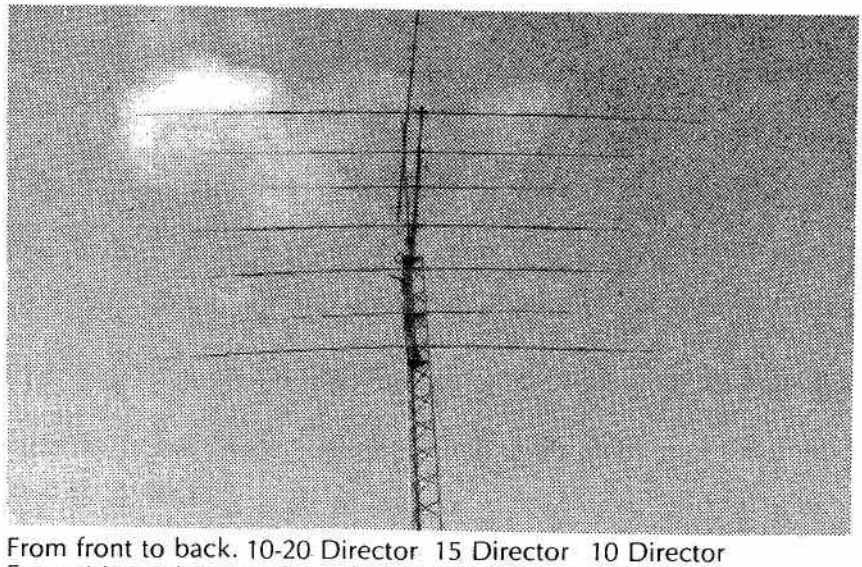
Finally when we were trying to figure out which way to elevate the beam (incidently Pat's first encounter with a 7 element beam) the clouds started rolling in with some high winds, followed by heavy rain, but the HAM spirit never gave up because Pat and Leon stayed on top and managed to finish installing my fantastic beam. (It works just great fellows).

If you happen to hear me on the air you can tell that I'm ver happy and satisfied with my Thunderbird TH7DX by the fact that my list of countries worked jumped in one month from under 10 to over 95, with quite a few 59 plus 10 or 20 reports with only 75 watts output.

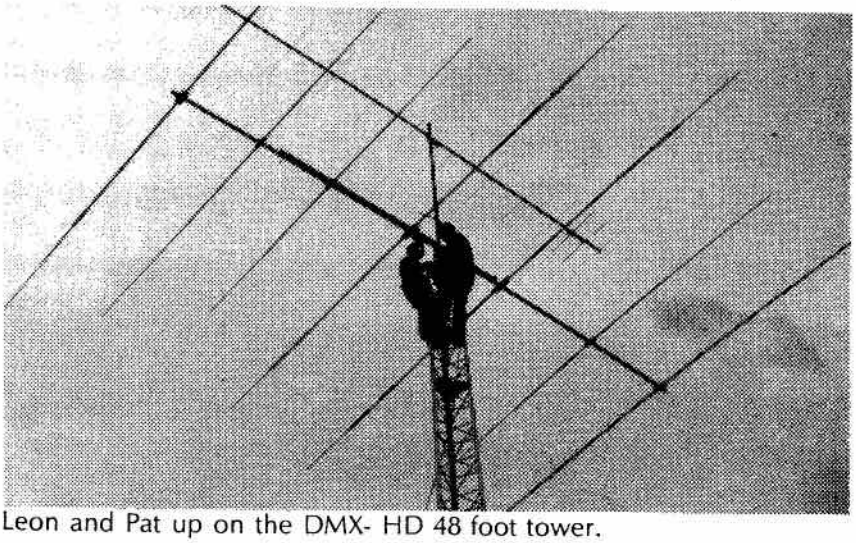
I would like to thank again Leon (DTH) Patrick (DLX) and Lionel (GAM) for all the help and support they gave me, and I would like to suggest to anyone just thinking of having a beam for an antenna to go ahead and install one because



Leon VE2 DTH putting the final touch on the newly poured cement.



From front to back. 10-20 Director 15 Director 10 Director Front driven element Rear driven element 10 Reflector 15-20 Reflector. Mt KLM 13 element 2 meters boom on top.



Leon and Pat up on the DMX- HD 48 foot tower.

you'll enjoy hearing "59 and beautiful audio".

The only sad part about this adventure is the fact that everything must come done in June 1983, since I'm getting married and moving to a new QTH.

Well maybe I'll write another one next year...hope to hear you on the air 73's.

MSAT

WHAT IT IS?

MSAT stands for Mobile SATellite, a proposed communications system that would provide more effective and reliable two-way radio and radio telephone services to all parts of Canada, without restriction on distance. MSAT would be used for communications by those travelling on foot, by land vehicle, airplane or ship, supplementing today's short-range mobile communications services.

MSAT is another step for Canada in advancing its leadership in the field of satellite communications. While most satellite ground terminals today require relatively large, expensive dish antennas, one MSAT could serve thousands of small mobile terminals similar to those used in taxis or in the cockpit of a plane. MSAT would provide mobile communications to areas now unserved at a cost to the user comparable to mobile radio or mobile telephone rates in the major cities. Such services would be particularly useful in Canada, where the population is scattered over an enormous area.

The Government of Canada has conducted a great deal of research into the feasibility of MSAT. If a decision to go ahead is made, Canada would be the first country in the world with a domestic mobile satellite communications system.

TYPES OF MOBILE COMMUNICATIONS

There are three types of mobile

communications in operation today. All are limited to an effective range of about 80 kilometres from a base station.

Mobile telephone. This is a system of two-way radio telephones linked to the telephone networks. For example, the occupant of a car with a mobile telephone can speak to anyone in the local dialling area or call long distance, provided the vehicle stays within the mobile telephone coverage area.

Radio mobile. This enables the occupant of a vehicle to speak with a specific base station. About 85 per cent of today's mobile communications are of this type. There are thousands of independent networks owned by industry or by government for their own use. The police are among the largest users. Radio mobile service is also used for ambulance services, winter road maintenance, forest fire fighting and service trucks operated by repair companies.

Mobile data display. This relatively new system is used by many police forces and increasingly by taxi companies. The occupant of a moving vehicle can call up directly, on a video display, information from a computer, without an intermediary such as a dispatcher. A policeman on patrol, for example, can check a vehicle's ownership without having to speak to anyone at headquarters.

MSAT would allow all three types of communications to be extended to all parts of Canada without restriction on distance. It could also offer new features such as confidential communications and automatic vehicle location and identification.

TYPICAL USES OF MSAT

If a mobile communications satellite system were in place, it could meet a number of needs, for example:

An industrial sales representative travelling in a remote area in a car equipped for voice and digital communications could check out the availability of equipment through a data bank, then place an urgent order for delivery to the nearest airport within hours, instead of the days or weeks which would normally be needed. It would also be simple for the sales representative to get price lists and delivery data for equipment -- updated each day -- for presentation to a customer in the next town.

A commercial pilot operating in what would otherwise be poor radio conditions in the far north could talk to other pilots and a base station about a suspected disaster. With a mobile satellite, such communications could save lives through immediate rescue operations, or avoid unnecessary air missions if the concern proved unfounded.

A small fishing or pleasure boat on the seacoast could be assured of instant and sure communications with other boats and a base station in case of trouble.

In short, MSAT has uses wherever people wish to communicate reliably and quickly in this country of vast distances.

THE STORY SO FAR

Civilian and military experts have been studying the idea of a mobile satellite communications system for Canada since 1972. It was a large step forward when, in 1979, the World Administrative Radio Conference authorized the use of the 806-890 megahertz band for mobile communications satellite services in North and South America.

The next year, the United States National Aeronautics and Space Administration (NASA) began discussions with the Canadian Department of Communications respecting planning and feasibility studies for a demonstration program. The two countries continue to work together in the hope that MSAT will be available not only to Canada, but for use throughout North America.

Early work on MSAT indicated enough market potential to ensure commercial success when the technology is developed. In 1980, the Government of Canada authorized $2.2 million to explore uses and to allow technical work to continue in the planning for a demonstration mobile communications satellite.

During this first phase, 15 Canadian companies studied the market, assessed commercial viability and cost-benefits for users, and drew up preliminary concepts for a demonstration project and later commercial systems, as well as for ground terminals.

A little more than a year later, prospects were favorable enough for the Government of Canada to approve further engineering, marketing and socio-economic studies. This work will culminate in 1984 with a proposal for the construction and launching of MSAT, with cost and schedule targets. If the proposal illustrates that the technology is economically viable, the demonstration satellite could receive approval and be launched as early as 1987. MSAT would be active for seven years, with the likelihood of a commercial version of the satellite in place well before the demonstration satellite has run its course.

ITS COST

So far, $2.2 million has been spent on feasibility studies and a further $17 million has been authorized by the Department of Communications for engineering and economic studies to define the characteristics of a commercially viable mobile communications satellite system.

The cost of the MSAT system, including military participation, is estimated in the range of $400 to $450 million (1982 dollars). This would include initial studies; design, construction and launch of the demonstration satellite; construction and assembly of an on-ground space satellite; launching costs; and procurement and operation of an extensive network of earth stations including some 2,000 land, sea and air mobile terminals and six central control stations.

The main goal of the program, however, is extension of new ser-

vices to the people of Canada, not technology development. Compared with the Hermes communications technology satellite developed by Canada and launched in 1976, MSAT will be based to a much greater extent on existing technology. This will keep costs down, ensure maximum Canadian industrial content and emphasize development of services.

In a significant departure from previous experimental systems, the demonstration MSAT is expected to result in significant cost recovery by generating some $50 million in revenue. As the commercial viability of services is proven, MSAT's capacity will be leased to users. Design of the demonstration spacecraft will be readily adaptable to a commercially viable, fully operational satellite system capable of handling up to 140,000 mobile stations by the year 2000.

Cost-sharing

The decision to go ahead with an MSAT demonstration system will depend in large part on government efforts to find domestic and international partners. Discussions are underway with Canadian telecommunications carriers and potential users, as well as the NASA, on such a cost-sharing approach. Planned MSAT capacity will be sufficient for many users to experiment with the system and to reduce the per-minute costs of satellite transmission.

ESTIMATING THE MARKET: VOLUME

Outside the larger Canadian cities, more than half the present users of mobile communications have problems with inadequate range, noise, interference and distortion. Many others have no access to mobile services. These are potential customers to whom MSAT would provide clear communications with, for practical purposes, an unlimited range.

It is expected that mobile radio would continue to be the type of service most in demand, followed by the personal portable radio and mobile telephone. The following data, based on a DOC-sponsored study by Woods Gordon, is a projection of the market penetration of all types of MSAT ground terminals in a 14-year period beginning with the launch of the demonstration satellite:

1987	1991	1996	2001
700	10,200	56,000	140,000

ESTIMATING THE MARKET: REGIONS

In 1981, 450,000 mobile radios were licensed in Canada. Not surprisingly, their distribution does not correspond to population densities. For example, the Prairies and the Northwest Territories had only 17 per cent of the population of Canada, but 30 per cent of the mobile radios. This was also the area of by far the greatest increase in use between 1973 and 1981 (275 per cent).

ESTIMATING THE MARKET: USERS

Agriculture and fishing

In five years, the number of farmers using mobile communications has grown from 2,000 to 10,000; the projection for 2001 is 53,000. For large farms remote from metropolitan areas, MSAT would be of special benefit.

With modernization of fishing fleets and greater emphasis on safety, the fisheries industry could well be a growing user of MSAT, particularly for new, low-cost voice and data terminals that can provide reliable, up-to-date information about weather, sea conditions, shipping schedules, etc.

Forestry

The forestry industry is likely to increase its share of the country's mobile radios from five per cent to eight per cent by the end of the century. The main use would be in logging operations.

Mining, petroleum and natural gas

Five years ago, the mining, petroleum and natural gas industries used only three per cent of the country's mobile radios. They now use six per cent and this will probably rise to 15 per cent by 2001. This is partly due to the projected increase in demand for natural resources, and partly because the availability of MSAT in remote areas will open up new uses of mobile radio. MSAT will be particularly useful to nomadic mining services such as site preparation, well equipment and maintenance.

Manufacturing and construction

It is estimated that the manufacturing sector will use about 59,000 mobile units by the end of the century. Most of these would serve the immediate area of a manufacturing plant and would be, therefore, relatively light users of an MSAT. The construction industry also is expected to be a relatively minor user.

Transportation and communications

The whole of the transportation sector is expected to need an impressive 188,000 mobile units by 2001. Much of the growth is likely to come from sophisticated new applications of communications such as the monitoring of every aspect of rolling stock and stationary equipment on the railways of the future.

The telephone and broadcasting industries together use 16,000 mobile units, with a projected increase to 33,000 in 2001.

Utilities

Electricity, gas and water companies use 22,000 mobile units, projected to rise to 55,000 in 2001.

Retailers, wholesalers and service industries

Retail and wholesale enterprises use mobile units less than the service industries, which include commercial services, education,

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CONTEST SCENE

by Dave Goodwin, VE2ZP

Contests Calendar
February
5-6 RSGB 7 MHz SSB
12-13 YU DX WW CW
19-20 ARRL DX CW
25-27 CQ 160 SSB
26-27 RSGB 7 MHz CW
26-27 REF SSB

March
5-6 ARRL DX SSB
12-13 RSGB Commonwealth CW
19-20 Bermuda Contest
19-20 BARTG RTTY
26-27 WPX SSB

April
2-3 Polish CW
9-10 CARF Commonwealth SSB
16-17 Polish SSB
23-24 Swiss H26
23-24 King of Spain

Sketchy reports of activity in the CQ WW DX contests are still trickling in. Yuri, VE3BMV, with his new stacked 5 element 20 metre razors, appears to be very close to the standing VE record on that band in the SSB contest, posting a score of about 900k. In the CW contest Yuri handily took top spot, almost doubling the record with about 700k. Now that Yuri holds five of the possible six single band records in the CW contest, is Yuri's next project razors on 40? John VE6OU started the Phone contest as an all band entrant, but found he was doing well on 15, and decided to make it official. His single band score was in the 750k range. Suffering the effects of the poorer propagation and the interference of other commitments, John made a token effort on 40 in the CW contest, making about 50k. Bob VE3KZ went into the CW contest as an all-band entrant rolling up about 1800 Qs and about 1.5 Meg. Multi single CW action included VE3IY, who felt some of the worst effects of the propagation, and score suffering for it. VE1DXA, regular MS super competitors was not on due to constraints of work and other problems. Two members of the group, VE1s AIH and CEG were making single operator noise.

Brian VO1QU is a new and very active contester, taking part in many of the recent Phone contests. Brian is not able to run a great deal of power, and is quite restricted in terms of the antennas he can put up, but he has succeeded in making a good deal of noise, particularly in the ARRL 10 metre contest. Running only 100 watts to a low 2 element tribander he managed almost 1400 QSOs and a score of just under 300k. He plans to be in all the CCC Phone events he can, with an objective of winning the VO/VE1 award. In the CQ WW SSB, Brian was active only on 20 and 15 metres, making an 'all-band' score of around 250k.

Along with Brian, the ARRL 10 metre contest was graced with VE7BTV, last year's top scorer, rolling up an unknown but probably impressive SSB score. VE3KZ may have led the usually small mixed contingent, with 250k.

The ARRL 160 contest was visited by mediocre conditions, and scores should be marginally down from last year. VE3BVD again leads the pack, with another score reputed to be very close VE3BMV's 8 year old record of 85 k. Last year Dave within a few hundred points, and may have just made it this year. VE3ABG and VE3INQ are somewhere in the 50 k area, VE2ZP with 42k, VE3KZ around 30k, VE3GWM around 20 k. VE7CRU had a very impressive signal out here, and was quite comperitive with some of the stronger West coast signals. VE4FK and VE1BVL were the only stations from their multiplier areas around, each handing out QSOs sporadically. There was no apparent opening to Europe, and relatively poor participation from the Carribean. KV4FZ, V3MS and FP8HL were about the only DX stations around. One PY was heard calling a 4X4 in the window, but I don't think he was working contest stations. It is nice to know not everyone was suffering the poor propagation. West Coast signals were generally down, with W6s particularly rare: I heard only a couple this year, compared with a couple of dozen last year. Participation in the eastern USA was good, keeping scores up.

The Canada Contest was hit by another bout of bad propagation. There were only poor openings on all bands, with no coast-to-coast QSOs on 160 or 80, and only marginal signals over that path on 40. 20 was the principal band, supporting most activity. Even there, there was very little short-skip type propagation. 10 and 15 were open, but only for longer paths. The closest stations I worked on 15 were a VE4 and a VO, and on 10 a VE5 and a VO. One VE1 I spoke with could work nothing closer than VE4 on 10. This made things nice for VE5DX who despite the poor propagation made a very good score. 700 Qs and 87 multipliers should secure Jim first place for the third year in a row. Andy VE1ASJ went into this contest with a mission to make to maximum number of CW contacts. When he realized he was doing pretty well, he started collecting SSB multipliers. This wasn't until about 1800 or 1900z. Among his phenomenal 1500 Qs were about 600 JAs and a large number of USA CW QSOs. Other known

scores include VE2ZP with 254k. VE7SK with 156k, VO1QU all high-band SSB with 85k, VE7VX with 80k and Tom VE3MFT taking the all-bands Amateur class with about 86k. Other featured all band entrants were VE5GF and VE5ADA, who were extremely active and consistent signals. The biggest single band score is likely VE3LQJ with a fine 32k 20 metre score.

Participation was quite good, and a lot of regular entrants showed up and were very active. Participation was poor, however from PEI, VE8 and VY1 as usual. VE8XO and VY1AU did help out a bit, but even if they had been on full bore, there is some doubt about how well they would have done. VY1AU remarked that conditions had been so poor that he had not heard anything on any of the bands in about 2 weeks prior to the contest. All going well, results for this one should appear in the July/August TCA.

