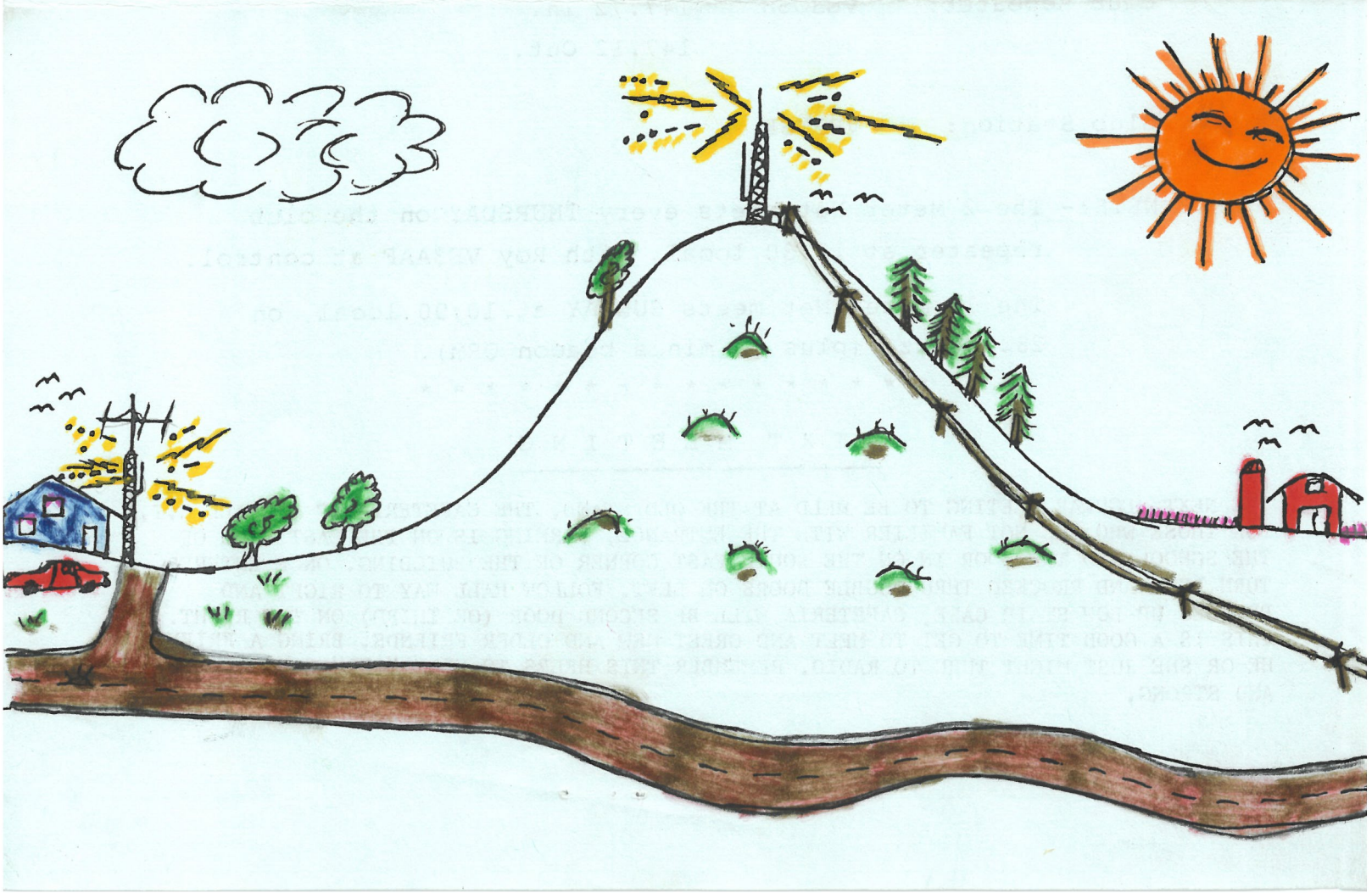
FROM: THE NORTH SHORE RADIO CLUB INC.,
P.O. BOX 171, OSHAWA, L1H 7L1.

CANADA A

april

TO:

VE3CRK
DAY, Ralph
454 Holcan Ave.
OSHAWA, Ontario
L1G 5X6



" S P A R K S "

THE NORTH SHORE AMATEUR RADIO CLUB INC.

APRIL 1982 EDITION

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	Bob Leet	VE3LLZ	725-1236
	Mac McFarlane	VE3IKG	723-8484
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Treasurer	Hank Verwoerd	VE3FHV	571-0863
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Editor	Doug Smith	VE3MKC	705-786-2086
Tech Editor	Phil Leith	VE3LNE	728-8167

+ + + + + + + + + + + + + + +

Club Repeater: VE3OSH 147.72 In.
147.12 Out.

