

OCTOBER - 1969.

# *the Groundwave*



A PUBLICATION OF  
THE OTTAWA AMATEUR RADIO CLUB



FROM THE MINUTES OF THE SEPTEMBER MEETING

The President, Jack Bassil, VE3YT, opened the meeting by welcoming old and new members to the first regular meeting of the 1969-70 year. He outlined the procedures that were followed at OARC meetings, and advised the members that the minutes of previous meetings would not be read because they were included in GROUNDWAVE.

The President extended the congratulations of the club to those members of last year's beginner's course who had passed the exam and obtained their licence. He welcomed them to the ranks of licenced amateurs, and stated that in keeping with previous tradition, the club would present name tags to those who remained members. Those known to have passed the exam are:

Richard Hewitt,	VE3DGH	Gregoire St. Germain,	VE3GHG
Gord McKenzie,	VE3GCG	Miss Margaret Zagol,	VE3ANZ
Russell Patterson	VE3FRP	Ian Hamilton,	VE3AMK
Earl Porter,	VE3EPP	Lional Bonhomme,	call unknown
Leo Cave,	VE3FFC	Rumold Schamp,	" "

The President referred to the article in the September GROUNDWAVE on the proposal for expansion of phone sub-bands for U.S. amateurs, and invited discussion from the floor. There was considerable discussion with views being expressed both for and against the proposals. Jim Dean, VE3DRV, outlined the thoughts that he had heard an Australian amateur express on the air to an American ham, and related these to some of the restrictions he had personally seen Australian hams forced to live with. The Australian's comments were not bitter; he merely felt that the Americans would be making conditions even more difficult for hams outside of North America who were forced to operate with low power limits, narrower frequency ranges, and less sophisticated equipment and antenna systems. Jim Strain, VE3BSG, tabled a letter from CARF to the ARRL Planning Committee. (The contents of this letter are reproduced elsewhere in this issue of GROUNDWAVE.- Editor)

Jim Dean, VE3DRV, spoke to the meeting on the need for articles for GROUNDWAVE. He thanked those who had contributed regularly over the past year; among those mentioned were Clare McKerrow, VE3DAM, Dave McKerrow, VE3DFM, Bert Coy, VE3GI, John Athey, VE3CTX, Guy Eon VE3LM, and Jack Whittingham, VE3YC.

The proposed budget for 1969-70 was presented by the President as a preview to the formal presentation which under the Constitution is made at the October meeting. The budget will be discussed in detail and approval will be requested at the October meeting. The President also outlined the current excellent financial position of the club.

The President then discussed problems associated with the production of the GROUNDWAVE and mentioned the need for the

Club to obtain reproduction equipment in order to reduce publishing costs and to ease production schedule problems. It was moved by Jim Dean, seconded by Bill Ross, that the executive be authorized to spend up to \$650.00 from club capital to purchase a suitable reproducing machine and an electric typewriter. The motion was passed unanimously. Bill Ross commented on various types of electric typewriters and the characteristics that were important in selecting a typewriter.

The President then asked that the appreciation of the club be extended to Jim Dean, and his XYL Sandra, for their work in producing the GROUNDWAVE.

The President noted the absence of propagation charts from the September GROUNDWAVE. The charts were not available because their author, Clare McKerrow, VE3DAM was absent on business in Frobisher. Jack noted that Clare needed assistance to prepare the charts, and VE3CYM offered his help.

The President then spoke on club support for the Boy Scouts who wished to establish a station in the National Headquarters on Baseline Road. The club had been approached directly by the Scouts, and had also received a request via the ARRL Canadian Director, Noel Eaton, VE3CJ. Ken Driscoll gave a status report on the progress of the station. He noted that a tower and beam were available, space had been allocated, and the Heathkit equipment was being made serviceable. Ken outlined the proposed program for the Venture group which would encompass Scouts aged 14 to 17 years, and emphasized that one of the purposes of the group was to obtain an amateur licence as the culmination of a program in electronics. He pointed out that the services of the OARC were needed to maintain the station and to advise the Venturers: the services of the club as "nursemaids" to oversee station operation were definitely not required. Ken stated that the Scouts hoped to have the station operating by October 18/19 in time for the "Jamboree of the Air".