1982 was certainly a bad year for propagation, with a great series of flares and geomagnetic storms virtually wiping out propagation in more than a few contests. I may be asking for it, but 1983 can't possibly (or humanely) be much worse. The sort of propagation we enjoyed this year almost makes one nostalgic for the dear, dead days of the minimum in 74-76.

As intimated a few months ago, ARRL have decided to change their multi-op classes for their DX contest. There are now three classes for multi-op entrants. Multi-single entrants are now no longer allowed to use a multiplier station, and the previously-discussed 2 transmitter MM is now fact. The old unlimited MM is unchanged. The 2TX MM is attracting quite a deal of interest down south, and might be an interesting experiment for well-set-up MS stations to try, but it serves only to further divide up the multi-op competition. Whether it will help attract more VE multi-ops to the contest is questionable, especially considering the past level of interest. Last year there was only one VE Multi-op in only one of the ARRL DX contests. Divvying up the interest is pretty hard in that select group.

The results of the 73 Magazine 40/80 metre contests are out. I have not seen them, but thanks go out to VE2EWL who very patiently read them out to me on 80 SSB just before I wrote this. Canadians were well represented in the top ranks, with two first place World wide scores. Jim VE5DX was first place worldwide on 40 metres, and VE2ZP, with VE3MHI was first place Multi-op, both bands combined. VE5XK did very well on 80, placing 7th high. VE1AJJ was the first place Canadian 40/80 combined. The rules for this contest have been changed, and there are no longer any combined 40 and 80 metre classes. The two bands are separate contests. As we were first world high in the combined section, Ron and I don't know whether to be smug about setting a record no one will ever beat, or happy that no one will have a shot at outdoing us. For a first run contest, this one was very well attended, with a surprisingly high turnout of DX stations and competition generally very serious and close. This one should continue to be a real winner for 73. Next step: a companion CW Contest? How would that sit with Wayne Green?

The results of the 73 160 SSB are also out, but I could not get them in time.

The next gig events are the ARRL DX Contests and the CQ 160 SSB. The RSGB Commonwealth CW and CARF Commonwealth SSB contest rules will appear in next month's TCA. VEs did very well in the CW contest last year, and hopefully this year the high levels of activity will carry over into the SSB event in April. Good luck to all.

73 Magazine 40/80 Metre Contest 1982
Canadian Results

Call	Score
40 Metre Single operator	
VE5DX	113,240
VE2RV	31,760
VE1AJJ	9,308
80 Metre Single operator	
VE5XK	42,222
VE1AJJ	10,146
VE100	2,133
40 and 80 Combined Single op.	
VE1AJJ	38,913
40 Metre Multi operator	
VE2ZP	86,355
80 Metre Multi operator	
VE2ZP	42,387
40 and 80 Combined Multi op.	
VE2ZP	249,996

Canada Day Contest 1982 Comments

Propagation conditions were very poor. In my 4-5 hours daylight QRX time **No ssb CDC** activity was heard on the 1.8-28mHz bands. On CW the only CDC heard was on 7mHz and 14mHz, with fading and high noise levels prevalent.

Efforts to work all Canadian Districts and Provinces failed. No VE4 nor VE8 heard; V01QST (QTH?) heard but no QSO.

U.S. QRM including "Cal. Kilowatts" calling CQ-CDT on the

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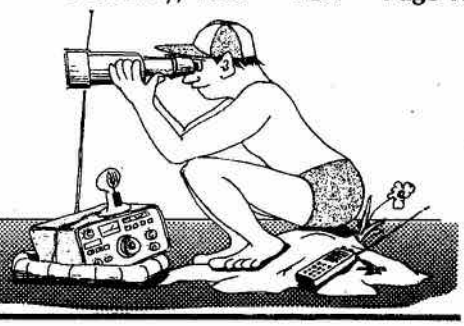


DX

by D.W. Griffiths, VE3KKB

As this is my first column for 1983, I would like to wish everyone a happy and prosperous New Year. If there are as many DX'peditions this year as there were last, then at least it should prove to be lucrative from a DX stand-point, if from no other.

Even though solar activity will continue to decline during 1983, it should remain high enough to give good propagation on most of the HF bands. Although 10 M will experience a noticeable decrease in both numbers, and duration of DX openings, particularly on the East-West paths, little change in propagation should be evident on the other bands.

In general, more intense solar phenomenon are observed in the downside of a solar maximum, and anyone who has been active on the HF bands during the last few months can certainly corroborate this theory. One of the largest solar flares ever recorded occurred in early December, and the auroral activity has been more intense than anything that I have ever experienced before. In spite of the high level of geomagnetic activity, lots of Europeans have been heard on 160M, between 0500 - 0700Z, and there have been many long path JA, and S.E. Asia openings on 40M, and even 80M, during their sunrise.

Tony Ward, VE3IAT, known to many of you by his old ZL1AZV call, and his XYL, Janet, visited over the Christmas holidays, and between acts of that well-known "ceremony of the bent elbow," I managed to view many of Tony's excellent slides taken on a variety of Pacific DX'peditions. These included trips to Chatham Is., Niue, W. Samoa, and Tonga. In addition to being a fine operator, Tony is also a superb photographer, and if you ever hear that he is scheduled to give a presentation nearby, it is well worth the effort to attend.

In December, I promised a review of the new Yaesu FT-102 transceiver for January. Unfortunately, my workload, both vocational, and avocational, peaked about the same time, and it was impossible to meet the deadline. It should be ready in time to appear in the March issue of TCA.

OF GENERAL INTEREST:

***** NEW 160M ACTIVITY **** FM's are now on top band, running low power (about 20 watts). They are not permitted to operate that band during contests (I guess to remove any temptation to run more power). Also, HZ1AB is now active on 160M. For those interested, their sunrise in early Feb. will be around 0235 Z, and sunset around 1325 Z. QSL's go to K8PYD.

The Colvins are off and running on another of their marathon expeditions, this time to the Middle East. They are expected to be travelling until the Spring. For more up to date information on their movements, listen to the W6TI DX Bulletins on 14.002 MHz at 0200 Z, Mondays.

1983 is the ITU's World Communications Year. Rumours abound that we will be given a special prefix in the Spring, to commemorate the occasion. More information in the March issue.

6C35 is a special Syrian prefix used by 6C35A, 6C35M, 6C35N, and 6C35O and other members of the Syrian Technical Institute of Radio, to mark the 35th anniversary of Amateur Radio in that country.

BITS and PIECES

A22DC . . . Botswana . . . Daily on 28.555, around 1700Z. QSL direct, or to VE3BIS.

BY8AA . . . China . . . Heard in early January at 0100Z on 14.050 MHz. He had a good signal, but was working slowly, and was in a tremendous pile-up. Also reported to be active on, or near, 21.048 MHz. In this report, the signal was said to be distinctively "chirpy."

DL5DAB/3X . . . Rep. of Guinea . . . 10 M between 1330 and 1500Z. QSL to DL3FAE.

FB8WH
FB8WI . . . Crozet . . . Supposed to have arrived in December to relieve Georges, FB8WG. For FB8WI, QSL to his home call, F6ICA. No info. for WH at this time.

FB8XAB . . . Kerguelen Is . . . Scheduled for mid-late December, and into the New Year. QSL to F6GXB. Also, the VK6 DX Chasers H.I. Expedition group should be operating from there on their way to Heard Is.

FB8ZQ
FB8ZR . . . Amsterdam Is . . . Very active in late Dec., and January, 1983, on both SSB, and CW. QSL to F6GXB.

F08CW . . . Clipperton Is . . . This operation did not materialize, but the reason for the cancellation was not made clear. Apparently, the licences, and landing permission had been granted. However, rumours of an imminent expedition persist, so keep your ears to the bands.

HL0B . . . Korea . . . Jey has been

active around 1100Z, on, or near, 14.200.

JW1I . . . Bear Is. (Svalbard) . . . Try 21.295, about 1730Z. QSL to LA4YW.

OH2JL/T5 . . . Somalia . . . Look for this one on 14.193, around 2200Z, and on 21.246 at 1730Z. QSL via OH2JL.

SV0BE . . . Crete . . . Almost exclusively on CW, 10, 15, and 20M. Listen 60 KHz up from the band edges. He signs /SV9 only during contests. QSL via the KL7 buro.

VKO . . . Heard Is . . . By the time you read this, I hope that this one will be in your logs, on several bands. The last word that I had in late Dec. was that both the Heard Island DX Association, (VK9NS et al), and the VK6 DX Chasers Heard Island Expedition, were set for an early Jan. departure, and had licences, and landing permits in hand. Callsigns for the former group are likely to be VK0JS, and VK0NL. For the latter, VK0HI, VK0CW, and VK0MD, have been assigned. It appears that barring any mishap, there will be continuous amateur activity from super rare Heard Is. for about 6 weeks, ie. until late Feb., or early March, QSL information will follow.

VQ9WB . . . Chagos Is . . . operates mainly on 10, 15, and 20M after 1700Z. QSL to WD9GIG. Also, club station VQ9CI continues to be active.

VS5MS . . . Brunei . . . Tunku Mahmoud Shah is often found in the 14.200 - 14.250 MHz segment of 20M after 1000Z. QSL to N200. A new prefix is soon expected, as Brunei, like so many British protectorates recently, will soon have it's independance.

XZ . . . Burma . . . Still no DXCC credit, but reported active from Burma are: XZ5A, XZ5KMV, XZ9A and XZ9B. QSL's for all go to JA8IXM.

YI1BGD . . . Iraq . . . Majeed has been very active on the weekends for several weeks, on 14.220 after 0200Z. Also look on the long path at 14-1500, same freq. QSL to Box 5864, Baghdad. Iraq.

3Y . . . Bouvet . . . Rumours very active last Summer re: a 3Y operation still abound. Since Jan. and Feb. are the best possible months for an expedition to Bouvet, it might pay to watch the bands closely.

4U1VIC . . . ITU (VIENNA) . . . *** MAY *** count as a NEW DX-CC country (like 4U1ITU, and 4U1UN). Work it first and worry about credit later. Try 21.290 around 1230Z. QSL to the OE buro, or OE3IKW.

5A1BQ . . . Libya . . . Has been active on 21.290 - .295, plus or minus, about 1900Z. QSL to Box 1, Yefren, Libya, Also, AA6AA has been listed as a QSL route.

5B4LY . . . Cyprus . . . OE3PAL is with the UN peacekeeping force, and is on most days at 0200Z, on 14.010 MHz. QSL to UN Camp, Box 375, Larnaca, Cyprus.

9K2BE . . . Kuwait . . . Heard frequently around 28.525 MHz from 1300Z. QSL to G4GIR.

BV2A/BV2B . . . Taiwan . . . Tim was to begin 80/40 M operation Dec. 1/82.

J28DP . . . Djibouti . . . Operates 7.025 daily at 0300Z, or near 7.005 MHz from 2130-2300Z. QSL to Box 2417, Djibouti, or to F2GA.

CN2AQ . . . Morocco . . . Can be found most days on 3.505 from 0600-0730Z.

KX6JM . . . Marshall Is . . . Look for him around 0030Z on 21.303 MHz. QSL to Box 673, APO, San Francisco, CA, 96555.

VP8AOE . . . South Orkney Is . . . Can often be found near 14.210 after 0300Z on Wednesdays. Also, look for VP8AOD at 0230Z daily on 14.207 MHz. QSL's for both stations go to KOJW.

QSL INFORMATION

CALLSIGN	QSL via
GU5CIA	N6MA
ZF2FK	K9QVB
5N6PDC	K6EDV
FB8ZQ	F6AJN
HV3SJ	I0DUB
P42E	WA2SPL
RG6G	UK2BAS via Box 88, Moscow
C31JX	DK9FE
C30LM	EA3BKZ
CO2HS	KB7SB
CO2HQ	KB7SB
FM7CF	WB3AKI
HS5AID	AG6D
HS1BV	KO2A
FP0JA	WB2MSH
IU8ITU	I8MPO
J6LB	KO2A
J6LZA	K4LTA
OX3GH	WA2TTI
OZ7GI/5N9	OZ7GI
T32AF	WH6AIF
V2AAW	KG6S
V2ANH	KE1A
YB9BV	W5GZI
ZK1YL	ZL2BAO
ZM7VU	F6DYG
ZP5JAL	KO2A
3C1AB	EA1QF
4S7AJG	K9AJG
4S7XS	DL7XS
4X6BL	KO2A
5Z4CS	JI1VLV
9M6VW	KO2A
5Y4ITU	BOX 45681, Nairobi, Kenya
5N8KRT	BOX 2772, Kano, Nigeria
SVOCJI	BOX 349, Rhodes
CO2OM	P.O. BOX 4940 Habana 4, Cuba
ZD7TW	BOX 25, St. Helen's Is., Atlantic Ocean

Anyone who has the QSL information for TR8JD, please drop me a line.

The top 3 contenders for the 5 B WAZ award are VE7IG, VE1AI, and VE1YX. The first two are at 195, or higher, but Bob, VE1YX, is playing it very close to the chest, so ????? exactly where he is.

That's it for this month. Many thanks to VE2ZP, VE3CRG, Long Skip & the CANAD-X DX Information Net, CQ Magazine, Westlink Report (tnx to Doug Burrill, VE3CDC), and many off-the-air reports, for much of the information appearing here.

YL News and Views

Cathy Hrischenko VE3GJH
56 Stockdale Crescent
Richmond Hill, Ontario
L4C 3S9

The birth of a national YL club came about as a Centennial project of the Ontario Trilliums at their fall meeting in 1967. It was with mixed emotions that the final decision was made. Next thing to be concerned about was a name. To start, we were all thinking along the lines of the American YLRL which stands for Young Ladies Radio League. Another YL and myself came up with a name between us and we started laughing. When we were asked to present it, we suggested the name Canadian Amateur Ladies League and we could be known as the CALL girls of Canada. For some reason we were voted down. After that decision the thought of any kind of Ladies League was shot down and after much thought and jotting down of letters the name "Canadian Ladies Amateur Radio Associations," (CLARA) was chosen. What could be more appropriate. It said what it was. A YL name for a YL Association.

Much planning was put into the formation of this club. Chris Weeks VE1AKO was chosen as the first president. The Ontario Trilliums and the Maritime Sparkettes donated money to get CLARA financially on it's feet.

The CLARA emblem was designed by Donez Booth, then VE6TH and now VE3DWF. Have you ever taken a close look at this emblem? Did you notice the flower pot thrown in with the key and signs? Donez said she wanted something feminine since so many of the YLs were also interested in gardening as another hobby, she decided to incorporate the flower pot into the design.

In February 1968 it was decided to call the CLARA newsletter the "Clarion." I believe it was Jan VE3BII who said Clarion stood for Canadian Ladies Amateur Radio Items Of News. Thelma VE3CLT put out the first newsletter. In 1970 CLARA came out with a Canadian YL Directory. What a job that was! Many of the lists of Amateurs don't have first names, only initials. Some names can be either gender. One day I heard a fellow using the call VE3GUS. I had just been using my directory and that call seemed to ring a bell. I looked it up in the directory and sure enough it showed a Chris Lyons as VE3GUS. I gave him a call and said, "Is your name Chris?" He said it was. I then said, "Are you an OM?" He started laughing and said, "Why?" I explained that he was listed in our directory as a YL. Good thing he has a masculine sounding voice or he could have had a lot of explaining to do along the way. The VE2s were really hard for us, trying to play it safe we probably missed a few. 1970 was also the year the Clarion was put on tapes for our CNIB members that required tapes.

During the "Ham and His World" 1970 and 1971 exhibit at the Ontario Science Centre, CLARA had an exhibit and a 20 metre SSB station. The complete station was loaned to us by HealthKit. I was chairman (chairperson) for the YL portion. We were visited by the Northwest Territory Girl Guide Council during the exhibit, and they asked if we could assist them by handling traffic to the Northwest Territory. It was decided to assist when and however we could.

CLARA and VE8RCS worked together for 2 years on what we called Operation Santa Claus. CLARA members across Canada made arrangements for children to talk to Santa in the North Pole. The guys at VE8RCS did a terrific job of being Santa. All my skeds were with kids from 2 different hospitals in the Toronto area. After making the arrangements a week or so in advance, I thought it best to pay the kids a visit the day before to make sure everything was go. One of the kids I had made a sked for was a 9 year old boy who had Leukemia and had been told his time was short. He was taking the whole thing better than his parents or his grandfather who seemed more upset that his grandson was suffering pain. The day of the sked with this kid came and as I walked into the room I noticed he had a devilish grin on his face. I asked him if he was all set to talk to Santa. He said he was, but his grandfather had just brought him a magazine and he was most interested in it. It was just about sked time so we got ready for the contact. I gave a call and Santa came back with a great big HO HO HO and asked if there was a young boy there waiting to tell Santa what he wanted for Christmas. I said "yes, we have a 9 year old boy waiting." Santa started with the usual "hope you've been a good boy and reading lots of books and magazines while you're in bed." He said his grandfather had just brought him a very interesting book a few minutes ago. Santa said, "What's the name of the book he brought you?" And the young boy said, "PLAYBOY." There was dead air silence for a few seconds. I could just imagine what was going on in the shack. Then Santa came back with a great big HO HO HO and ". . . Cathy I want to talk to you later!"

In 1973 CLARA took on a new project called Operation Books North. We gathered books. Simple language and easy reader type with lots of pictures, to be sent to the Northwest Territory, to Public Libraries within the existing schools, but open to the public. We were given a list of schools across the NWT by the Girl Guide Council.

Marg Huston VE3AIZ became our braille consultant. Anyone who requires info in braille can be supplied with such things as cer-

tificate info and contest info. Anyone who applies for one of the Certificates that Clara sponsors can have it done also in braille by requesting it. Marg has also sent out memberships in braille to our members that require it.

CLARA sponsors 3 certificates. Each of these certificates are very Canadian and colourful. The first one was designed jointly by Donna VE7AAR and myself. The other two I designed. CLARA has an annual contest called AC-DC. We've had a lot of fun with the name. I was asked to think of a name and after writing down annual CLARA day contest it just seemed natural to call it AC-DC.