Club Station: VE3NSR

NETS:- The 2 Meter Net meets every THURSDAY on the club repeater at 19:30 local, with Roy VE3AAF at control.

The 10 Meter Net meets SUNDAY at 10:00 local, on 28.200Mhz. (plus or minus beacon QRM).

* * * * * * * * * * * * * * * * *

N E X T M E E T I N G

THE NEXT REGULAR MEETING TO BE HELD AT THE OLD STAND, THE CAFETERIA OF O'NEILL C.I. FOR THOSE WHO ARE NOT FAMILIER WITH THE ENTRANCE, PARKING IS ON THE EAST SIDE OF THE SCHOOL AND THE DOOR IN ON THE SOUTH EAST CORNER OF THE BUILDING. ONCE ENTERED, TURN LEFT AND PROCEED THRU DOUBLE DOORS ON LEFT. FOLLOW HALL WAY TO RIGHT AND PROCEED UP LOW STAIR CASE, CAFETERIA WILL BE SECOND DOOR (OR THIRD) ON THE RIGHT. THIS IS A GOOD TIME TO GET TO MEET AND GREET NEW AND OLDER FRIENDS. BRING A FRIEND, HE OR SHE JUST MIGHT TURN TO RADIO. REMEMBER THIS HELPS TO KEEP "OUR" CLUB ACTIVE AND STRONG.

ED.

"SPARKS"

NEWS AND VIEWS

Well for those who could not attend the march meeting, you would have missed the presentation of "THE HAM OF THE YEAR" award. Gwilym Blake, of Oshawa VE3BAB took the honours. Congratulations Gwilym. Ed.

Also again for those who missed the meeting Dave Creighton of Toronto (VE3AWC) made an excellent display and commentary on Radio Controlled Flying. The information presented was from the begining of RC flight to the present day controls and flight. Dave also demonstrated several controlers, engines and the where and how to magazines. Not to be out done Brian Buckley (VE3HFC) brought along his very excellent demonstration of helicopters. Thanks fellows for the super and informative evening. Ed.

Fielday, yes already, Dave (VE3LEW) and his parents have been very kind again this year and offered the same field as last year to our club. Now we need the volenteers to make the weekend the big success that was had last year. YOUR help is needed. Contact the paper or Evan Herriott (VE3IND) at hm. 757/4284 bz. 925/6301 both in Toronto.

Gerald Robitaille, will be our april guest speaker. the topic for this evening will be on the "APPLE II COMPUTER". This should be very interesting talk for any one who have or are contimplating the use of computers for amteur radio. So come on out and lets
3 make Gerald feel welcome and learn something new about computers. Ed.

Many thanks go to John (VE3FGL) and Ed (VE3FRM) who were able to take over the VE3NSR net on thurs. March 18 th,/82 as Roy our regular host was very much under the weather with the flu. Thanks boys as Roy said at the time of this writeing, as he sounds and feels 100% to-night (mar. 25). Glad you are well enough to snow mobile to the suger bush.

Please take note.....If you are interested in going to the DAYTON HAMFEST try contacting the YORK NORTH AMATEUR RADIO CLUB. They will be organizing a bus charter to this great annual hamfest. The cost of the bus (highway type) is to be $65.00 per person and that includes a dinner on the way back. The bus leaves Newmarket on the friday April 23rd. at 10 P.M. with a stop in Toronto. Seats are available on a first come served basis by sending your cheque to John Iliffe VE3CES 387 Selby Cres. Newmarket, Ontairo. L3Y6E2 .

Some interresting statistics come via S.A.R.C. (VE3WE) news from the D.O.C.

LICENCES IN CANADA:

DATE	GRS LICENCES IN FORCE	AMATEUR LICENCES IN FORCE
MAY 31,1975	123,012	14,713
" 1976	193,617	15,346
" 1977	491,651	16,573
" 1978	810,576	18,262
" 1979	951,849	19,781
" 1980	771,691	20,067
" 1981	638,094	20,682

How about that, looks like our numbers our growing even if at a snails pace.

Thanks again go to Bernie for the excellent job done on our code practice. I think i need a lot more practice, how about the rest of you?