The President asked Ken Watkins, VE3CAL, to act as club coordinator for support to the Scouts, and Ken agreed.

The President commented upon the use of amateur radio for the purpose of spreading political propaganda. One of the club members had received a plainly political propaganda paper along with his QSL from XE1NE. The President stated this matter had been discussed by the Executive, and suggested the club give approval to preparation of a letter to LMRE stating an objection to the use of amateur radio as a vehicle for political propaganda. There was much heated discussion from the floor, and it was felt that since the OARC was a club from the capital city, a letter from the club might embarrass our government. It was therefore moved by VE3CYM and seconded by Bill Ross, that the Executive approach the Secretary of State and Department of Communications for direction before writing any letters. The motion was carried.

The President reported the OARC had been asked to provide one base station and eight mobile units for the Shinerama campaign by Ottawa U. and Carleton. He announced that action would be taken to organize the communications, but due to the absence of Larry Emerson, VE3GGA, he did not have all the details of the preparation.

The President paid tribute to Eric Ilott, VE3XE, for his fine performance in the past as Program Director. Eric expects to retire soon and may have to move from the Ottawa area to take up a new job.

The President also paid tribute to Jack Whittingham, VE3YC, who is retiring from amateur radio. Jack was very active on the SWAP NET, and wrote the Trading Post column for GROUNDWAVE. He has been succeeded by Ed Morgan, VE3GX.

The President announced there would be a fall auction but the details have not been finalized and would be provided later.

Ralph Hindle, VE2BMH, moved that the meeting adjourn. The motion was seconded by Ray James, VE3CUA, and was carried. The meeting adjourned at 1015 for coffee and rag-chew.

HAVE YOU RENEWED YOUR MEMBERSHIP??

Don't delay! Renew now and ensure continued delivery of GROUNDWAVE and membership in one of the oldest and most active amateur clubs in Canada. Send your membership form and fee to Shep, VE3DV.

FOR SALE

Receiver - TMC GPR 90. Newly realigned by the company. \$300. Call Dillon Cahill, VE3AWF, 236-3526.

BEGINNER'S COURSE

Beginner's classes will start in early October and will be held two nights a week. Registration is \$5.00 plus club membership - those who registered in last year's course and did not write the DOT exam are welcome to continue classes this year - at no charge. Register with George, VE3BNO, or the club secretary, Larry, VE3GGA, or at the October 1 meeting. More details at the meeting.

CARF NEWS

The September GROUNDWAVE carried an article on the proposal for expansion of the phone bands available to U.S. amateurs. This proposal was presented as Item 19 of the 1969 ARRL Board of Directors Meeting, and the details are documented in the report of the meeting in the July issue of QST. At the September meeting of the OARC, Jim Strain, VE3BSG, presented the text of a letter on this topic, written to the ARRL Planning committee, by Art Blick, VE3AHU, the President of CARF. The text of the letter was the following:

"As President of the Canadian Amateur Radio Federation I wish to point out the inevitable results that will occur if the proposal to change the radiotelephone suballocation available to the US Amateur is carried through. The Canadian Amateur, together with the majority of Amateurs of other countries, uses a phone sub-allocation lower in frequency than that of the US for normal operation as our traffic nets, schedules, and just plain rag-chewing would be snowed under by the interference from your country. The frequencies of greatest interest in the ARRL proposal are 3,750 to 3,800; 7,150 to 7,200; and 14,175 to 14,200 kHz.

If the US allotment is increased to include these frequencies, then the Federation would have no alternative but to petition our Dept. of Communications to obtain an equal widening of the Cdn phone segments in the bands affected. This will, of course, decrease the frequencies available for exclusive A1 and F1 use.