CLARA had one honourary member. Her name is Marie DeFores and her call is WB6ZJR. Guess you all know something about her OM, Lee DeForest but Marie had a very full life herself. In the hey day of movies she worked in Harold Loyd pictures and had been Will Rogers leading laday in 22 movies. She met Lee at a party given by Beebe Daniels, who was actually related to Lee. Did you know thta Lee was the inventor of the sound track for the movies and he also developed a radio scalpel for medial use.

CLARA has a program where a DXYL can become a CLARA member by sponsor of self paid. CLARA has many interesting DX members.

CLARA has several nets on different bands across Canada which I will list for you another time.

We have held a couple of Mini conventions in the past few years. I think by now you have had enough Un-official history.

I believe 1983 was deemed World Communications year by the United Nations. Let each of us take time to make it friendly world communications. Take a little bit of time to tell someone something of interest. Learn about each other. The knowledge that is at our fingertips is astounding. We can all learn something from every contact. Good DXing and good rag-chewing.

That's it for this time.

73/33/88 as the case may be Cathy VE3GJH.

A Ham Radio Tower

Why do people get upset when one puts up a radio tower? A few things in its favor:

IT DOESN'T:
Squeal its brakes
Screech its tires
Blow its horn
Roar its motor
Slam its doors at ungodly hours
Shine its headlights in your bedroom window
Nor does it backfire.

IT DOESN'T:
Bite you
Bark or meow
Leave deposits on your property
Dig up your garden
Scratch on your door
Widdle on your trees
Nor does it dig into and scatter your garbage.

IT DOESN'T:
Drop leaves that you have to clean up
Grow branches over your house
Drop fruit or nuts which block your down pipes
Block your view like a tree or a building
Grow roots that damage your walk or driveway
Nor does its roots plug your drains.

IT DOESN'T:
Have boisterous parties
Or play loud music
Or have swimming parties through the night
It doesn't ring your phone (accidently?)
Nor does it ride bikes across your lawn.

IT'S JUST QUIET, AND HAS NOTHING TO SAY.

VE7BJ

Contest Comments

Continued from page 18

frequencies was an irritant. I don't know if **International publicity** is deliberate or accidental, but in these days of constitutional debates and separatist movements I wonder if we should be thinking more about INTRA-Canadian communication?

As I remember the two "Trans-Canada Relay" attempts in the Twenties (**old 5CT** was one of the Wetern termini) the goals included passing messages and answers between the Lieutenant-Governors. It's a diferent World today of course, but perhaps some ideas could be developed for future contests. Should timing the 24-hours on CST or CDT rather than on UTC be considered?

73 - Sincerely,
Frank VE7CT

Book Review

by Hersh Sax
VE3JBU

The GIANT Handbook of Electronic Circuits edited by Raymond A. Collins (1980 Tab Books, Inc., Ble Ridge Summit. Pa. 17214. Hardcover, approximately $35.00 in Canada.)

Don't let the title fool you. This is not a GIANT handbook; the pages are standard book size. It is, though, a very thick book containing more schematics in one volume then any other book that I've ever seen. To be precise, the book contains over 800 pages of schematics divided into sixty chapters. That's right, eight hundred pages. most of which contain 2 schematics for approximately 1500 circuit diagrams.

Many of the circuits will be familiar to you: many will be new. Except for a few, most circuits use solid-state components. The book was not compiled specifically for the Amateur Radio enthusiast but for those whose hobby or occupation is in electronics. Nonetheless, the handbook does contain many sections which will be of interest to amateurs.

Some of the areas covered by the schematics include Amateur Radio Accessories, Amateur Radio Receivers and Converters, Amplifiers and Preamps, Battery Chargers, Control and Tone Circuits, CORs and Repeater Circuits, and CW Circuits. As well, there are chapters on Transmitters, Transceivers. Exciters and VFOs, Computer Related Circuits, Op Amp Circuits, and Radioteletype and Slow-Scan Television.

A review cannot possibly begin to describe this book in detail because of the vast amount of information it contains; a reviewer, however, can suggest a way to approach a book such as this one.

First, sit in a comfortable chair. Second, (this is a very important step -- don't skip this one) stretch both arms straight out and wiggle your fingers for three minutes. Third, take a two minute rest. Fourth, (here it comes) open the book, co-ordinate hand and eye movement and begin to turn the pages at the rate of one page every ten seconds while scanning the circuit diagrams. Keep a pencil hand to jot down the diagrams' numbers to which you'll want to return as it will take you a little more than two hours to skim the book at this rate and you will forget which pages you wanted to return to and you'll have to start step No 4 again.

Everyone will see schematics for something they will want to build: Some are simple projects, some will require an advanced level of building experience. Projects which I will try to get around to buiiding are:
1) a simple one-transistor superregenerative receiver for two meters which will tune from about 90 to 150 MHz (handy to keep around the office); 2) a tiny oscillator cirucit that, when placed close to a conventional all wave receiver, will provide sufficient carrier injection for copying single sideband and CW; 3) a single transistor tone oscillator for tone-burst or whistle-on repeater access which produces a 1750 Hz tone; and 4) an intermittant windshield-wiper control (in case there's some light rain when you're operating mobile).

Some other circuits worthy of note are a receiver converter for 50 MHz using one IC and whose output frequence is approximately 1 MHz (centre of the AM broadcast band); a two-stage clipper preamp; a 220 MHz converter; a diode checker; a capacitor checker; and tone decoders.

If nothing else, **The GIANT Handbook of Electronic Circuits** is a good way to spend a couple of evenings firing up your imagination.

CARF vice-president Fred Towner, VE6XX in Calgary, reports working a Montreal two-metre hand-held station via the two-metre / ten metre repeater in the eastern city. It puts out on 28.440 in the ten metre band.

Book Review

by Art Stark
VE3ZS

FERRY COMMAND, by Don McVicar. O.B.C.
213 pages.
Airlife Publishing Ltd., 7 St. John's Hill, Shrewsbury, England.
Available from Ad Astra Books, Box 211, Dorval Airport AMF, Que., H4Y 1A 5.
Price $24.95 including postage and handling.

Here is a story of a little known part of World War II in the air - a part in which Canadian pilots and radio operators played a large part. Ferry Command, the organization for delivering bombers from North America to the United Kingdom, while initially a civil operation eventually became an arm of the Royal Air Force. **"Ferry Command"** is one of a kind; few books covering this phase of the war have been printed and none in the easy-reading style of Don McVicar. It tells of some of his experiences and adventures as a pilot, and of other members of his crew, especially when exploring and planning new and unproved routes to Europe via the Arctic; as well during early flights over the South Atlantic on the delivery route to the African theatre. In a sequel - **"North Atlantic Cat"** - just published, Don tells of his experiences while delivering Catalina flying boats for the RAF.

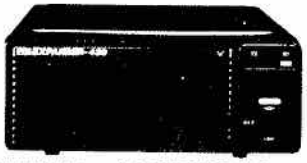
These two books are excellent additions to the history of a little known wartime service. Both books are well illustrated by photographs as well excellent sketches by L.R. Williams. When not busy writing, Don may be found on the Amateur bands signing VE2WW. The reviewer can vouch for the technical and operational accuracy of Don's adventures, having been a Radio Operator on the first "Cat" delivery flight from Dartmouth, N.S. in January 1941 as well as others from Bermuda and on Hudsons from Montreal.

OUTSTANDING FEATURES

- Compare its compact size and light weight, its smart appearance and comprehensive front panel controls. Simple and reliable operation is made possible by employing advanced solid-state and logic techniques.
- A dual VFO is employed for the selection of two independent frequencies anywhere in the band. This also enable split frequency operation, particularly useful when used in conjunction with the optional "UHF-EXPANDER" transverter.
  For normal repeater operation a pre-programmed shift is selected by front panel selector.
- Simple and smooth VFO control gives either 100Hz or 5KHz steps on both FM and SSB modes for optimum convenience.
- The large green Fluorescent Display Tube gives full frequency readout to 100Hz and provides safe and clear readout for both night and day operation.
- Standard features include Noise-Blanker, RIT control with switch, RF attenuator gain control, Automatic crystal controlled Tone-Burst, High and Low power switching and remote Up/Down frequency control microphone unit.

MULTI-750A

FDK both only $600



UHF TRANSVERTER Model: EXPANDER-430

This unit is an optional transverter for use in conjunction with the MULTI-750A/E in order to provide UHF operation in the frequency range 430–440MHz. REPEATER, SIMPLEX, CROSS-BAND and SATELLITE COMMUNICATIONS are possible on any mode.
Simply connect up the EXPANDER-430 to your MULTI-750A/E for 2 meter or optional 70cm, and VHF/UHF combined operation. Features built-in R.F. output power High/Low and OFF switch, TRANSMIT RECEIVE indicators.

SUPER BARGAIN CLEAROUT - ONE OF A KIND, LIMITED QUANTITY

ITEM #1 FDK MULTI 750A 2M ALL-MODE 10W TRANSCEIVER + EXP-430 430MHz EXPANDER GO ALL MODE ON BOTH 2M and 430 FOR THE PRICE OF A 2M ALL MODE - ONLY $599 -2 only-

ITEM #2 FDK MULTI 750X 2M ALL-MODE 10W TRANSCEIVER - 2 only - @$399

ITEM #3 FDK MULTI 700AX 2M FM TRANSCEIVER, 25W-- 2 only - @$275

THE ABOVE ARE BRAND NEW FROM A SAMPLE SHIPMENT FROM FDK IN JAPAN. YOU WILL NEVER SEE THESE PRICES AGAIN. CALL IF YOU ARE INTERESTED. ONLY 2 OF EACH ITEM LEFT.

MULTI-700AX

- Full coverage of the 144–148 MHz band with additional simplex coverage down to 143.950MHz for MARS operation.
- Large, four digit LED frequency display tuned in 5KHz steps by dual-concentric "Aircraft" style selector knobs for quick and easy operation.
- Single channel memory facility operates over the entire frequency range.
- A specially designed five stage Helical-Resonator assembly together with the latest dual-gate MOSFET front and ensures excellent Cross-Modulation characteristics.
- Ready wired for + or –600KHz repeater shifts with facility for user programmable shifts up to 1.6MHz for local repeater use.
- Appropriate repeater Tone-Burst/Squelch (CTCSS) facility optional.
- Continuously variable RF output control from 1–25 Watts.
- Advanced PLL technology provides good stability with low spurious output; Intergral power supply Noise-Filter eliminates vehicle line noise and an automatic protection circuit protects the RF output power module against poor SWR, open or short circuit.

$275 MULTI-700AX

BOOM MIC HEADSETS

CLEARANCE

PRO COM 300

$125

This ultralight, single sided, contesters headset has a non-compromise, electret microphone with a 200 to 3500 Hz frequency response tailored specifically to the human voice. The mic is dual, 50k-600 ohms impedance and the receiver is a low impedance dynamic with a response of 300 to 3000 Hz. The choice of "competitive" stations.

ORDER NO. 63780-000
Wt. 7 oz. (198 g)

PRO COM 200

$135

Dual muff headset with non-compromise dual impedance, 50k-600 ohms electret microphone. The receiver is low-impedance with a very sensitive 200-12000 Hz frequency response.

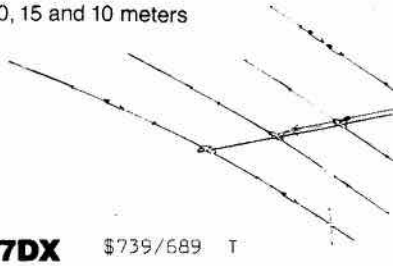
ORDER NO. 63770-000
Wt. 16.7 oz. (475 g)

Antenna Rotators

MODEL NO	Sq ft / Sq m (Antenna Mounting Area Capacity, Mounted Inside Tower)	Sq ft / Sq m (Antenna Rotating Area Capacity, No Wind Load, Mast Adapter)	in lbs / N m (Motor Torque, Start-Rotate)	in lbs / N m (Brake Force, Amount of Torque it will Hold Antenna)	Brake Construction	Bearings Assembly	Mounting Hardware	Conductors	Control Cable Required lbs / Kg	Shipping Wt. lbs / Kg	
HDR 300	25 / 2.3		5000 / 565	7500 / 850	Solenoid Operated Locking Brake	Bronze Sleeve w Roller Bearings Permanently Lubricated	Stainless Steel Bolts	7	56		$739/695
1-X	20 / 1.9		1000 / 113	9000 / 1017	Electric Wedge	Triple Race 138 Ball Bearings	Clamp Plate Stainless U-Bolts	8	28		$425/399
HAM IV	15 / 1.4		800 / 90	5000 / 565	Electric Wedge	Dual Race 98 Ball Bearings	Clamp Plate Stainless U-Bolts	8	24		$319/299
CD45 II	8.5 / .79	5.0 / 4.6	600 / 68	800 / 90	Disc Brake	Dual Race 96 Ball Bearings	Clamp Plate Stainless U-Bolts	8	22		$179/169
AR 40	3.0 / 28	1.5 / 14	350 / 40	450 / 51	Disc Brake	Dual Race 12 Ball Bearings	Plated Mast Clamps Steel U-Bolts	5	14		$125/115
AR 22XL	3.0 / 28	1.5 / 14	350 / 40	450 / 51	Disc Brake	Dual Race 12 Ball Bearings	Plated Mast Clamps Steel U-Bolts	4	14.5		$109/ 99
R3501	45 / 4.2		9000 / 1016	23000 / 2596	Chain Drive	Collar Roller Bearing	Plated Hardware	7	330		$ Ask

hy-gain THUN

For 20, 15 and 10 meters



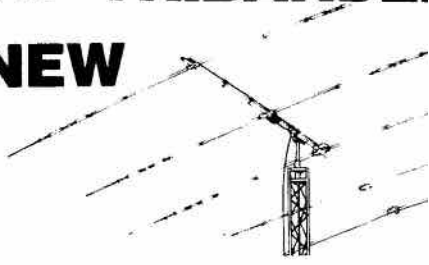
TH7DX $739/689 T

7-Element, Broadband Triband Beam

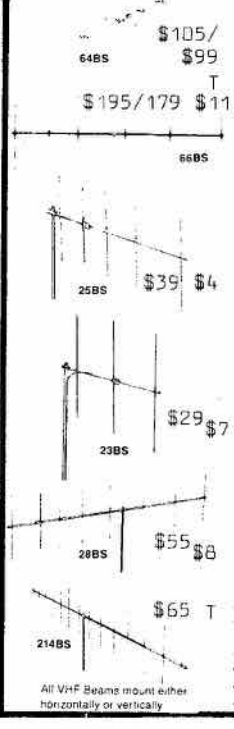
This amazing new tribander, using a dual driven 7 e ement system on a 24 ft. (7.3m) boom maintains a VSWR of less than 2:1 on all bands, including ALL of ten meters. No compromise on gain performance was needed to achieve this efficiency. A unique combination of trapped and monoband parasitic elements produces an average front-to-back ratio of 22 dB on 20 and 15 meters and 17 dB on 10 meters. In a parasitic array such as this, high efficiency traps are used rather than parallel stubs. These Hi-Q traps are capable of handling the maximum legal power with a 2:1 safety margin, and are superior to parallel stubbing for ease of assembly and maintenance as well. The TH7DX uses stainless steel hardware for all electrical—and most mechanical connections plus taper swaged 6063-T832 thick wall aluminum tubing. The antenna includes exclusive, die-cast aluminum, rugged boom-to-mast clamp, and heavy gauge element-to-boom brackets. The TH7DX comes complete with a Hy-Gain BN-86 balun.

HF TRIBANDE

NEW



VHF BEAMS



$105/ $99 T
$195/179 $11
$39 $4
$29 $7
$55 $8
$65 T

All VHF Beams mount either horizontally or vertically

64BS, 66BS
(for 6 meters)

The 64BS and 66BS feature a con in beam construction that provides actual delivered performance equa maximum theoretical ga . The 4-element 64BS generates an impressive 12.7 dB gain and the 6-element 66BS increases the gai an unprecedented 15 dB.

ORDER NO. 230S (4-Element Bea Shipping Wt. 10 lbs. (4.5 kg)
ORDER NO. 343S (6-Element Bea Shipping Wt. 24 lbs. (11 kg)

23BS, 25BS, 28BS,
(for 2 meters)

These antennas include Hy-Gain's exclusive Beta Match to provide exceptional F/B ratio and maximum obtainable gains. The 23BS (6.1 dB gain), 25BS (9.1 dB gain, 28BS (11 gain) and the 214BS (13 dB gain) g you a wide choice of 2 meter beam performance from which to choose.

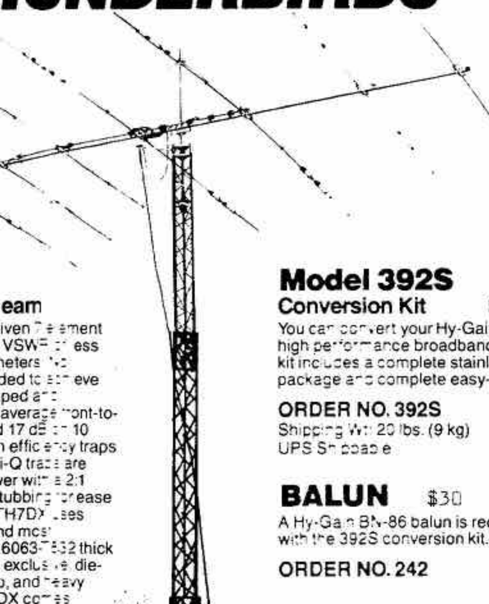
ORDER NO. 203S (3-Element) Shipping Wt. 3 lbs. (1.4 kg)
ORDER NO 5-Element Wt. 5.6 lbs.
ORDER NO. 205S (5-Element) Shipping Wt. 5 lbs. (2.2 kg)
ORDER NO 7-Elemen Wt. 7.5 lbs.

GPG-2A
Collinear Ground Plane (for 2 meters)

This omnidirectional ga antenna for 2 meters is tuneable from 142 to 168 MHz. Delivers an omnidirectional gain of 3.4 dB.