May 28/29th is to be the 6th ANNUAL CARF NATIONAL AMATEUR RADIO SYMPOSIUM. The place Wexford collegiate, 1176 Pharmacy Ave., Scarbourough, Ontario.
The school is found between Lawrence Ave. and Ellesmere Rd. and i think it's closer to Lawrence. Friday starts at 7:30 P.M. Saturdays hrs. are 8:30 A.M. to 5:30 P.M.
The D.O.C. will be there but prior to this you are invited to call Bob Chrysler VE3IFL at 291/5285 or Thelma Woodhouse at 757/5593 VE3CLT with topics you would like to have discussed. That way you will have direct input to the programe. DON'T WAIT-GET INVOLED
As i see it, this lets you express your wants and thoughts directly to the horse so to speak and what could be better than that.

SWL's how come there is no input from this group? Is there nothing to talk about in this part of the radio world. Tom,Alf,Jenny,Frank,Ken,Elizabeth,Peter,Mike,Berni,Bill,Harold and Wayne. Lets here from this group, I'll be waiting. Ed.

continued from last month

THE SATELLITE TV CHANNEL.....

The conventional VHF or UHF TV signal starts off as a standard NTSC format video signal and an audio signal FM modulated on a 4.5 MHz subcarrier. These components are amplitude modulated on the VHF or UHF carrier. The channel bandwidth for the TV channel is about 6 MHz.

Compare this to a satellite TV signal which again starts off as a standard NTSC format video signal and an audio signal FM modulated on a 5.8-8.2 MHz subcarrier, (varies from satellite to satellite). These components are FM modulated onto a microwave carrier and occupies a bandwith of 36 MHz. We can see therefore that the receiver used for satellite reception will require an I.F. bandwith of 36 MHz and an FM demodulator.

To whet your appetite I will give you some of the programming available on one of the most popular satellites. (RCA 3)

Note: RCA 3 doesn't appear in FIG. 2 It sits at 131° west and has replaced RCA1.

CHANNEL	PROGRAM
(1)	NICKLEODEON...CHILDREN
(2)	PTL CLUB...RELIGION
(3)	WGN...CHANNEL 9 CHICAGO
(4)	SPOTLIGHT...MOVIES,SPECIALS
(5)	THE MOVIE CHANNEL...MOVIES
(6)	WTBS...CHANNEL 17 ATLANTA
(7)	ESPN...SPORTS NETWORK
(8)	CBN...CHRISTIAN NETWORK
(9)	UCN...SPORTS,SPECIALS
(10)	SHOWTIME WEST...MOVIES,SPECIALS
(11)	MTV...ROCK MUSIC SPECIALS
(12)	SHOWTIME EAST (SAME AS 10, 3 HOURS DIFFERENCE)
(13)	HOME BOX OFFICE WEST...MOVIES
(14)	CNN...NEWS CHANNEL
(15)	CNN2...NEWS SHORTS
(16)	ASCN... RELIGION AND EDUCATION
(17)	WOR...CHANNEL 9 NEW YORK
(18)	GALAVISION...SPANISH MOVIES
(19)	CSPAN...LIVE HOUSE OF REPRESENTATIVES
(20)	CINEMAX EAST...MOVIES
(21)	HTN...HOME THEATRE, FAMILY MOVIES
(22)	MSN MOVIES,SPECIALS
(23)	CINEMAX WEST (SAME AS 20, 3 HOURS DIFFERENCE)
(24)	HBO EAST(SAME AS 13,3 HOURS DIFFERENCE)

It is obvious that from just one satellite alone there is a great variety of programming available.

Hopefully you have started to tune in to satellite TV

Next month we will look at the antenna requirements.