Although the Director, Cdn Div ARRL, made no recorded comment on the proposal, from previous discussion with him it is expected that he will attempt to rectify the present poor positioning of the US Novice frequencies in relation to the Cdn phone frequencies. For example, if the US phone segment on 75M is increased to cover 3750 to 400 kHz, then the Cdn segment would be increased to start at 3675 kHz. This would again create interference between the VE phone and the WN operators from 3675 to 3700 kHz as is now experienced between 3725 and 3750 kHz. A similar situation exists on the 40 and 15 meter bands and request that the proposed change in Novice frequencies be such that they are placed in the exclusive A1/F1 spectra that will result from the joint widening of the radio-telephone sub-allocation.

This letter must not be construed as Canadian interference in US Amateur affairs but as a comment on the results arising and a suggestion to relieve the present unnecessary interference between the Cdn phone and US Novice Amateurs. The Federation requests that it be notified of the progress of this proposal so that the Amateurs of Canada can be kept informed and to enable CARF to take the necessary action to protect the Cdn phone allotment."

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## DX TOPICS

by  
R. John Athey, VE3CTX

Now that the summer doldrums are over and the evenings are beginning to draw in, it is time to polish up the old rig and start chasing some of that elusive DX. The author was relatively inactive this summer, but noted conditions on the bands as follows:-

### 10 meters

Seasonally poor as was to be expected. The usual Central and South Americans. An occasional look at Africa. This band will show rather dramatic improvements this winter.

### 20 meters

Conditions during the day have only been fair due to the high M.U.F., but there have been fine long path openings to everywhere in the mornings with some good DX late at night. Again, expect considerable improvements in the next month or so.

### 15 meters

Most of the summer fireworks were reserved for this band. Early morning openings into Asia. Very fine propagation to Europe and Africa during the daytime, finishing off with a second shot at Asia and the S. Pacific at night. It was observed that competition for the rare ones was considerably tougher this year than in 1968. Possible reasons may be:

- a) More DX'ers on 21 MHz. due to the five-band DXCC program.
- b) Deserters from 20 due to the better propagation conditions.
- c) Openings among three or more continents at the same time were quite common.

In spite of the above, last month's bag included:-

### 15 meters

9V00X	Singapore	21.336	at 1640	GMT	5-6	John using new centennial prefix.
9M2RH	W. Malaysia	21.255	" 1657	"	5-3	Allan, in Malacca
VS9MB	Gan Is.	21.250	" 1843	"	5-5	QSL via G3KDB
YB0AB	Indonesia	21.254	" 1611	"	5-7	Hod, P.O. 2127, Djakarta.
VS6BS	Hong Kong	21.273	" 1615	"	5-9	
VU2KV	India	21.280	" 1640	"	5-5	Vinkat, P.O. 182 Calcutta I.
9K2BV	Kuwait	21.267	" 1917	"	4-5	Duane in action again.
ZC4AK	Cyprus	21.355	" 1959	"	5-8	Mike
EA9ER	Span. Sahara	21.332	" 1708	"	5-7	Angel, very rare.
3Z6AAT	Poland	21.275	" 1513	"	5-7	Jan, special prefix.
XT2AA	Voltaic rep.	21.280	" 1818	"	5½-6	Jacques, QSL via WA5REU (first activity here for some years.)

20 Meters

031BY	Andorra	14.165	at 2137	GMT	4-6	Jim, new prefix (QSL G3OKQ)
JDIYAB	Ogasawara Is.	14.195	"	1205	"	5-6 (Bonin Volcano Group)
4LØCR	Kazakh??	14.204	"	1218	"	5-8 Long Path.
JW9DL	Spitzbergen	14.200	"	0109	"	5-8 QSL to LA1SL.
JW2QK	"	14.200	"	0135	"	5-8 " " "
UAØKJA	Siberia	14.165	"	1159	"	5-7 Long path.
DXIMI	Philippines	14.190	"	1620	"	5-5 Heard only.
UNIAE	Karelo-Finnish Rep.	14.022	"	0150	"	569 Yura (wkd by VE3DRV, Jim)

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THE TRADING POST

Last year the Trading Post appeared as a regular column written by Jack Whittingham, VE3YC. Jack has now left the ranks of active amateurs, and his place on the SWAP NET has been taken by Ed Morgan, VE3 GX. Ed has offered to continue writing the Trading Post, but for a number of reasons it has been decided to discontinue the Trading Post as a regular feature of GROUNDWAVE.