ORDER NO. 338 Shipping Wt. 2 lbs. (.9 kg

HUNDERBIRDS



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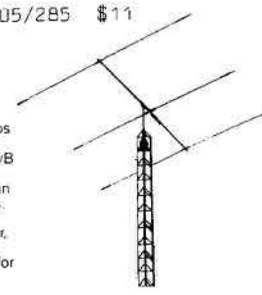
DX comes

TH3JRS

3-Element Triband Beam $305/285 $11

Hy-Gain's Thunderbird Junior offers top performance with a compact design that makes it ideal where space is a limiting factor. Featuring separate and matched air dielectric Hy-Q traps for each band, it feeds with 52 ohm coax, delivers maximum F/B ratio without compromise. The TH3JRS has a SWR of less than 1.5:1 at resonance on all bands. All hardware and clamps are stainless steel. Maximum power, 300 watts dc. Hy-Gain ferrite balun BN-86 is recommended for use with the TH3JRS.



Model 392S

Conversion Kit $265/245 $11

You can convert your Hy-Gain TH6DXX to the new high performance broadband TH7DX. The conversion kit includes a complete stainless steel hardware package and complete easy-to-follow instructions.

ORDER NO. 392S
Shipping Wt: 20 lbs. (9 kg)
UPS Shippable

BALUN $30 $2

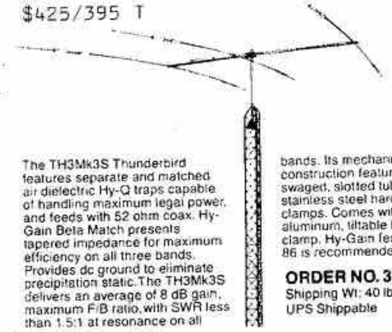
A Hy-Gain BN-86 balun is required but not supplied with the 392S conversion kit.

ORDER NO. 242

TH3Mk3S

3-Element Triband Beam

$425/395 T



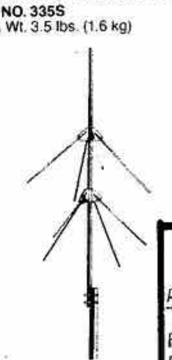
The TH3Mk3S Thunderbird features separate and matched air dielectric Hy-Q traps capable of handling maximum legal power, and feeds with 52 ohm coax. Hy-Gain Beta Match presents tapered impedance for maximum efficiency on all three bands. Provides dc ground to eliminate precipitation static. The TH3Mk3S delivers an average of 8 dB gain, maximum F/B ratio, with SWR less than 1.5:1 at resonance on all bands. Its mechanically superior construction features taper swaged, slotted tubing and stainless steel hardware and clamps. Comes with cast aluminum, tiltable boom-to-mast clamp. Hy-Gain ferrite balun BN-86 is recommended.

ORDER NO. 388S
Shipping Wt: 40 lbs. (18 kg)
UPS Shippable

V2S $75 $7

A 2-meter vertical, 3 dBd or 5.2 dBi; gain derived from the famous extended double zepp antenna design. The radiating elements are two collinear 5/8 waves fed in phase. Two sets of ¼ wave radials properly decouple the lower radiator from the mast.

ORDER NO. 335S
Shipping Wt. 3.5 lbs. (1.6 kg)



V2S

TH2Mk3S

2-Element Triband Beam

$265/245 $11

Hy-Gain's Model TH2Mk3S is a ruggedly constructed, top-performing, compact tribander that installs almost anywhere, and can be rotated with a standard TV rotator (AR40 or AR22XL). Featuring air dielectric Hy-Q traps, which handle the maximum legal power. It feeds with 52 ohm coax, is Beta Matched for 5.5 dB gain, and delivers maximum F/B ratio without compromise. SWR is less than 1.5:1 at resonance on all bands. Taper swaged, slotted tubing with stainless steel hardware and clamps make the TH2Mk3S one of the most rugged antennas available. Hy-Gain ferrite balun BN-86 is recommended for use with TH2Mk3S.

ORDER NO. 390S
Shipping Wt: 22 lbs. (10 kg)
UPS Shippable

NDERS

$609/565 -

ONE TH5DX LEFT
@$469/449 TE

TH5Mk2

5-Element Broadband Triband Beam

The TH5 is now a BROADBAND TRIBAND! The TH5Mk2 offers an outstanding average 8.5 dB gain on 20, 15 and 10 meters. Separate air dielectric HyQ traps on each band allow the TH5Mk2 to be set to a F/B ratio of 25 dB with a minimum beam width. It features five elements on a 19 ft. (5.8 m) boom with four active elements on 10, 15 and 20 meters. Also standard on the TH5Mk2 is Hy-Gain's exclusive Beta Match, and stainless steel hardware and compression clamps. A BN-86 ferrite balun is supplied.

66BS

66BS feature a concept
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ted 15 dB
30S (4-Element Beam)
lbs. (4.5 kg)
33S (6-Element Beam)
lbs. (... kg)

5BS, 28BS, 214BS

s include Hy-Gain's
Match to provide
ratio and maximum
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dB gain), 28BS (11.8 dB
14BS (13 dB gain) gives
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03S ... **ORDER NO. 208S**
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g) ... Wt. 5.6 lbs. (2.3 kg)
05S ... **ORDER NO. 214S**
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nd Plane

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8
lbs. (.9 kg)

$4
$35

GPG-2A

OTHER Hy-Gain PRICES

DB10/15A----	$289/269	T
12AVQs------	$ 85/ 79	7
14AVQ/WBs---	$105/ 99	8
18AVT/WBs---	$169/159	10
103BAs------	$105/ 99	10
105BAs------	$225/209	T
153BAs------	$145/135	T
155BAs------	$345/319	T
203BAs------	$259/239	T
204BAs------	$439/409	T
205BAs------	$575/535	T
402BAs------	$379/355	T
28DQ doublet	$ 95/ 89	6
BN-86s balun	$ 30	2
LA-1--------	$ 95/ 89	2

ROTOR ONLY-NO BOX

TAILTWISTER-	$255/235	7
HAM IV------	$199/189	6
CD-45-II----	$105/ 99	5
South Scale-	$ 10	2

COMPARE OUR HY-GAIN PRICES AGAINST OTHERS IN CANADA............

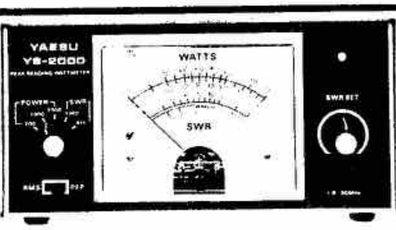
IC-740 9-band Xcvr

MOST ICOM IN STOCK HERE IN THE EAST COAST......

Special

A FEW STILL LEFT

FT-902DM* $1349/1299
FT-101ZD3 $1049/ 999
FV-101Z-- $ 159/ 149
FP-107E-- $S&H $8 129



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VHF/UHF News

John Dudley VE5JQ

VE5XU

Gordon Wightman VE5XU of Regina, Sask. is well known to users of the radio amateur satellites. Licensed for almost fifty years, Gordy is active on all bands from 160m to 70 cm.

Gordy got his first VHF experience operating on the old 5 meter band prior to the last war. After the war while in Montreal as VE2UQ his six meter signal was often heard.

In the late fifties Gordy became interested in tracking Sputnik and its brethern. He was prepared for Oscar 1 and its followers and acted as the Canadian co-ordinator for the Oscar 1 and 2 launches.

VE5XU has been an enthusiastic promoter of the radio amateur satellites as shown by his operating and lecture/demonstrations. He was the first Canadian to work Worked All States on Oscar and holds No. 6 worldwide. He has worked 54 countries on the satellites, about as many as possible from a western QTH. Gordy also is active on 6m. and 2m. from his Regina shack.

CW is Gordy's first love, going back to his radio operator/navigator days in the Ferry Command in the Air Force. While not working the satellites Gordy can be found roaming the CW portion of 160m. or the other HF bands. Gordy hopes to see you all on the new Phase IIIB satellite in 1983.

E.M.E. Notes

The second half of the ARRL E.M.E. contest in November revealed lots of activity. The first station heard on 144MHZ by your scribe was IZ0DI who proved to be the beacon on the band. He was copyable with a single yagi quite easily and with my array of 4 yagis he even bounced the S meter around. He is rumoured to be using 16 long boom yagis and a 4CX3000 final.

Approximately 25 other stations were copied here including Canadians VE2DFO and VE7BQH during the contest. Your scribe has finally got his act together and has the 2m. E.M.E. station fully operational. Five stations were worked in the first week of operation so I guess we're off and running.

The top 2m. stations in the contest are probably WA1JXN, W5UN and KI7D. These and many other stations are copyable with a single yagi and you would be surprised what you can hear. You can put up a temporary mount (e.g. lean antenna against step ladder) and manually point the antenna at the moon. Any preamp with a noise figure of 2 db. or better placed at the antenna will make a significant improvement in your receiving system. I am certain that when you have heard a few signals you will get more interested and want to improve the antenna and get transmitting.

A good place to get information about E.M.E. and have your questions answered is the moon-bounce nets. On 14,345 KHZ every Saturday and Sunday starting at 1600 with the 432 group and ending at 1700 with the 2m group you will find the people with the information that you need. Also every evening on 3,818 KHZ is an informal gathering of E.M.E. types. Hope to see you there!

Life on the Ocean Wave III

Bill Deacon VE3 BDO

In my first article for TCA, I mentioned the wide range of experiences one may encounter over a long period of sailing. This article relates to a period in 1937 when, after many years of peace, tension, was bulding in the Orient as a result of Japan's desire to create a South-East Asia Co-Prosperity Sphere.

At this time. I was sailing on the Empress of Russia, one of The Canadian Pacific Steamships' Trans-Pacific Service liners. These vessels were the Blue Ribbon ships of the trans-Pacific service, and we carried many famous and wealthy people on that service. It was much preferred over the Americans' President ships and even the very fine Japanese liners of that era. Two of our ships sailed Vancouver-Victoria-Honululu-Yokohama-Kobe-Nagasaki-Shanghai-Hong Kong-Manila and return. The other two skipped Honolulu and sailed Great Circle route Victoria-Yokohama. I sailed both routes. The round trip took six weeks.

Although not basically related to the story, I know you will be curious to know what kind of radio equipment was carried on those vessels. The main MF transmitter was a Canadian Marconi 500M-1. This was a 500 watt single tube transmitter, operating on ICW and CW on 600, 705, 800 and 2100 metres. (We referred to wavelengths in those days, rather than frequencies). For those who have difficulty in relating to these terms the above-noted wavelengths could be re-stated as 500; 425, 375 and 143 khz. This transmitter was a large, bulky affair with a heavy, thick bakelite panel in front, together with heavy screens on the sides and back to provide for good ventilation. This was essential when operating in the high humidities of the tropics. It was not unusual to have arc-overs at the high voltage points at times of high humidity.

We also had a "short-wave" transmitter (HF to you youngsters of the modern world), that operated on 48, 36 and 24 metres (I forget the frequencies because we only were concerned with setting the transmitter to prescribed dial settings established by the shore engineer). I forget the power, but I think it was 250 watts, and it provided very solid communication with the West Coast of North America from all along the Orient coast. We didn't need the KW or multi-KW amps of many of today's hams to make our contacts.

The emergency transmitter was a Canadian Marconi 100W-4. This unit operated on CW at 100 watts, or MCW or phone at 50W. Two 211's operated in parallel and as a self-excited oscillator for CW, and for the other two modes, only one of the 211's oscillated, and the other became the modulator. They were not the world's finest rigs-'nough said.

Well - to get back to the basic theme of this article! This Japanese felt it desirable to demonstrate their power in the Far East by some invasions of China. We saw the initiation of these projects on several occasions while docked at Yokohama, when we would see troop ships being loaded to the cheers and gestures of farewell from the beautifully clad women at the dockside. Their kimonas, which were worn by the great majority of women in those days, were most colorful, and, of course, helped greatly to conceal the rather dumpy frames of the ladies of that era.

We also witnessed the return of the dead later in the campaign. They were contained in small white coffins that were off-loaded at the docks to be passed on later to relatives.

While all of these activities were observed by us with generally mild interest, other activities stirred up our corpuscles to the extreme. This would occur on the voyage across the East China Sea between Magasaki and Shanghai. To our great consternation, bombers enroute from Japan on bombing missions to the China coast would fly over us. They unfailingly felt compelled to conduct a practice bombing run over us, and it was always with some degree of trepidation that we watched the bomb bay doors open and the aircraft line up for a run over us. We knew there were real live bombs in those bays, and, in the light of the Japanese unpredictable actions in other areas, what were the odds for this run to be more than a practice? It was a frustrating experience to be exposed to this in a supposedly peaceful relationship, and with no protection or means of scaring off the mock (?) attacks. The word "mock" has the question mark, because a sister ship in that situation in the same general time had a small bomb "accidentally" dropped on it, (ah, so sorry, prease).

On another occasion, while sailing through the Inland Sea in Japan, a submarine suddenly surfaced off our starboard bow, and a crew dashed out of the conning tower, trained the deck gun on us; and hoisted signal flags, the substance of which was to warn us to immediately change course or we would be fired upon.

It seemed that we were sailing too close to one of their fortified islands. Remember, now - this is 1937 - not wartime.

About a week or so previous to our arrival at Shanghai on one of our voyages at that time, the Japanese had bombed and captured Hongkew, which is really a suburb of Shanghai. The central portion of Shanghai in those days was known as the International Settlement, being administered jointly by the Chinese, American, British and French. This part was untouched by the Japanese.

We docked, surprisingly, at a wharf in the captured settlement of Hongkew; and passage between the ship and shore was via motor launches to the International Settlement. We were warned not to go ashore in Hongkew because of risk of capture by Japanese patrols. Howeve, the

13th Engineer and myself, having all the great wisdom of young guys in their early 20's just knew that all those warnings were the ultra-conservative prattle of senile old fogies. Away we went into Hongkew to see what had happened.

We wandered along Yangtzepoo Road, which is a sort of "main drag" that twists and turns as it follows the bank of the Whangpoo River. (That's the River beside which Shanghai is located). We noticed that all the shops were closed and barred. As we were nearing a curve in the road, we heard the measured tramp of hob-nailed shoes, and we correctly concluded that a patrol was about to heave into sight. We also saw two young Chinese boys about 6 and 8 years old wandering along the road, apparently looking for anything to loot from stores or warehouses on the river bank. Without any further delay, we dashed to a recessed doorway of a store and cowered down.

The patrol saw the Chinese boys, and the sergeant immediately called the patrol to a halt within about 20 feet of us. He spoke to the boys for a minute or so, then called one member of the patrol over. The two soldiers took the little boys down between two godowns (river-bank warehouses), and disappeared from sight. After a couple of minutes, the soldiers re-appeared, but there was no sign of the boys. During all this - and fortunately for us - the patrol's attention was focussed on the foregoing action, so we were not noticed. The sergeant ordered the patrol onward, and thus we escaped who knows what?? Needless to say we proceeded with deliberate haste back to the dock and security.

Among the people we evacuated from Shanghai on that trip were Barbara Hutton and her entourage. For the younger readers, Miss Hutton was the millionaire heiress of the Woolworth fortune, and her peregrinations about the world were the constant subject of reporting in the press of those days. Her message traffic was quite heavy, and it really swelled our log and our revenues for that voyage.

Message traffic and operating routines may be the subject of another article sometime, meantime...

Here ended the third episode of Deacon's Chronicle

Bill is taking a break from writing for a while to see the reaction to his articles. If you want more (I know I do) please write to him direct, or through TCA. (ed)

Attention!

All users of the TCA Newsline Telephone

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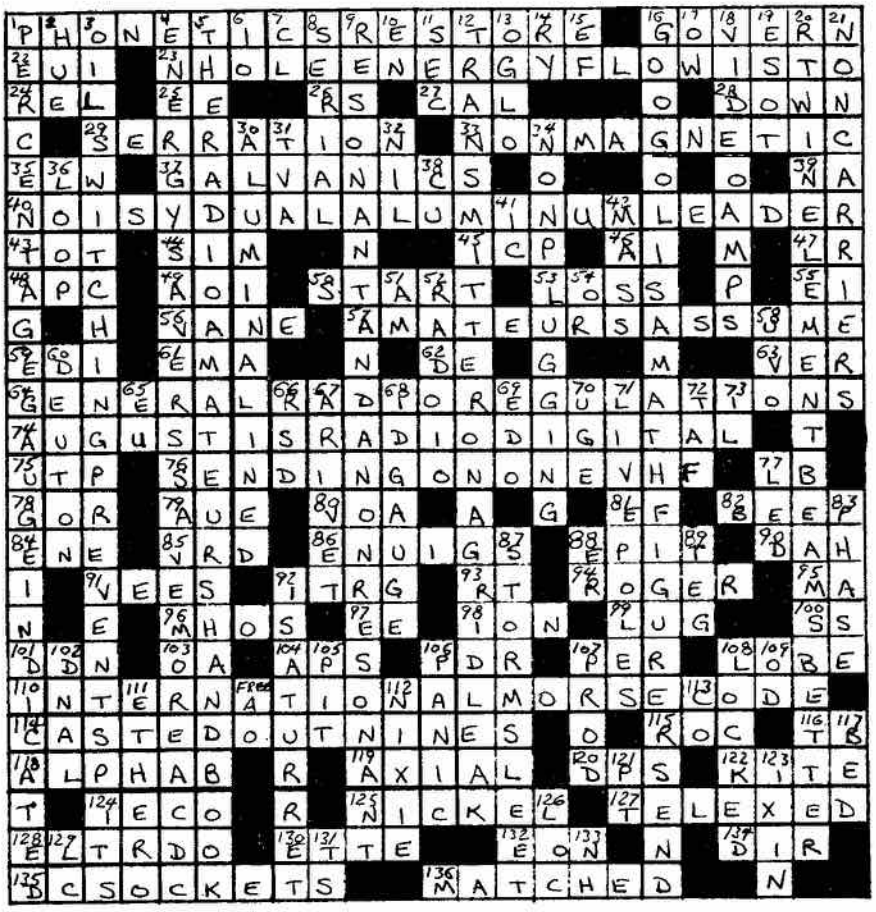
824-3467

Important Notice

We reported in December TCA that Mr. John Holmes VE5YC had been having difficulty in obtaining equipment from Ham Traders of Toronto. We are very pleased to report that with Ham Traders co-operation, the matter has been settled to John's full satisfaction.

Another Amateur Crossword Puzzle

by Jim VE1BCI



ITALY/CANADA

A Reciprocal Operating Agreement

by Bruno Melina VE2FLB

Bruno Melimo was born in Italy, but has been living in Canada since 1962. He obtained his Amateur license in 1978 and received the call VE2FLB. In November 1982, Bruno was named Chairman of the International Relations committee, in CARF, and has been working with both the Italian and Canadian governments, as well as the Italian National Amateur Radio organization A.R.I., in the pursuit of a reciprocal operating agreement between Canada and Italy.

I became involved in the negotiations between Canada and Italy long before I was involved with CARF. It was through my frequent contacts with Italian Amateurs that I became aware of the problem facing those Amateurs who came from the old country and tried to operate their equipment here in Canada. As there was no reciprocal operating agreement between our countries, it became obvious that something should be done. I began receiving letters from Italian Amateurs complaining of the situation. Several neo-Canadian Amateurs travelling in their native Italy approached the P.T.T., the Italian equivalent of the D.O.C., in Rome. Concrete results were not obtained. The Italian authorities left the initiative of action to the Canadian government.

In February, 1981, I approached the then President of CARF, Mr. W.J. Wilson, VE3NR, to inform him of the situation. Mr Wilson approached Dr. John de Mercado, Director General of the Telecommunications branch at D.O.C., and soon negotiations between the D.O.C., and the P.T.T. began.

On my own initiative, I wrote to Dr. Manuel F. Calero, I4CMF, of Bologna, who is my counterpart in A.R.I.. He is also a friend of mine, which tended to make matters easier. A friendly rapport between National Amateur organizations was established and I was put in the privileged position of following the Canadian proceedings for CARF as Dr. Calero was in Italy. Many letters between CARF and A.R.I. were passed and thanks to the mutual cooperation between us, in October of 1982, we had the satisfaction of learning that reciprocal licensing agreements between Canada and Italy were soon to be reality.

Bruno Melino VE2FLB with Dr. Michaele Fratta, advisor to the Italian Ambassador.

In the latter part of October, I was in conversation with Dr. Michaele Fratta, advisor to the Italian Ambassador in Ottawa, and learned that the reciprocal agreements would come into effect as of December 15, 1982. The chosen date had some significance as it was on this date, 80 years ago, that Guglielmo Marconi completed the first trans-atlantic two-way transmission from Table-head, N.S., to England and Italy. The governments of these countries could then celebrate these events by arranging radio and television communications between the President of Italy and the Governor General of Canada from the site of Marconi's first transmission.

In Glace Nay N.S., a station was set up by VE1QD, and using the call CG1MSC the station was operated from Dec. 15 to 31 on a continual basis. The location of the station was the Miner's Museum. Each Amateur who has worked the station will receive certificate marking the occasion.

In the early part of December, CARF officials were invited to meet with the Italian Ambassider

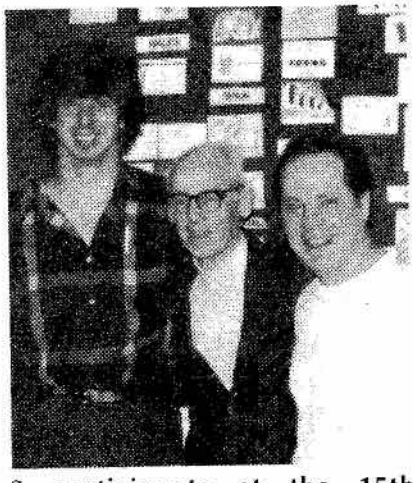
MEETING THE AMBASSADOR

Left to right: Don Slater, VE3BID; Bruno Melino, VE2FLB; Dr. Franesco Paulo Fulgi, Italian Ambassador to Canada; Doug Burrill, VE3CDL; Bill Wilson, VE3NR. Taking photo — Cary Honeywell, VE3ARS.

Dr. Francesco Paulo Fulgi, in Ottawa, for an informal talk to mark the efforts resulting in the agree-

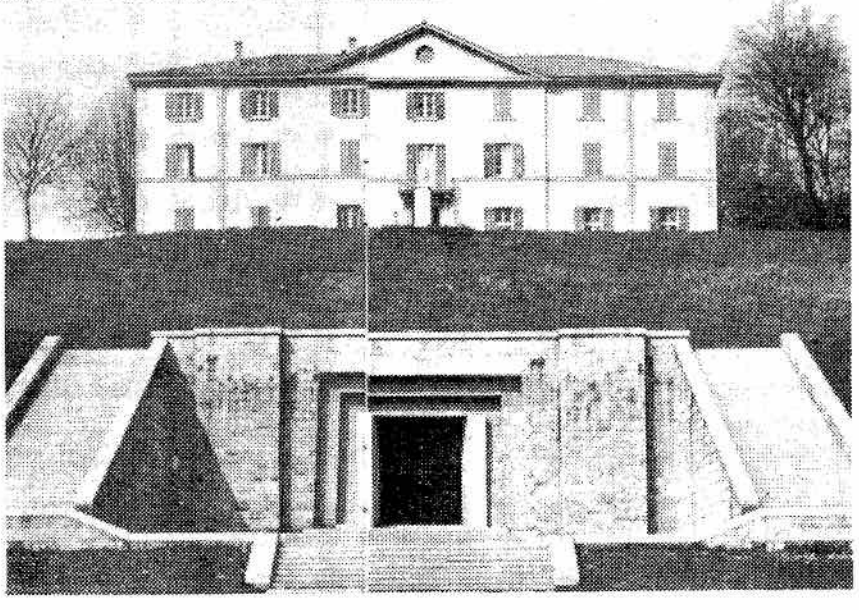
ment. Present at this meeting were Don Slater, VE3BID President of CARF, W.J. (Bill) Wilson, VE3NR, past President of CARF, and former Director General, Telecommunications Regulatory branch, Doug Burrill, VE3CDC, CARF's Vice President in charge of special projects, Cary Honeywell, VE3ARS, Editor of TCA. and myself, Bruno Melino, VE2FLB, chairman of the International Relations committee.

On the 15th of Dec, the National Museum of Science and Technology in Ottawa allowed us to use their station under the call VE3TCA to contact the Italian station IY4FGM (Fondazione Giuglielmo Marconi) located in Marconi's room in the Villa Griffone, near Bologna, Italy.



3 participants at the 15th December contact I L Canada. Left to right: Dave Goodwin, VE2ZP; Doug Burrill, VE3CDC; Bruno Melino, VE2PLB.

The contact was made on 28.375 Mhz at 1500 UTC. Participating in Canada were myself, Don VE3BID, Doug VE3CDC, and Dave Goodwin, VE2ZP, secretary for CARF, and Contest editor for TCA. Bill, VE3NR could not be present but sent a note of congratulations to be read to the Italian contingent. On the other side of the radio link in Italy, were Dr. Luigi Petronelli, Director of construction of P.T.T., Dr. Gianluigi Costa, his assistant Director, Sign. Luigi Pedretti, Department Chief, P.T.T., Sign. Luzio Zimarino, District Chief, P.T.T., Sign. Nerio Neri, I4NE,



Vice President A.R.I., Dr. Manuel Calero, I4CMF, in charge of reciprocal licensing for A.R.I., Sign Sergio A. Serpieri, IW4ANG, station Manager for IW4ANG, and station operators Sign Fabio Stettino, I4UFH, and Sign Leonardo A. Serpieri, I4YUL.

To commemorate the event, CARF is issuing a special certificate with a Marconi stamp for the Italian Radio Amateurs who contact the Canadian provinces and territories between the 15th and 31st of Dec., 1982. A.R.I. will also issue a certificate to commemorate Marconi for Canadian Radio Amateurs. The regulations appeared in TCA, (Jan. 1982, page 28) and note that the address to send for DGM is changed to P.O. Box 3113 - 40100, bologna, B.D., Italy.

We note that the first recipient of a reciprocal license under this agreement was Padre Eugenia Baggia, IN3WTJ presently living in Toronto.

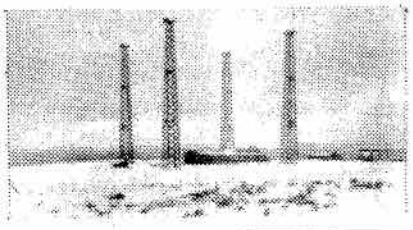
In 1982, a committee was set up to commemorate the 80th anniversary of the first two way message across the Atlantic by Marconi. On the Board were:

Mrs Marconi Braga,
Judge Rene Marin,
Senator Pierro Rizutto,

Dr. Francesco Paulo Fulgi, Ambasador to Canada from Italy,

Mr. Frank Vincelli, from the Italo-Canadian National Congress.

As an article on Marconi was published in the Jan. '82 issue of TCA, we will only quote some of the major events of his life. These were contained in a commemorative pamphlet put out by the Museum of Science and Technology.



Chronology of Guglielmo Marconi

1874 Born in Bologna, Italy on 25 April
1894 First experiments with Hertzian waves
1895 Transmits wireless signals over one mile
1896 Moves to London
First formal demonstration of wireless given to British Post Office
Granted world's first radio patent
1897 Registers Wireless Telegraph and Signal Co., Ltd.
1898 First private wireless . . . installed for Queen Victoria
First commercial message . . . sent for Lord Kelvin
First wireless journalism . . . Kingstown Regatta
1899 English Channel experiments prove curvature of earth is not an obstacle to wireless transmission
Sails to New York to report America's Cup
Granted patent No. 7777 for tuning apparatus
1901 12 December, first transatlantic signal sent from Poldhu, Cornwall to St. John's, Newfoundland
1902 S.S. *Philadelphia* tests confirm transatlantic signal and reveal night reception to be much stronger than day.
Invents magnetic detector ("Maggie")
1905 Marries the Hon. Beatrice O'Brien
1906 Invents disc discharger
1907 Commercial transatlantic wireless service inaugurated between Table Head, N.S. and Clifden, Ireland
1908 Birth of daughter, Degna
1909 Awarded the Nobel Prize for Physics
1910 Birth of son, Giulio
1912 Automobile accident results in loss of right eye
Titanic disaster
1914 Receives Knight Grand Cross of the Royal Victorian Order from King George V of England
Appointed Italian Senator
1916 Birth of daughter, Gioia
Begins short wave experiments with U.S. Franklin

1917 Member of Italian goodwill mission to U.S.
1919 Appointed delegate from Italy to Paris Peace Conference
Acquires 700-ton steam yacht, *Elettra*
1920 Successful demonstration of unmanned auto-alarm for ships
1923 Birth of short-wave Beam system
1927 Opening of Beam system links British Empire
Marriage to Beatrice is annulled
Marries Cristina Bezzi-Scali
Resigns as Chairman of the Marconi Company
1928 Appointed Chairman of the National Research Council of Italy
1929 Hereditary title of *Marchese* conferred by King of Italy
1930 Birth of daughter, Elettra
Becomes President of the Italian Academy
Lighting of Sydney, Australia Town Hall from *Elettra*
1931 Lighting of statue of Christ in Rio de Janeiro from Rome
1932 Installs ultra-high-frequency radio telephone link for Pope Pius XI
1933 Sails on world tour
1937 Dies in Rome on 20 July after series of heart attacks

Wires Without Wires

The true inventor labours in an attic, lives chiefly upon buns, sells his watch to obtain chemicals, and finally, after desperate privation, succeeds in making a gigantic fortune for other people. Guglielmo Marconi invented in comfort, retained any small articles of jewellery in his possession, and never starved for more than five hours at a time. Therefore he cannot expect our sympathy as an inventor, though he excites our wonder as an electrician.

He is a quiet man with a slow, deliberate manner of speech, and a shape of head which suggests an unusual brain. He has Irish blood in his veins, for his maternal grandfather, Andrew Jameson, married a daughter to a Marconi of Bologna, from which union was born Guglielmo. Guglielmo, I may mention, is the Italian for Bill.

Bill was educated at Leghorn under Professor Rosa, and afterwards at Bologna University. He first attempted to send wires without wires upon his father's land to the farm of neighbours. . . . From Italy he came to England, testing his instruments between Penarth and Weston. . . .

What has been the result the world knows. His system is used exclusively at Lloyd's and in the British and Italian Navies. It has made the Atlantic still less endurable for tired brains by providing liners with a daily paper. He has alarmed the Chinese with his devices at Pekin and Tien-Tsin, forcing them to compose special prayers against foreign devils and all their works. He has been the cause of a petition from the Cornish fisherfolk, who suggested that the Government should put him down before his electrical sparks ruined the weather. Lastly, to fill the cup of his SINS, he has sent messages across the Atlantic. . . .

VANITY FAIR, 1905

The Trans Atlantic Signal

By the turn of the century the Marconi Company was offering a viable system of wireless communication, though much time was being spent in research and demonstrations which seldom led to orders. That same year the Marconi International Marine Communication Company Ltd. was initiated to link merchant ships to land through a network of company-built shore stations. It was around this same time that Marconi's thoughts turned to his grandest experiment yet—the attempt to bridge the Atlantic Ocean by wireless. His board of directors was shocked at the proposal, but Marconi saw no reason why it would not work. It had already been established that signals could be transmitted beyond the horizon, so distance, he felt, was limited only by the power of the transmitter and the sensitivity of the receiver. In 1901 the industrialized world was increasingly in need of high-speed communications, and the potential importance of a long-distance wireless system was enormous.

So, with the reluctant support of his directors, Marconi's assistants Vyvyan, Fleming, Paget, and Kemp began erecting the eastern terminal at Poldhu, Cornwall, while Marconi traveled to America to choose a western site at Cape Cod, Massachusetts. Two huge aerials were built at these sites using ship's masts, but before any transmission could be attempted storms brought down the masts on both sides of the Atlantic. The one at Poldhu was rebuilt and Marconi decided to attempt a one-way signal from there to St. John's, Newfoundland, where he arrived on 6 December 1901 with Kemp and Paget. He then cabled Poldhu to begin transmission of the Morse letter S, (dot, dot, dot), which was chosen for ease of recognition as well as the fact that it required less power than the longer dashes. The first attempt to suspend an aerial from a hydrogen balloon failed when the balloon was lost in a storm. The following day, 12 December, the weather was even worse, but they succeeded in raising a 600 foot aerial using a large kite.

At 12:30 p.m. Marconi was at last able to discern the faint signals he had been waiting for and handed the earphone to his assistant. "Can you hear anything, Mr. Kemp?" Kemp replied that he did. In a mere seven years the range of wireless communication had increased from a few meters to over three thousand kilometers.

When the twenty-seven-year-old inventor decided to release the news of his success, reaction, as might be expected, ranged from great public excitement to skepticism on the part of many scientists. The scientific community began to reconsider its opinion, however, when Thomas Edison declared Marconi to be as good as his word. Shortly thereafter messages transmitted from Poldhu were received by the westbound S.S. *Philadelphia* nearly three thousand kilometers away. This time the signals activated a Morse inker, leaving no doubt about the authenticity of Marconi's achievement.

It was now imperative to establish a permanent relay station so the transatlantic experiments could be continued but Marconi's wireless was banned from Newfoundland by the monopoly of the Anglo-American Cable Company. The situation looked grim for the future of transatlantic wireless telegraphy when a group of prominent gentlemen from Nova Scotia, Alexander Graham Bell among them, came forward with offers of assistance. A suitable site was found in Cape Breton and money to establish a station there was put forward by the Canadian government. The first transatlantic messages were sent from Cape Breton's Table Head station in December 1902, but there were many more challenges to meet before transatlantic service would become a commercial reality.

The Young Inventor

In the 1890s electricity was a subject of vast popular and scientific interest. Reading the works of the leading "electricians" of the day in his father's well-stocked library, the young Guglielmo Marconi pondered the possibilities which were to lead to the development of wireless communications. When not reading, he was usually to be found tinkering with various gadgets which were liable to be thrown out if his father, Giuseppe, found them.

Giuseppe was impatient with Guglielmo, who had failed to enter either the university or the naval academy and showed little interest in the family's small estate, Villa Grifone, outside Bologna, Italy. Giuseppe's soft-spoken Irish wife, Annie, however, was a faithful supporter who often intervened in disputes between father and son.

In 1894, Marconi read an obituary of Heinrich Hertz, who had brilliantly demonstrated electromagnetic waves seven years earlier. His imagination was ignited and he resolved to pursue his experimentation with methodical discipline. He was barely twenty years old.

Marconi declared the attic of Villa Grifone to be his laboratory and set out to repeat the experiments of Hertz amidst the trays of silkworms. For the next year Annie frequently found herself climbing to the attic with a forgotten meal to remind her son that it was the middle of the night. One night she was called to witness a spontaneous demonstration: when Marconi tapped a Morse key a bell sounded at the other end of the room. Between the transmitter and the bell lay nothing but air.

The experiments soon outgrew the attic. Moving to the garden, Marconi soon achieved transmission distances of 2.8 km. His nature was to work diligently at refining and improving his work, never becoming stuck in a momentary success. The freshness of his mind allowed him to continually explore alternatives, which were often unsupported either by precedent or logic.