The primary reason is the time lapse between the submission of the text, and the delivery of the GROUNDWAVE to members. Seven to ten days are required after the rough draft is finished in order to complete stencil cutting, reproduction, assembly, and mailing. There is then the variable period required for postal delivery. By the time GROUNDWAVE reaches each member, the news in the Trading Post is very stale, and often many of the articles for sale have usually been read on the SWAP NET at least twice since the list was delivered to the editor. Now that the SWAP NET is held on the CCN on Mondays, as well as on the POT HOLE NET on Saturdays, the list would be given at least four readings making the information even more out of date.

Club members who have equipment for sale or who want to buy equipment can still put an ad in GROUNDWAVE. Simply drop a line to the editor or call him at 722-0422. Club members can also put equipment for sale or state their needs on the SWAP NET by calling Ed Morgan, VE3GX. The SWAP NET is a feature of the POT HOLE NET on Saturdays at 10:00 AM on 3760 kHz. SSB, and on the CCN on Mondays at 8:00 PM on 2 meter FM via the VE2CRA repeater.

Details of items to be advertised in GOUNDWAVE should be forwarded to the Editor prior to the 10th of the month in order to be included in the following month's edition.

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## DX ANTENNAS, PART 1

by  
R. John Athey, VE3CTX

Some time ago a request for an article on H.F. DX antennas was requested by a club member - his call escapes me at the moment. There is no doubt that there exists a great need for more practical information on this subject. One only has to listen on the bands to hear a lot of examples of misinformed nonsense passed off as "facts". The situation is not improved by the fact that recognized antenna authorities often take opposite viewpoints on the relative merits of various antenna systems. Manufacturers supply data which range from mildly misleading to downright untrue in order to sell their products.

If the average ham attempts to understand antennas from the theoretical approach he will find it is at best a difficult subject, and often is not much help in practical situations.

Okay, so the whole scene looks pretty grim, but worse is yet to come. Suppose our ham asks his friend across town how his brand A antenna works for him. His friend may reply that he cannot get out of his back yard with it. At this point someone breaks into the QSO to state that he has worked two hundred countries with the same antenna, and gets S9 most of the time. Confusion now reigns supreme!!

You may understand now why the author has doubts about tackling the reasons for this mess. However, fools step in where angels fear to tread. It should be noted that your contributor's qualifications for the task are not based on any special expertise, but on twenty years of trying and testing most types of DX antennas.

In order to keep the dimensions of this series of articles to a reasonable size for GROUNDWAVE, only the most popular antennas for 10/15/20 meters will be considered. A minimum of theory will be used and the material will try to cut through to the purely practical. Sections to be presented are as follows:-

- Part 2. General antenna considerations
- Part 3. The fixed antenna (Dipole vs. Vertical ground plane)
- Part 4. Small directive arrays (2 El. Quad vs. Triband Yagi)
- Part 5. Larger multi-element antennas
- Part 6. How to evaluate and antenna, and some common myths exploded

If the above topics do not generate some heated controversy, our club is as dead from the DX standpoint as some



## HUMAN SPEECH - An Introduction

by  
E.J. Hayes, VE3FUP/G3XVM

Probably something as commonplace as speech is taken for granted by most people today. This is indeed unfortunate. Had speech not been invented by our distant ancestors, evolution would certainly not have progressed to the stage it has reached today, and communications, as we know it, would be impossible. Perhaps the words of anthropologist C.S. Coon can best illustrate the point:

"It would be difficult to overestimate the importance of communication in the building of civilization. - Speech made culture possible."

The purpose of this article is to introduce the subject of human speech and to explain how it is produced by the individual. The treatment will necessarily be elementary. Before describing the mechanism by which speech is produced, a few remarks concerning its origin and development might be appropriate.