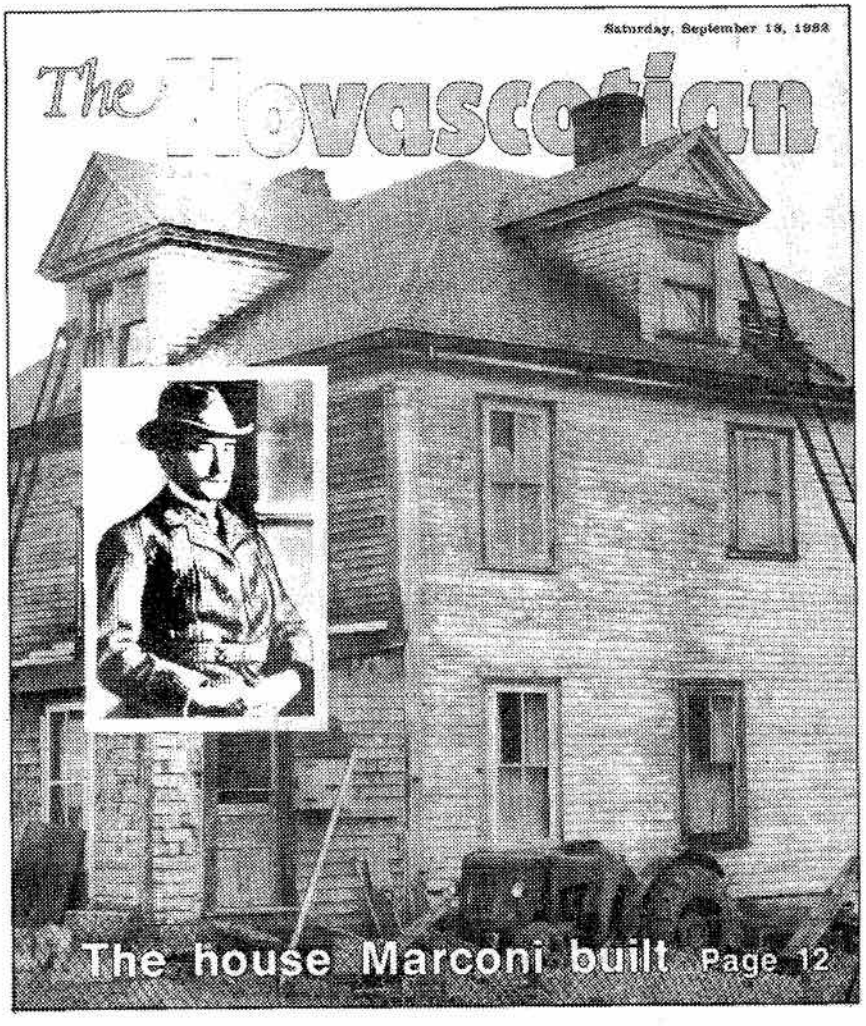
By the autumn of 1895 Marconi knew he could go no further on his own. His family found friends in London who were sympathetic and interested in "wireless." In February 1896 he passed through Her Majesty's Customs with his precious black box of equipment, only to have it damaged by suspicious inspectors. That same year, the equipment rebuilt, he gave several public demonstrations and was granted the world's first radio patent. In 1897, at the age of twenty-four, he founded the Wireless Telegraph and Signal Company, Limited. A new era in communications had begun.

CRRF NEWS SERVICE

As noted in our December 12th bulletin, the predicted increase in license fees is showing in the DOC's 1983-1984 billings. Due to the federal restraint program, this year's hike has been held to six percent or ninety cents.

On the cable TV interference front the Calgary club has undertaken a documented, systematic study of the problem it poses to the two metre band in that city. It is conducting a city-wide monitoring of the cable system with special attention to 'hot spots' where the leakage is particularly bad. The club has written to Communications Minister Fox asking that DOC delve into means of solving the problem. In the U.S., a similar action by a New England club resulted in the FCC forcing a non-cooperative cable company to abandon the use of the offending channels, channels E (18) and K (24), which QRM the Amateur two-metre and 220 megahertz bands respectively. The ARRL in the U.S. has petitioned the FCC to have cable operators abandon the use of these two channels. According to an item in WESTLINK REPOORT, an FCC official recently told a cable industry gathering that it could lose them unless it solves the problem of leaking QRM to the Amateur and other bands.

CRRF NEWS SERVICE



The House Marconi Built

From the Halifax Mail-Star
Vol. 34 No. 214

by P.T. Cusack

A majestic old place stands, ghostlike, in the middle of the bush in the Glace Bay area on the shores of the Atlantic. Built in 1903 by the Italian-born inventor, Guglielmo Marchese Marconi, it is the kind of place that chapters should be written about in Canadian history books and teachers should tell stories about. Instead, it sits forgotten and in need of paint, worshipped by Russell Cunningham, its present-day owner, and by Italians — dignitaries and family members of Marconi — but forgotten by Canada and Canadians.

Cunningham, who was born around the time the house was built, devoted most of his working life to the Sydney and Louisburg (S and L) Railway but, when he was young he worked around the Marconi house. It must have been an impressive place in those days, especially because of its location in the middle of nowhere. Although few houses had electricity at that time, Marconi and his assistant, R.N. Vivian, wired their new Cape Breton residence with wiring that still exists today.

Cunningham says the place was not well-suited for the harsh Canadian environment. The 18-room residence has 37 doors and 47 windows — "He thought he was still in Italy" — and there are 18 large radiators and four fireplaces — "They were keen on fireplaces."

Marconi called this house "the residence" and, just up the Sand Lake Road, he built a staff house much like the first to accommodate the 12 engineers who worked for him. There were close to 60 people employed at the site and three or four smaller bungalows were also constructed, in addition to a wireless station about 30 metres from the main house.

Today, part of the wireless station and the main residence remain standing, as much a tribute to the long-haired old gentleman who preserves them as to the great inventor who chose to build them here. After Marconi died in 1937, many of his employees remained at the location until 1945 when Russell Cunningham bought the place. Now almost 80, he is, whether he admits it or not, likely the world's foremost expert on Marconi. He lives surrounded by the inventor's possessions — his old roll-top desk, hardwood furniture, typewriters, and boxes full of materials used in early experiments.

It is, you would think the kind of place that should be protected and preserved and shared with other Canadians. Sadly, this is not the case. Although the house and its belongings are priceless, there is no insurance and already there has been one fire which fortunately did little damage. The insurance, of course, doesn't really matter because it would be impossible to replace these living pieces of history. But, you know there's a better option than housing everything in an 80-year-old house with 80-year-old wiring and 80-year-old fireplaces and chimneys.

Russell Cunningham knows it too and he has been trying to do something about it. He said he has offered to sell the furnishings to the Canadian government, so they can be preserved for future generations of schoolchildren, and teachers who tell them stories in the springtime.

"I can't preserve it forever. There's too much stuff," Cunn-

ingham said.

Regrettably, he says the Canadians do not seem to be interested, although he did say they offered to help keep the place in shape if it was donated to them and if Cunningham stayed on to give tours and talk to visitors.

"I wouldn't get my gardens in and I'd do nothing all day. I'm a farmer, you know."

The depth of lack of interest on the part of Canadian officials is matched only by the keen interest of the Italian government and its people. That country's ambassador to Canada has visited the Marconi home and, as recently as the first week of August, other Italian officials and crew members from their ships paid a visit to the site they seem to worship. And, they have managed to do something Canadian officials seem to be incapable of — find money to buy Marconi's possessions.

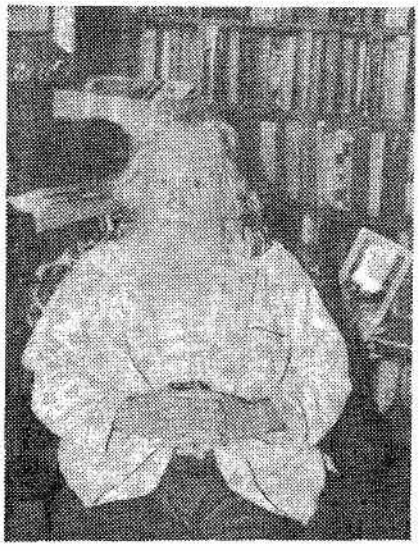
"The Italians have $1 million in the fund already," Cunningham said.

This winter, Marconi's youngest daughter (she's 66) is coming to visit, thus increasing the chances that the house's valuable belongings may end up in Italy.

"This is the only place his family can come now," Cunningham said. "She can sit in his chair, eat her supper at his table in his dining room, and, when she gets tired, she can go upstairs and sleep in his bed."

Although the Italian visitors are welcomed with open arms, others are not so lucky. Cunningham said he frequently chases reporters who show up at his door. I made it inside for a three-hour visit because of my age ("Well, you're young, so I'll give you a few minutes") and because I came to visit with his granddaughter by my side. It's too bad other writers do not have the same opportunity because Cunningham has so much to share — valuable information which, like the furniture and house, may someday be lost forever if something is not done now.

History books and encyclopedias have little to offer on the 34 years in which the great inventor based his operations in Nova Scotia. Many do not even mention it while others mislead readers into thinking Marconi was in Newfoundland at the time. Actually, he devoted only a couple of years to his wireless experiment there, leaving because there was too much opposition to his work.



Cunningham says the Newfoundland cable companies had spent millions on a communications system that depended on cables and they had a 50-year franchise on communications there. Their lawyers said "no" to Marconi's experiments.

"He packed up his stuff in two big trunks and headed to Cape Cod," Cunningham said.

Marconi already had a station set up there but some quick thinking on the part of a couple of Nova Scotians led to another change in plans. Cunningham says a Sydney newspaper publisher named Johnson saw the benefits in having Marconi in this province so he contacted Premier George Murray.

Marconi, fresh from his bad experience in Newfoundland, was skeptical at first, but when the Canadian government offered him $80,000 to set up a station in Cape Breton, he accepted. In return, the goverment wanted to be provided with wireless service, when it was feasible, at a cost of not over 10 cents a word. Even Graham Bell offered his fellow inventor land in the Baddeck area but, as Cunningham said, "He wanted clear sailing."

Marconi thought it best to build the station on high ground near the shores of the Atlantic so there would be less interference when wireless messages were sent. As it turned out, this may not have been necessary. Early theorists believed the "clear sailing" and high points of land were necessary to compensate for the curvature of the earth. When Marconi decided that the electromagnetic waves followed the earth's curvature instead of going straight, the world was skeptical.

Cunningham said, "Some people believed him and some didn't. All the leading scientists of the world — all these fellows — said it was an impossibility. These were the smart boys."

Marconi, of course, was right as his early experiments in Cape Breton proved. He was experimenting with long wave lengths in those days and that required lots of electricity and water and coal to power the generator. The S and L Railway, like the premier and the newspaper publisher, was ready to help. A paper publisher, was ready to help. A branch line was built to the Marconi house and two or three 10-ton carloads of coal were delivered by rail each week.

It was a busy time for the inventor and his staff and Cunningham says, "There wasn't enough hours in the day for him. He was a marvelous piano player" but there was little time for music or family. cunningham can still show you Marconi's bedroom and, just across the hallway, that of his wife. The inventor was always working well into the night and didn't like to distrub his wife when he arrrived home late — so, the first of two marriages ended in divroce.

"Well, you couldn't blame her in a way. The man was never home . . . work, work, work . . . away, away, away. At the end of it, he just about threw in the sponge."

Although he was anything but successful as a family man, Marconi was brilliant at his work. He continued to improve his systems of wireless communication and became a valuable member of the

Italian army during the First World War, making communications an important weapon. He was almost captured by the enemy who actively searched for Marconi and his equipment.

After the war he turned his attention to short-wave wireless communication and, in the '30's, to microwaves. When he died from a heart attack in 1937 at the age of 63, he had already done much to perfect the radio and was working on a radar system. Much of the equipment and tools he used are still resting in the dining room of the old house today.

The Italian-born inventor came a long way from the Bologna home where he was born to an Itialian father and irish mother in 1874 (his first wife was also Irish). He was very young when he started experimenting and, at the age of 15, was able to make a bell in another part of his house ring by using electromagnetic waves. But Italy, like Newfoundland, was not kind to him in those early years.

"Everyone was against him," Cunningham said. "That's why they laughed at him, he was so young."

"It's ironic how things have changed. The Italians, who once laughed at the teenager with big ideas, now make what can only be described as pilgrimages to the rickety old house near Glace Bay to see and touch what remains of one of their most famous countrymen. And Canada, which offered a home and money when Italy didn't and Newfoundland wouldn't, now seems content to let this important piece of our heritage slip away.

MSAT

Continued from page 16

health and welfare. Together, they are expected to require 134,000 sets by 2001.

Goverment

Governments have been using mobile equipment long and extensively. With a projection of 136,000 units in 2001, they are among MSAT's best potential customers.

FUTURE DECISIONS

Major new projects in satellite communications pose important and difficult questions for government. They require heavy investment for development, and decisions must be made on how much of the final user cost should be paid by the nation and how much by the consumer. This is a particularly active question in the pioneering stages of each new advance in technology when the domestic and foreign markets have not been established.

There are risks involved. As with any business enterprise, there are hazards in predicting markets 20 years in the future at a time of exploding technological change. In the extraordinarily complex technology of satellites, there is always some risk that the equipment will not perform as expected. Canada has enjoyed a record of such unbroken success in satellite programs that it is easy for the layman to forget that any risk exists.

On the positive side, there are prospects of impressive financial and other dividends. Canada is a well-placed pioneer. Development of new satellite systems is tailored specifically to reduce uncertainty. We were bold enough to become the third country in the world to design and build a satellite; we were the first with a commercial domestic satellite system in geostationary orbit. We have built an industry, developed an enviable cadre of experts and are now exporting both our expertise and our space products. Future returns on a large scale can be expected from exports and from the existence of a growing industry providing employment for highly skilled people. The alternative to such an industry is not only a brain drain but a continued loss on foreign exchange as we buy equipment and expertise from other countries.

When all the facts, cost-sharing agreements and the best possible projections have been assembled by late 1983, the government will have to make the decision on whether to construct and launch a demonstration MSAT. It will also have to decide, on the basis of discussions with the United States, whether MSAT would be built for Candians only, or expanded to cover the United States on a cost-sharing basis. If MSAT goes ahead, decisions will be required on the cost to users and on the techniques for developing markets.

In these major decisions, it is unlikely that national pride will be a factor, but the future unity of our nation may be. We are not just another country with an opportunity for a large investment. We have perhaps the most challenging geography in the world and, therefore, the greatest need for modern communications technology. Consequently, all Canadians have a stake in the MSAT decision.

CARF NEWS SERVICE

The city of West Vancouver is contemplating a by-law to restrict towers and antennas but is uncertain of its legal authority to do so. It has asked the B.C. and Canadian association of muncipalities to look into the matter; however, as a matter of fact, DOC's jurisdiction over federally-licensed radio stations, commercial and Amateur, was confirmed in January 1981 by the Supreme Court of Ontario when the town of Grimsby lost an action to the Rogers Radio Company in a move to prevent Rogers from erecting new broadcast towers. Amateurs running into similar trouble should contact CARF for further information.

Locating Cable Breaks

by F. G. Clark Forrest
VE3BOF

In Amateur Radio the hardware portion of the station consists of a transceiver, (or transmitter and receiver), various pieces of accessory equipment, one or more antennae and possibly a rotator system for aiming the antennae. All this hardware is interconnected by means of several different types of cables. Examples of these are: coaxial, haliax and multi-conductor rotator cable.

Like everything else in the ham shack, cables can become damaged or just deteriorate with age. A common cable fault is the breakage of one or more of the conductors. This results in either intermittent or complete malfunction of parts of the system.

Short interconnecitng cables can be routinely discarded and replaced with new ones. However, most amateurs balk at the idea of throwing out an eighty or ninety foot length of expensive coaxial or rotator cable. If a rotator cable fails, the damaged section can be removed and the cable spliced. In the case of coax or heliax many amateurs prefer to run a new cable and use the old one for jumper cables or shorter runs.

Finding the exact location of the break can be a real problem. A visual check will not always be successful, especially if the outer covering shows no signs of damage. Some sort of test equipment will be needed to carry out any further checks. As an example, let us assume that the rotator system has failed completely. Let us also assume that the rotator control box has been disconnected from the cable, checked and found to be in good working condition. This leaves the rotator drive motor and the cable as possible causes of the problem.

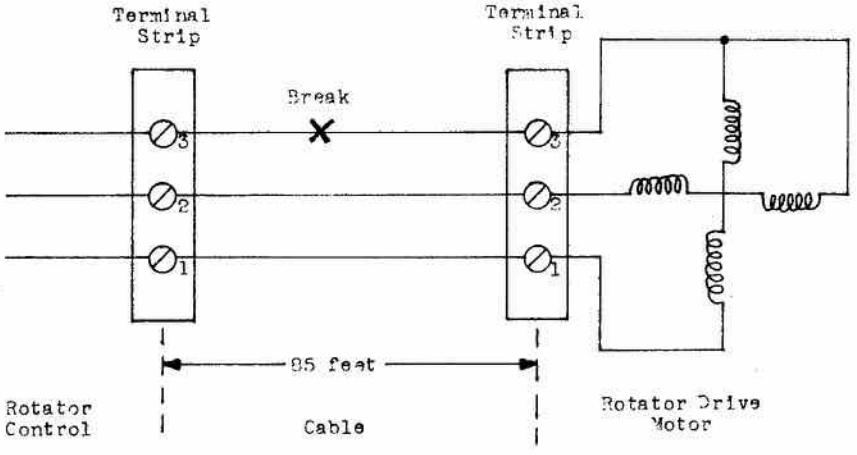


Figure 1.

Figure 1 shows a partial diagram of a rotator system. A quick continuity check with a VOM will reveal any open circuits in either the cable or the drive motor windings. As shown in the diagram the continuity check has revealed an "open" either in wire number 3 or the motor windings connected to wire number 3. As a further check, the motor windings could be tested for continuity right at the motor. This would eliminate either the motor windings or the cable as the cause of the problem.

If, after this check, it turns out that the motor windings show continuity, then, wire number 3 of the cable is open. To repair the cable, the exact location of the break has to be known.

Even if the cable is to be repalced by a new cable and the old one used for other projects it is desirable to know where the break is. Unfortunately, a VOM will not tell you this.

There is an easier way; a method which will save time and eliminate the need to climb the tower to check the motor windings. Besides, the wire terminals on most rotators are notoriously inaccessible.

Luckily, there is a certain amount of capacitance between the conductors of all cables. The total capacitance between conductors increases in proportion to the length of the cable. Knowing this, it is apparent that a capacitance meter can be used to measure the capacitance between the suspected broken conductors and by way of simple math calculations come up with the exact location of the break.

Capacitance meters are available from electronics parts suppliers or can be built from information supplied in a variety of magazine construction articles. Ham flea markets are also a good source of these handy instruments. This article will not be a "build-it" guide for a capacitance meter, but, a list of construction articles will be given in the bibliography.

Getting back to our defective rotator cable, lets see just how easy it is to find the break in the

wire. From our initial check we determined that wire number 3 was open. The first step is to obtain a short length of rotator cable of the exact same type as the one to be tested. A one foot length is ideal for this purpose. The one foot long piece of cable can be hooked up to the capacitance meter and measured. The meter reading establishes the capacitance per foot figure necessary for the next step.

If you would rather work in metric, choose a standard length such as one metre. Measure your one metre length of cable and this will give you capacitance per metre.

The rotator cable in use in my staiton has a capacitance of 27pF per foot. After this capacitance per foot figure is found it is time to measure the actual cable. In our example, figure 1, continuity checks showed that wire number 3 was open. To find out exactly where it is open, measure the capacitance between wires 3 and 2, or 3 and 1. The two measurements, in this case, should result in the same reading on the meter. In our example, assume that the meter reading was 925 pF. The distance from the capacitance meter terminals to the break in the wire can be found by dividing the total capacitance measured by the cables normal capacitance per foot.

925 pF = 34.259 feet
27 pF

.259 of one foot is a little over 3 inches. The location of the break in the wire is 34 feet, 3 inches form the control box end of the cable. If the capacitance measurement was tried across wires 1 and 2 which are connected by motor windings the result would be the same as if a shorted capacitor was hooked up to the meter.

Attacking the same problem from a different angle, let us assume that the entire cable had already been removed from the tower and neatly coiled up on the ham shack floor. The measured length of the cable was found to be 85 feet and the capacitance per foot has been determined to be 27 pF. Therefore, the total capacitance between any two conductors of the cable should be; 27 pF x 85 feet or 2295 pF. However, the measured capacitance between two conductors of the cable is only 959 pF. The two capacitance figures can be expressed as a ratio:

925 = or .403
2295

This means that the distance from one end (the measurement end) of the cable to the break is .403 or 40.3 % of the total length of the cable. Therefore the distance from the measurement end of the cable to the break is:
.403 x 85 ft or 34.255 feet

This result is close to that of the first method and certainly accurate enough for easy location of the damaged area.

The principle outlined above was put to practical use by Bob Forrest, VE3JEK recently when he was experiencing intermittent problems with a 2-meter yagi antenna. Heliax was used to feed the antenna. About one foot of the cable projected from an opening in one wall of the ham shack. From there a length of RG-8 was connected to the 2-meter transceiver. Bob suspected a cable problem as it appeared to be aggravated by flexing the heliax.

A one foot length of heliax was checked for its value of capacitance per foot, then, the actual cable was checked. Amazingly, the reading was almost the same. Measurements were again checked, with the same results. Upon peeling back the outer covering of the cable it was discovered that the outer conductor was separated all the way around the cable. The cable had been subjected to repeated flexing over a period of time at the point where it entered the room and as a result the outer conductor suffered metal fatigue.

Another procedure for locating RF cable problems such as shorts, opens or other impedance changing problems is a method called Time Domain Reflectometry. Although the reflectometry method is accurate and very useful for detecting a variety of problems it involves the use of an oscilloscope. This instrument is not found in all ham shacks because of the relatively high cost. Interpretation of reflectometry test results requires a good deal more skill than the use of a simple capacitance meter. The method is usually limited to the testing of transmission lines.

The main advantages of the capacitance meter test are simplicity, low equipment costs and the fact that all types of cable exhibit distributed capacitance. Another fact worth noting is that this method does not require that both ends of the cable under test be in close proximity to each other as would be required for continuity checks using a VOM.

The capacitance measurement application outlined in this article is not a new or original idea, but, one which may be new to many Amateurs. It is hoped that this will help to solve a potentially difficult troubleshooting problem.

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CARF NEWS BULLETIN

A U.S. ruling that reserves a slice of the new 10 meg band for its government service is being ignored by some U.S. operators who are being tagged by the FCC. Canadian Amateurs may legitimately use the whole band but could keep good relations with the U.S. by avoiding this slot if possible.

CARF NEWS BULLETIN

End-Fed Antennas for the 160 Metre Band

Brian Summers VE3JKZ
2231 Hillary Ave.
Ottawa, Ont. K1H 7H7

Introduction

Activity at VE3JKZ on 160 metres has not been very high over the years. With the prime interest in HF DX'ing, and more specifically the 5 band DXCC, "top band" has been very much on the back burner.

This inactivity changed recently when one of the local amateurs instigated a Canadian 160 metre net. The purpose of the net is to encourage more activity on the band particularly as LORAN operation is winding down. It is not unrealistic to expect considerable changes in existing geographic and power restrictions over the next few years for the 160 metre band allocations in Canada.

Those who want to operate on 160 are faced with the problem of a suitable antenna. The purpose of this article is to review some basic theory and to present some ideas which will allow you to join us on the band with a reasonable signal.

Dipoles

The classic dipole has certain requirements that should be met if it is to perform effectively. It needs to be a half wavelength long for resonance and should ideally be mounted one half wavelength high to obtain low angle radiation. A half wavelength on top band corresponds to 250 feet which is impractical for most of us.

The length can be physically shortened by inductive loading or capacity end hats. The length can also be shortened and the antenna fed with open wire line. But one is still limited by the requirement to get the feedpoint high into the air.

Because of the height difficulty coupled with the desirability for omnidirectional low angle radiation the vertical antenna is a natural choice for this application. It should be noted that a similar requirement exists for the commercial AM broadcasting stations operating in the band 530-1600 Khz and they too use vertical radiators.

Verticals

A vertical antenna is defined as one which produces an electric field which is predominantly vertically polarized. This implies that that part of the antenna carrying maximum current is in the vertical plane. Figures 1 through 5 are various configurations of vertical antennas.

Fig. 1

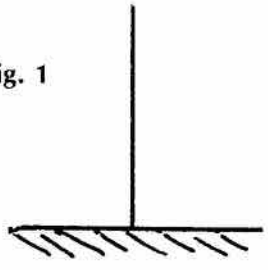


Fig. 2

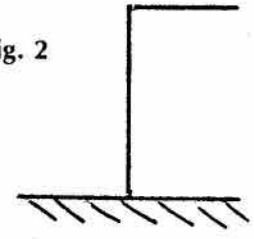


Fig. 3

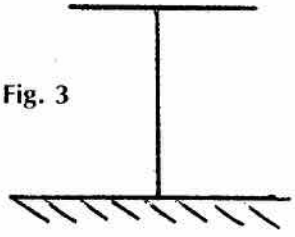


Fig. 4

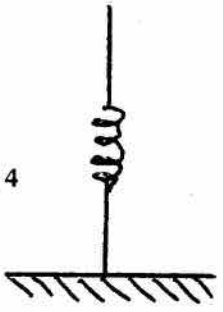
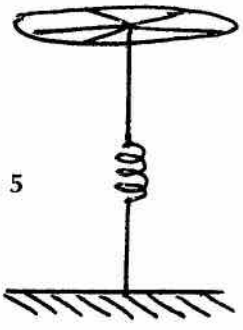


Fig. 5



The antennas are shown grounded but typically the feedpoint is between the bottom end of the antenna and ground, hence the term end feed. The antenna could just as well be left grounded and a suitable feedpoint found somewhere along the length of the antenna and matched using the gamma configuration. This is a common arrangement for using grounded towers as vertical radiators but will not be pursued for the purposes of this discussion.

Some Basic Theory

Lets start right back at basic theory and refresh ourselves on the characteristics of a centre fed half-wave dipole. This is cut to be one half wavelength long at the desired frequency of operation

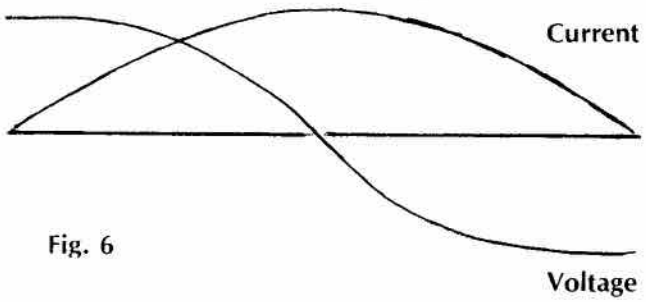


Fig. 6

(typically 5% less), and has the voltage and current distribution shown in figure 6.

Observe that the point of maximum current occurs at the centre of the antenna and coincides with the point of minimum voltage. Because it is the current which is responsible for the electromagnetic field, radiation is greatest from the centre of the antenna. Hence the necessity for the feedpoint of a dipole to be up high. The ends can droop down with little effect on radiation efficiency or performance.

Other characteristics of this antenna are that the feedpoint impedance is nominally 72 ohms resistive with a zero reactive component, i.e. the antenna is resonant.

It is worthwhile at this point to introduce the concept of radiation resistance. This is defined as the equivalent resistance that would dissipate the power the antenna radiates with a current flowing in it equal to the antenna current at a current loop (maximum). For the dipole shown the current loop is at the feedpoint and the radiation resistance is therefore 72 ohms.

Now compare the half wave horizontal dipole to the quarter wave vertical shown in figure 7.

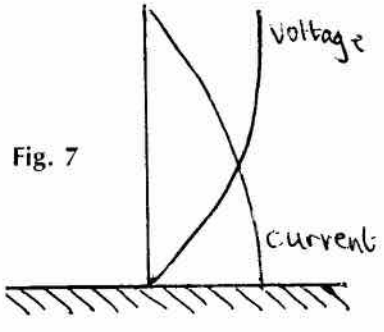


Fig. 7

For illustrative purposes the antenna is shown grounded but assume it will be fed between the end point and ground.

It should be apparent that the voltage and current distribution is one half of that shown for the horizontal half wave dipole. The quarter wave vertical as shown is only half an antenna - the other half is the mirror image formed beneath the ground itself. Because we only have half the antenna the input impedance is also half, or 36 ohms. And because we are feeding it at the current loop the radiation resistance is 36 ohms.

The displacements currents which emanate from the vertical radiation to form the electromagnetic field must return to the base via the ground which is a very lossy medium or by physically laid radials. It is the ground resistance which appears in series with the input resistance that is responsible for the greatest losses in a vertical antenna.

Antenna Efficiency

The concept of radiation resistance and ground losses are essential for power understanding of the efficiency of a vertical antenna. Efficiency is defined by the equation:

$$\text{Efficiency} = \frac{\text{Radiation Resistance}}{\text{Radiation Resistance} + \text{Loss Resistance}} \times 100\ \%$$

Loss resistance is the sum of ground losses, resistive losses in the antenna itself, insulation losses, plus coil losses if any form of inductive loading is in use. Insulation and antenna resistive losses can be ignored for the average installation, and if we are not using any loading coils then only ground losses need be considered.

How much are ground losses? A commercial broadcasting station will typically lay 120 radials one quarter to one half wavelength long. This is considered to have a loss resistance in the order of one or two ohms for an antenna efficiency close to 97%. Work by Jerry Sevick W2FMI[1] indicates that a quarter wave vertical with four radials 0.4 x long will have an efficiency of 57%, eight radials 63%, and 40 radials 90%. These efficiencies assume no other losses and correspond to ground loss resistances of 27, 21 and 4 ohms respectively.

When one considers that many amateurs are using ground mounted trap verticals with a few short radials the efficiency will be considerably less. The combination of reduced radiation resistance caused by a physically short antenna, coupled with high trap and ground losses cause considerable power wastage.

A Little More Theory

Although discussion to this point has considered the quarter wave vertical there is nothing magic about such an antenna. It does have the advantage of a 36 ohm resistive feedpoint impedance and it provides relatively low angle radiation.

If the length is increased beyond one quarter wavelength some very interesting characteristics become evident.

a. The radiation resistance increases.

b. The point of current maximum is shifted, but is always one quarter wavelength from the far end.

c. The angle of radiation is lowered.

d. The input impedance changes dramatically.

The significance of the foregoing factors can be summarized as follows:

a. An increase in radiation resistance leads to a greater efficiency for a given ground system.

b. knowing the point of current maximum allows us to apply intelligent design to the antenna.

c. A lowered angle of radiation is highly desirable but probably not achievable on top band because

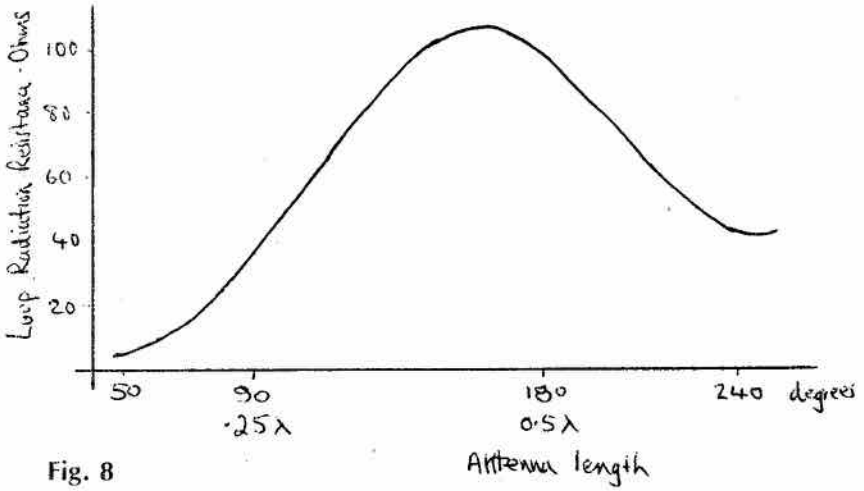


Fig. 8

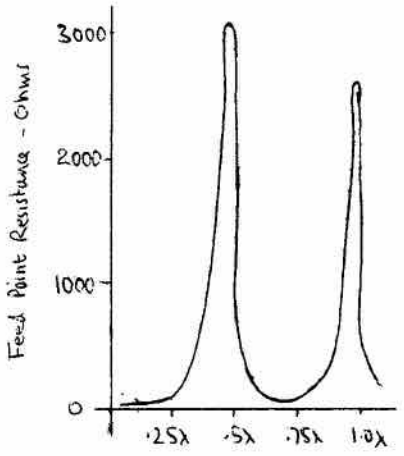


Fig. 9

of the physical dimensions involved.

d. A complex input impedance creates no problems as a suitable matching network is easily constructed.

The change in radiation resistance with antenna length is depicted in figure 8. Note how the radiation resistance drops off dramatically as the antenna is shortened below one quarter wavelength. Figure 9 and 10 depict the relative changes in input resistance and resistance for a wire antenna. These figures are purely illustrative and the actual values will be considerably affected by bends in the antenna and its proximity to buildings, trees, power lines and similar.

End fed antennas much longer than 0.7 wavelength are not recommended because of the additional lobes which will appear as a result of more than one current loop.

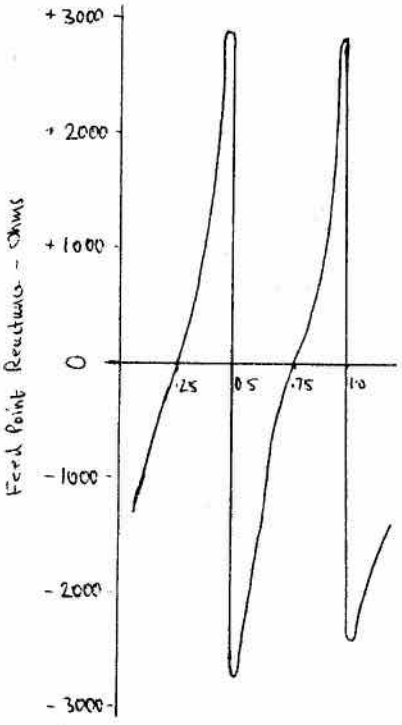


Fig. 10

Practical Antennas

Based on the information presented so far we can now apply our knowledge to any particular installation. The most basic installation would be the quarter wavelength vertical shown in figure 1. If you have a convenient (very tall!) tree the height requirement of 125 feet may be attainable. If not then the antenna can be bent into the inverted L or T arrangement (figures 2 and 3).

Do not cut it short to fit the available space.

How much of the antenna should be vertical and how much can be bent into the horizontal plane? As a general guide if more than about one third of the inverted L is horizontal our desired omni directional pattern may be affected. But lets be practical - most of us are going to be severely limited by our own particular environment.

The object is to obtain a high radiation resistance with as much as possible of that part of the antenna carrying the maximum current in the vertical plane. Knowing that the point of current maximum is always one quarter wavelength from the far end allows us to intelligently fit our antenna into the space available.

Figure 11 is a sketch of the 160 metre antenna in use at VE3JKZ. The point of maximum current was selected to be at point C, mid-

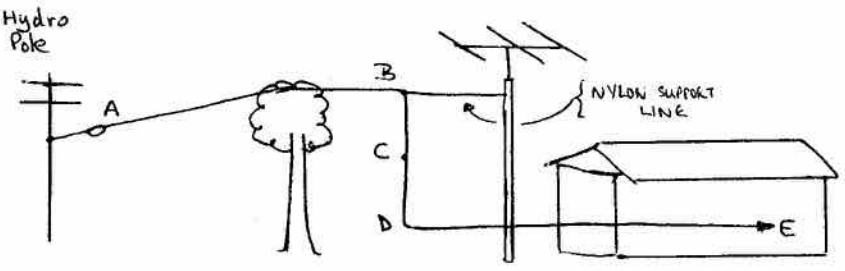


Fig. 11

way between B and D. As this is one quarter wavelength from the far end the distance A to C is then 125 feet. The vertical section should be as long as you can obtain. Point D is about seven feet above ground and held in position by another support rope running between the tree and tower. Point D happens to be about the centre point of my backyard hence the necessity to keep it out of the way.