Man has not always possessed the power of speech. During his evolution he reached a point where it became necessary to communicate with his fellow man. At this stage communication was most likely accomplished by means of a language of gesture signs. As evolution proceeded man's hands became more and more occupied with craftsmanship, hunting, art and agriculture, and consequently he began to perform the gestures with his mouth instead of his hands. Eventually he discovered that by forcing air through his vocal cords sound could be produced and, much more importantly, that different positions of the mouth gave rise to distinctive sounds. Thus the predecessor of modern speech came into being.

Now let us consider the mechanism by which we speak. Fig. 1 is a simplified diagram of the human vocal organs. Air, at approximately constant pressure is forced from the lungs through the vocal cords. This excites the nasal and vocal tracts which are basically acoustic resonators. Perhaps the operations involved can be more easily understood by considering the simplified block diagram shown in Fig. 2.

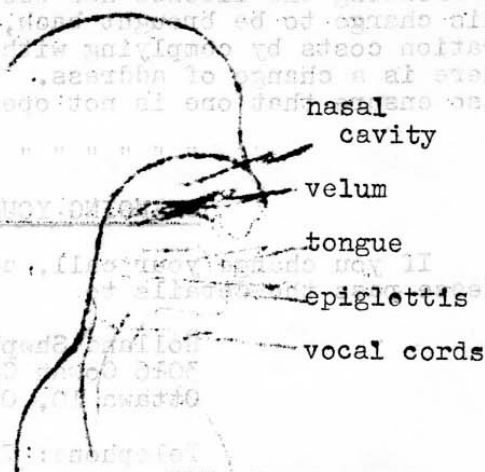


FIG. 1

There are basically two types of excitation.

For producing voiced sounds, such as vowels, the vocal cords function in a manner analogous to a relaxation oscillator and produce an approximately triangular waveform of period 8 - 10 ms. For sounds such as 'f', 'h', and 's' the excitation results from air turbulence produced at a constriction somewhere in the vocal tract. For convenience this is approximated in Fig. 2 by a noise source at the vocal tract input.

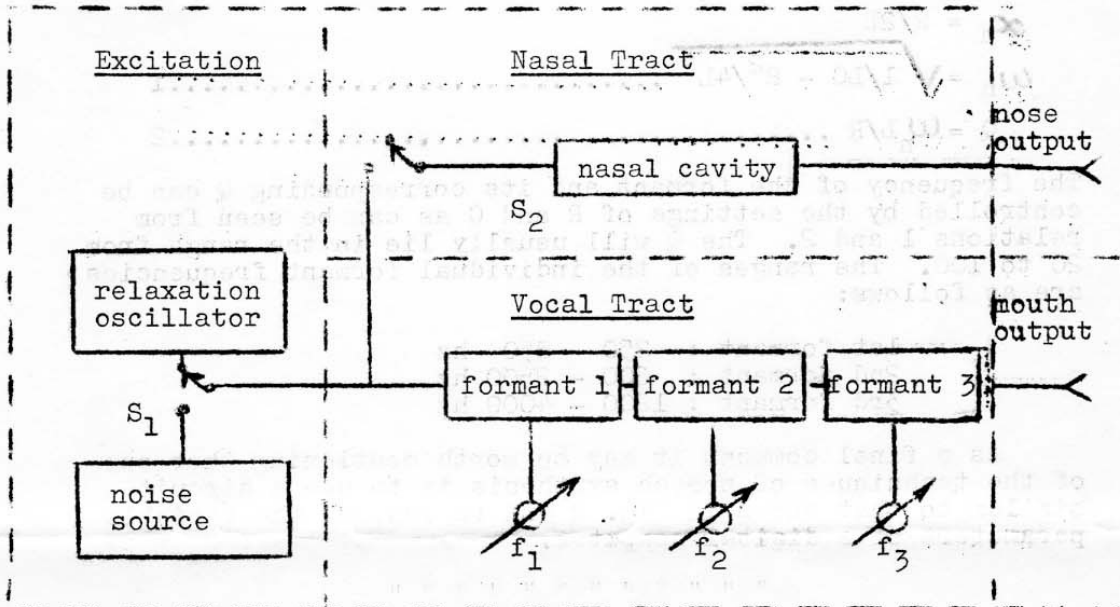


FIG. 2

These signals excite the nasal and vocal tracts. The nasal tract is a low Q fixed resonant cavity whose coupling to the vocal tract is controlled by the velum (S2). The vocal tract is approximated by three resonant circuits in series. Each of these resonators produces a formant (i.e. a resonance) at a frequency which is controlled by the position of the epiglottis, tongue, lips and teeth. The electrical circuit shown in Fig. 3 can be used to simulate a single formant.