The length D to E is then whatever is needed to reach the shock. In my installation this came out such that the total distance A to E is about 250 feet, or close to one half wavelength. The length D to E should be kept away from the building as much as possible.

Point A is a high voltage point and a good quality insulator should be installed.

A suitable matching network for this type of antenna is shown in figure 12. The capacitor is a 500 pf transmitting variable, and the coil about 40-50 mH. Mine consist of 28 turns of 16 gauge enamelled copper wire spread over three inches on a three inch diameter former. This is adequate for the 100 watt level. A suitable commercial equivalent also useable at higher power would be the B & W 3029. The matching network ground connection should go to a radial system.

The antenna has a high input impedance and the feed end is "hot" with RF energy, hence the matching unit should be installed directly where the antenna enters the building. In my installation this is a basement window ledge. The ground terminal connects directly to a cold water pipe ultimately connects to my radial system.

For those who might be wondering about the tower and beam the answer is yes I have tried shunt feeding it. I have a reasonable ground radial system and the shunt fed tower works very well for 80 metre DX'ing, but not for 160. It is electrically short and thus has a very low radiation resistance. The half wave end fed is far superior.

A very interesting end fed antenna for 160 metres, and also usable on the other bands, is shown in figure 13. This clever design originated from England and was described in Reference 4. It is probably well worth pursuing, particularly for its multi-band capability.

Additional references 5, 6, 7, 8 and 9 have been provided for those who might wish to pursue the fascinating topic of lower frequency antennas.

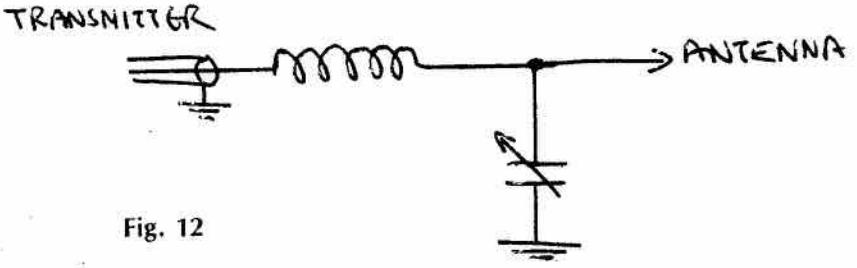


Fig. 12

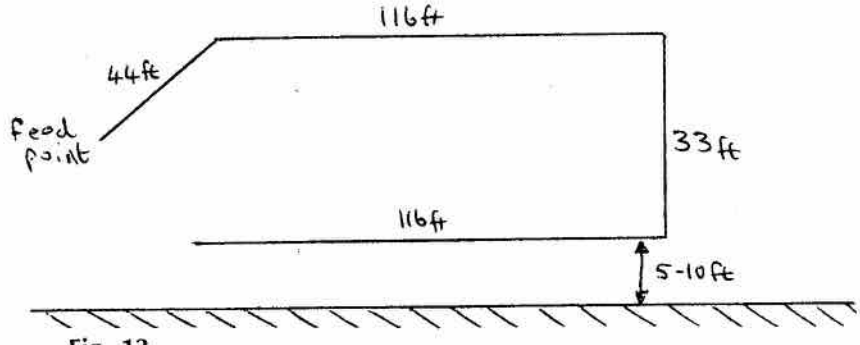


Fig. 13

Conclusions

Now that you have some ideas for what can be done on 160 get going and be prepared to join the gang on top band. The 160 metre Victor Echo net meets Tuesday evenings at 2100 hrs local time VE2/VE3. Net controller is typically VE3MPG and the net meets on a suitable clear frequency between 1815 and 1825 Khz. The net is a good focal point for discussion and antenna checking.

List of Figures

1-5 Various configurations of vertical antennae
6 Current/Voltage distribution for a centre fed half wave dipole
7 Current/Voltage distribution for a quarter wave vertical
8 Loop radiation resistance versus length for a vertical antenna
9 Input resistance of a vertical antenna
10 Input resistance of a vertical antenna
11 160 metre antenna in use at VE3JKZ
12 Antenna Matching Unit suitable for high impedance feedpoint
13 The G8ON All-band Antenna

References:

1. Sevick "The Ground Image Vertical Antenna," QST July 1971 (Reprinted in The ARRL "Antenna Anthology" pub by ARRL)
2. Sevick "The W2FMI Ground-Mounted Short Vertical" QST March 1973 (Reprinted in The ARRL "Antenna Anthology" pub by ARRL)
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4. Eldridge "Wire Antennas", TCA March/April 1979
5. DeMaw "The Gentlemen's Band - 160 metres" QST October 1977
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7. Laport "Radio Antenna Engineering," McGraw Hill Inc, 1952
8. Jasik "Antenna Engineering Handbook," McGraw Hill Inc. 1961
9. Pierce, McKenzie, Woodward, "Loran" McGraw Hill Inc, 1948.

Infosection

CHANGE OF ADDRESS

Considerable time is wasted in having to search membership records of incomplete information sent to the CARF Office. For example, the Office has received requests like this: Have moved to B.C. so please change address, etc., to J. Blow VE7XXX (new call), 123 Jones Ave., Smithville, B.C., V9Z 1B6.

Membership records are held in the computer system and a search can be made by *call, membership number or postal code only.* But, as none of the above is given for the former address, we cannot update label data until this information is received. The coding (first) line of your label contains this data, so please copy this out and send with your request for change, renewal, etc. so that an update can be made.

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Abuses have been made of this Service that is Free to CARF members in good standing. As a result QSL cards sent to the Service for forwarding will only be processed if the address label (or a copy or facsimile) from your current issue of TCA is included with your cards.

If not included the sender will be notified and asked for disposal instructions.

CARF Elections 1983

Nominations for the six directorships of the CARF Board closed on 31 December 1982. The following people have been nominated in the following regions.

For Atlantic Director:
Leigh Hawkes, VE1ZN, of Armdale, N.S.
Nate Penney, VO1NP of Shoal Harbour, Nfld. (incumbent).
Keith Piercey, VO1AE of Corner Brook, Nfld.

For Quebec Director:
Robert Sondac, VE1ASL of St., Luc.

For Ontario Director:
Craig Howey, VE3HWN of Waterloo. (incumbent)
Geoff Smith, VE3KCE of Aurora. (incumbent)

For Mid-West Director:
Norm Waltho, VE5AE of Regina, Sask. (incumbent)

For Pacific Director:
Watler Stubbe, VE7EGR of Westbank, B.C.
Peter Driessen, VE7AG of Surrey, B.C. (incumbent)

With the exception of the Atlantic and Pacific directorate, the number of nominations received is equal to the number of seats available. Messers. Howey, Smith, Sondac and Waltho are acclaimed, and will become directors effective at the end of the Annual General Meeting in June. An election will be held in the Atlantic and Pacific Provinces by mailed ballot. Ballots will be sent from the CARF Office in Kingston well in advance of the closing date for voting. All ballots must be returned postmarked before midnight, 30 April to be valid. All CARF members in New Brunswick, Newfoundland, Nova Scotia and Prince Edward Island, British Columbia and the Yukon are eligible to vote, and will receive their ballots automatically. Election results will appear in July/August TCA.

Dave Goodwin, VE2ZP
Secretary

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Single insertion is $1.00 (minimum charge) - 10 words and $1.00 for each additional 10 words. To renew, send copy and payment again. Deadline is first of month preceding publication (e.g. Jan 1 for Feb. issue). Put your membership number and call (not counted) at the end of your ad. Print or type your ad and include your address with postal code. If using a phone number, include the area code. TCA accepts no responsibility for content or matters arising from ads. This feature is for use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising. Send to: TCA Swap Shop, Box 356, Kingston, Ont. K7L 2W2.

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FOR SALE: Send and receive morse code with TRS80 color computer (16k extended basic). Programs on cassette $25.00. Write Don Cottingham, 4417 Antrim Court, Burlington, Ontario L7L 2S3. VE3HXY Membership No. 1177.

FOR SALE: Yaesu FT901DM, built in power supply, keyer, portable mike and shuredesk, manual and factory service manuals, mint condition $795.00. VE7FAA D.H. Carter, 1716 Denman St., Victoria BC. V8R-1Y4.

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FOR SALE: Yaesu FT-625RD 6M all mode, CW filter, mint $170. ICOM 502A 6M SSB-CW-3W. Portable $225. TEN-TEC Agronaut 509-QRP SW. Power supply filter $400.

FOR SALE: Yaesu FT-101E Transceiver, YC-601 Digital Display, FV-101B External VFO, FL-2100B Linear, hand mike, extra tubes, operating and service manuals, $1500.00 VE3JKD, Gary Morgan, 56 Cymbeline Dr, Nepean, Ont. K2H-7Y1.

SELL: CLEGG FM28 2-metre transceiver - $250.00, MFJ 1040 preselector - $50.00. Contact: Gord. Woroshelo, VE3 EYW, Box 57, Manitouwadge, Ontario, P0T 2C0. Phone: 1-807-826-4231.

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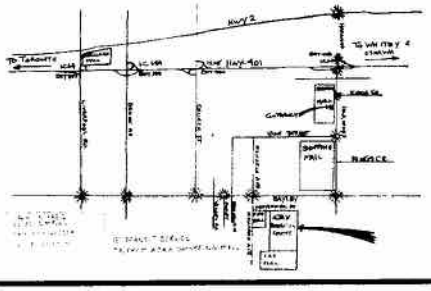

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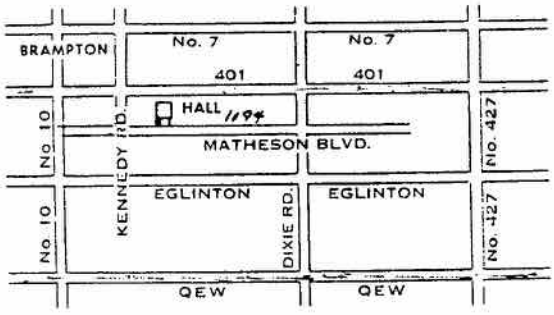

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WHAT IS CARF?

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

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

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VE2BIE Raymond Mercure, 208 Bourque St., Hull, Que. J8Y 1Y4. 776-6495.

VO1NP Nate Penney, Box 10, Shoal Harbour, Nfld. A0C 2L0. 709-466-2931.

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Canada has concluded agreements or arrangements with the following countries to permit licensed Amateur radio operators to operate radio stations while temporarily in the other country: Australia, Austria, Barbados, Belgium, Bermuda, Botswana (Republic of), Brazil (Federative Republic of), Chile, Colombia, (Republic of), Costa Rica, Denmark, Dominica, Dominican Republic, Ecuador, Finland, France, Germany (Federal Republic of), Greece, Guatemala (Republic of), Haiti (Republic of), Honduras (Republic of), India (Republic of), Indonesia (Republic of), Iceland, Ireland, Israel (State of), Italy, Jamaica, Luxembourg, Malta (Republic of), Netherlands (Kingdom of the), New Zealand, Nicaragua, Norway, Panama (Republic of), Papua, Peru, Philippines (Republic of the), Poland (People's Republic of), Portugal, S. Lucie, Senegal (Republic of the), Sweden, Switzerland (Confederation of), United Kingdom, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of).

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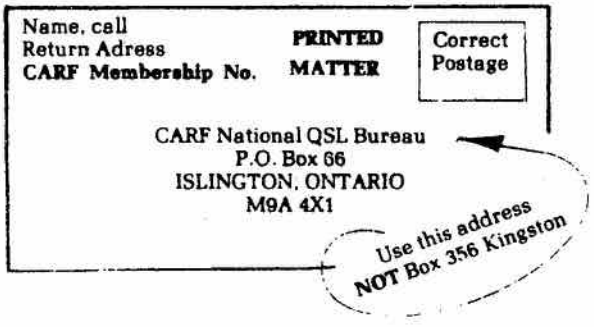

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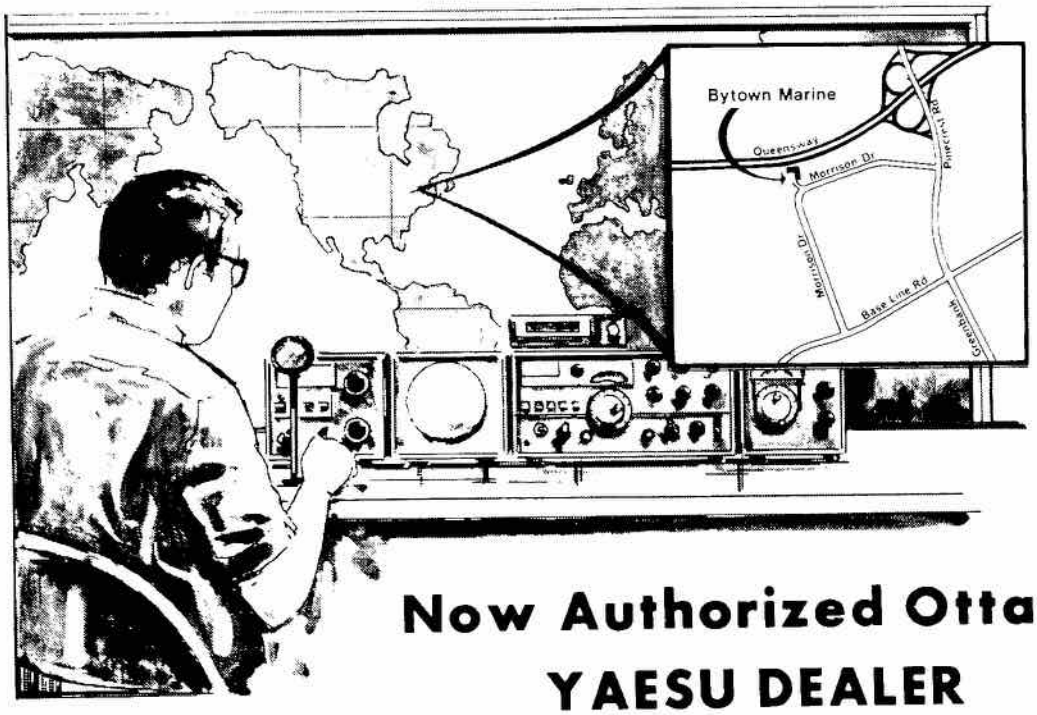

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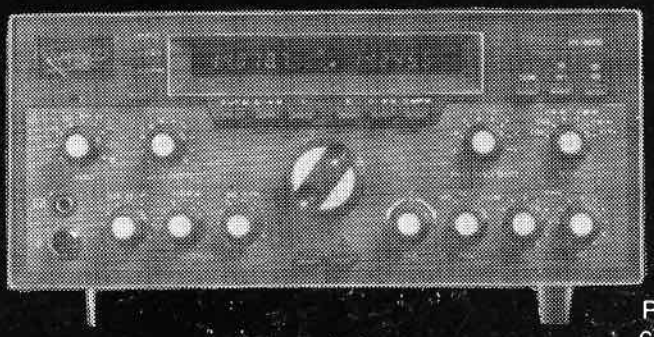

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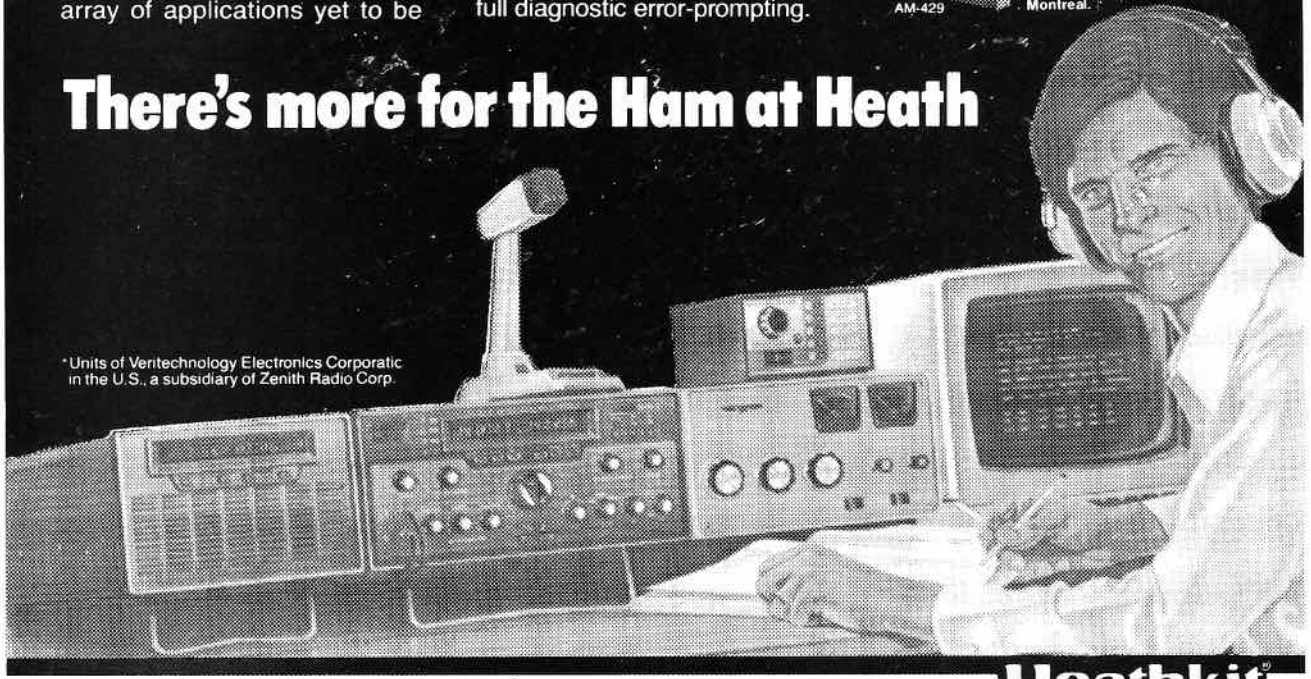

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