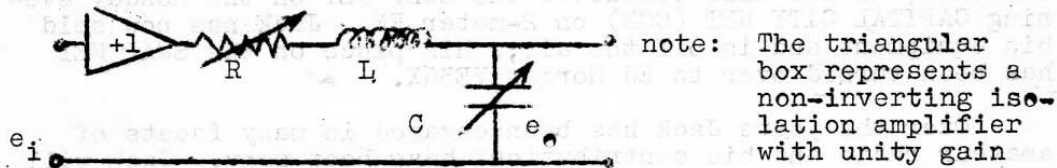


FIG. 3

The transfer function of the network is

$$H(S) = \frac{e_o(S)}{e_i(S)} = \frac{1/LC}{s^2 + SR/L + 1/LC} = \frac{S_n S_n^*}{(S - S_n)(S - S_n^*)}$$

where:

$$S_n = -\alpha_n + j\omega_n$$

$$\alpha_n = R/2L$$

$$\omega_n = \sqrt{1/LC - R^2/4L^2} \dots\dots\dots 1$$

$$Q = \omega_n L/R \dots\dots\dots 2$$

The frequency of the formant and its corresponding Q can be controlled by the settings of R and C as can be seen from relations 1 and 2. The Q will usually lie in the range from 20 to 100. The ranges of the individual formant frequencies are as follows:

- 1st formant : 250 - 850 hz
- 2nd formant : 600 - 2500 hz
- 3rd formant : 1200 - 4000 hz

As a final comment it may be worth mentioning that one of the techniques of speech synthesis is to use a circuit similar to that shown in Fig. 2 and to control the variable parameters of a digital computer.

" "

JACK WHITTINGHAM, VE3YC

One of Ottawa's best-known amateurs has decided to give up amateur radio entirely for an indefinite period so that he can concentrate on other interests. Most OARC members probably know Jack personally, and those who don't will at least know him for his column the "Trading Post", which has appeared in GROUNDWAVE over the past year. Since June, 1965, Jack has conducted the OVMRC-sponsored SWAP NET on 3760 kHz every Saturday during the POT HOLE NET. This year, at the request of the OARC, he has also conducted the SWAP NET on the Monday evening CAPITAL CITY NET (CCN) on 2-meter FM. Jack has now sold his equipment and is off the air; his place on the SWAP NET has been turned over to Ed Morgan VE3GX.

Over the years Jack has been engaged in many facets of amateur radio and his contributions have been many. Jack will be sorely missed by the amateur fraternity, but we hope he will someday return to the ranks of the active amateurs. As T.O.M. said, "they always come back". In the meantime Jack, our best wishes, and thanks for a job well done.

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adi VV :dw

OARC REPEATER GROUP

by  
George Roach, VE3BNO

On September 19th and 20th some 20 repeater users were involved in Ottawa University's annual "Shinerama". This two-day exercise raised \$20,000 for Cystic Fibrosis research, and its success was in part due to the efforts of the following amateurs who supplied and manned mobile units and a base station over a fourteen-hour period:-

- VE3DF Jack, VE2GP George, VE3GX Ed, VE2NM Clarence,
- VE3PK Jack, VE3ADM Roy, VE3AQM Doug, VE1MJ Paul,
- VE3AZF Ross, VE3BMC Trev., VE3BNO George, VE3BSB Barry,
- VE3CCV Ken, VE3CGQ Ed, VE3CKY Gunther, VE3CRG Bryan,
- VE3GIY John, VE3GOW Bill, VE3GGA Larry, VE3GHU Marcel.

The mobile travelled about 700 miles in supplying the necessary communications. A special thanks is extended to the many repeater users who curtailed their operations during "Shinerama".

The next repeater group meeting will be:

Thursday, Oct. 16 at Radio Station CFRA,  
150 Isabella Street.  
Time: 8:00PM.

FLASH!! FALL AUCTION DATE SET

Just at press time we have been advised that the OARC will sponsor the fall auction which will be held on Saturday, November 8. Watch for further details in the November issue of GROUNDWAVE.

SYRACUSE VHF ROUNDUP

The 14th annual Syracuse VHF Roundup will be held at Three Rivers Inn, Route 57, 10 miles north of Syracuse, on 11 October. For those interested, speakers will be Walt Bain, W4LTU, on "Some Practical Aspects of Weak Signal Detection", Bob Jeffers, W2ALL, on "Design Considerations for a Complete Hi-Power SSB Station", and Ed Tilton W1HDQ - VHF editor of QST - on "VHF FM, Past, Present, and Future". For more details call our club secretary, Larry, VE3GGA, at 728-7307.

NEW

# MOSLEY VERTICALS

RV-5C  
h= 40'  
wt: 17 lbs

\* \* \* \* \*

### CRAMPED FOR SPACE?

The new RV series of vertical antennas by Mosley, using the famous metal-encased Trap-Master traps give you multi-band operation without switching, low angle radiation and low SWR. The series will handle full power. 52 ohm coax feed.

RV-4C  
h= 22'  
wt: 9 lbs

The RV-3C and RV-4C are self-supporting. The RV-5C requires guy ropes that are supplied. Radial wire, base clamp, base insulator and all hardware is supplied with each antenna.

RV-3C  
h=12'  
wt:7 lb

RV-3C: 10-15-20 metres; height, 12 ft;  
weight, 7 lbs; wind load, 24 lbs;  
Price: \$ 41.90

RV-4C: 10-15-20-40 metres; height, 22 ft;  
weight, 9 1/4 lbs; wind load, 36 lbs;  
Price: 61.15

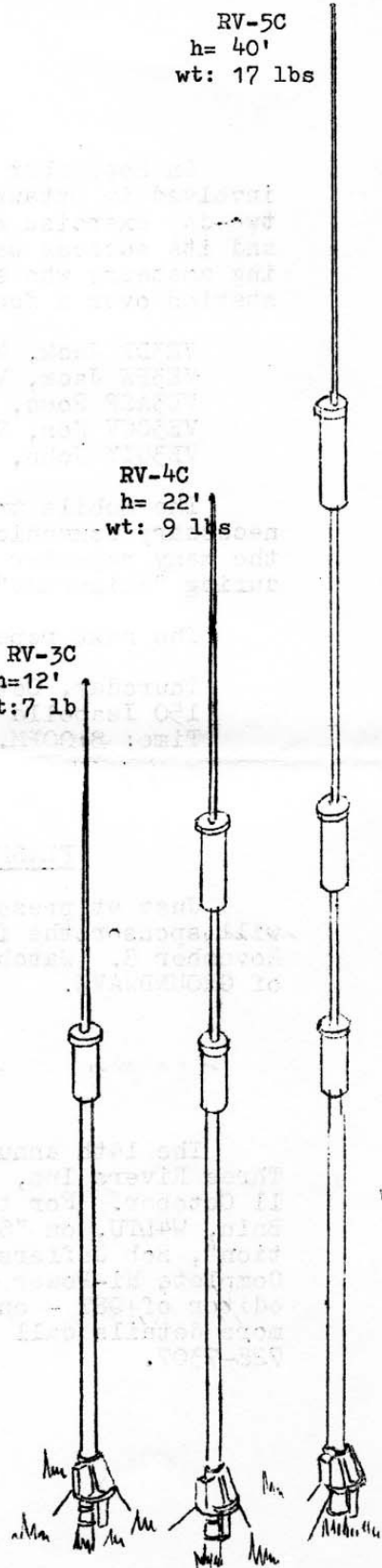
RV-5C: 10-15-20-40-80 metres; height, 40 ft;  
weight 17 lbs; wind load 49 lbs;  
Price: 101.40

\* \* \* \* \*

Prices are delivered in Ottawa: Ontario  
Sales Tax extra.

See:  
Gord, VE3DY, 733-4982 or:  
Dave, VE3GSA, 733-0053.

HAWTHORNE ELECTRONICS CO.  
2050 Balharrie Ave.,  
Ottawa 8, Ont.



*Announcing*

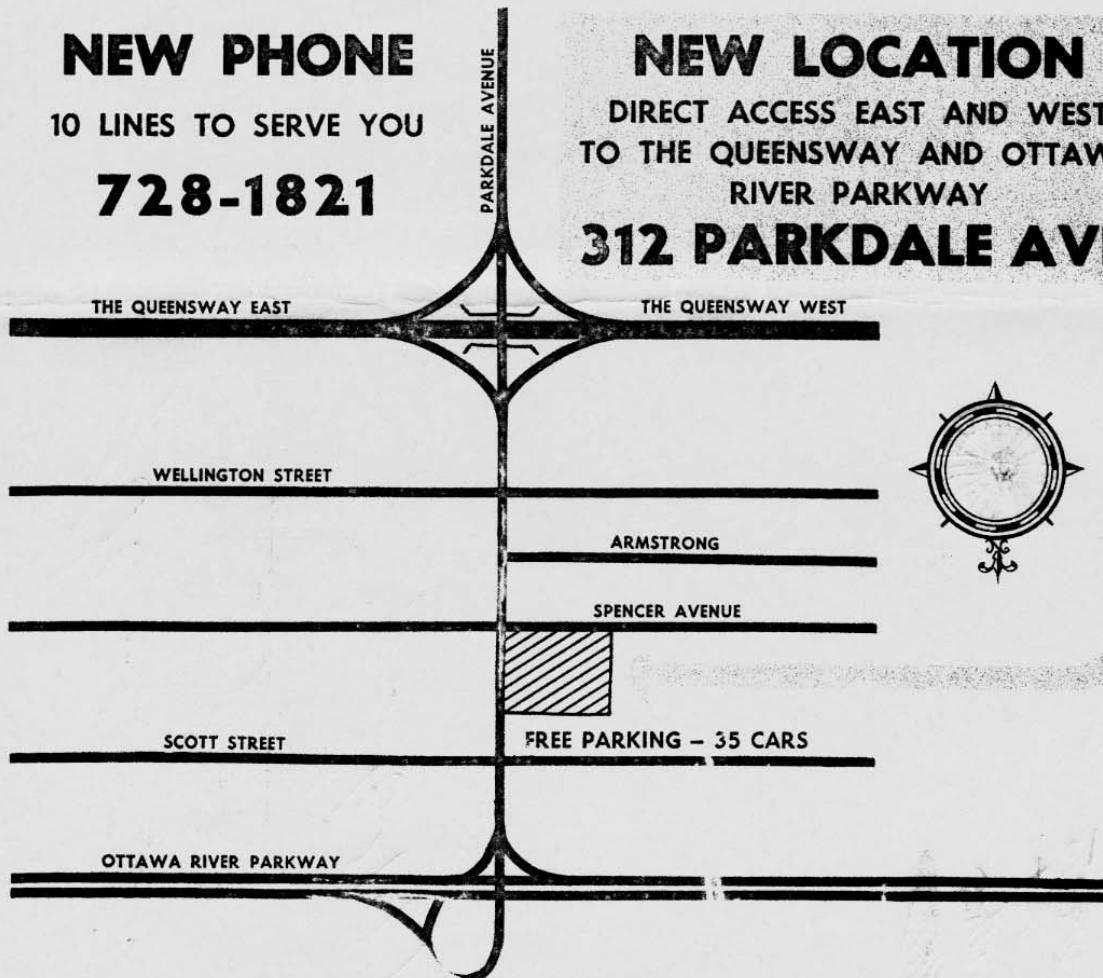
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**NEW STOCK - LARGER QUANTITIES**  
*Always a pleasure to serve you!*