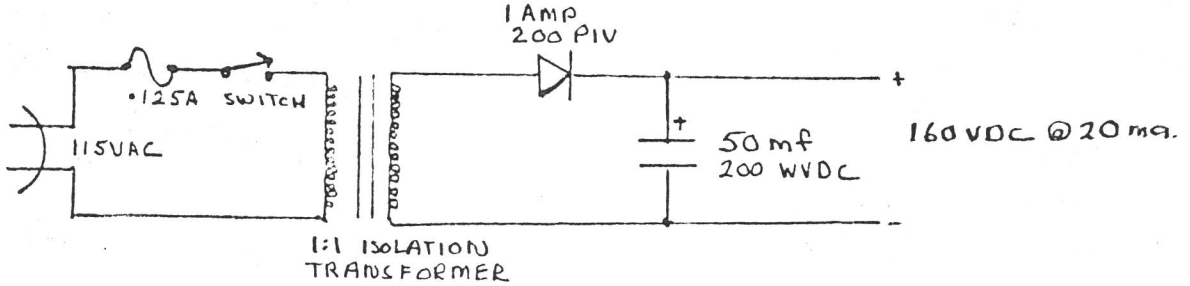
PHIL VE3 LNE

*** TECHNICAL SECTION ***

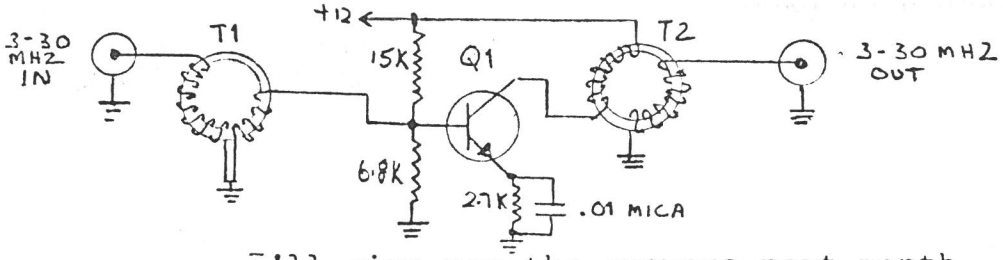
This month I have a couple of circuits to which MURPHY lent his hand. Needless to say the circuit did not function as planned. Put down the soldering iron and see if you can find my mistakes.

The first circuit was a 20 m.a. 160 VDC plate power supply built for a one tube project. Much to my dismay the capacitor popped and the fuse blew shortly after closing the switch.

WHAT WENT WRONG?



The second circuit was a small signal amplifier designed for the 3 to 30 MHz range. No smoke this time but no signals on the output either.



T1 INPUT TOROIDAL MATCHING TRANSFORMER

T2 OUTPUT TOROIDAL MATCHING TRANSFORMER

Q1 High Frequency NPN
DC GAIN 100 Nom.
HIGH FREQ Cutoff 150 MHZ

I'll give you the answers next month.

SATELLITE TV PART 2 ... THE ANTENNA ...

Last month an overview of the satellite scene was given. You will remember that the output from the satellite for each channel was in the 3.7 - 4.2 GHz band at a power level between 5 and 10 watts. The resulting signal on Earth is very weak requiring antenna gain on the order of 40 db to supply a useable signal to the first amplifier stage, the Low Noise Amplifier (LNA). A well designed 10 ft. diameter parabolic antenna is capable of supplying the required gain. Most home systems will use a 10 ft. antenna although even a 6 ft. antenna will give watchable but degraded pictures.

The Paraboic antenna consists of three principal parts:

1) The reflector (DISH)
2) The feed horn (COLLECTOR)
3) The mount

FIGURE 1 shows a simplified satellite receiving antenna.

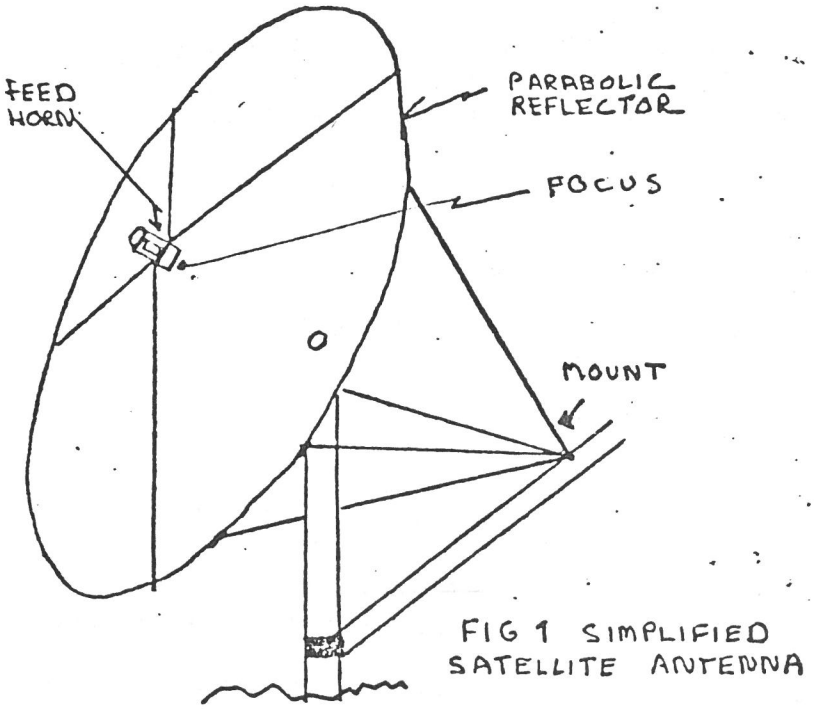


FIG 1 SIMPLIFIED SATELLITE ANTENNA

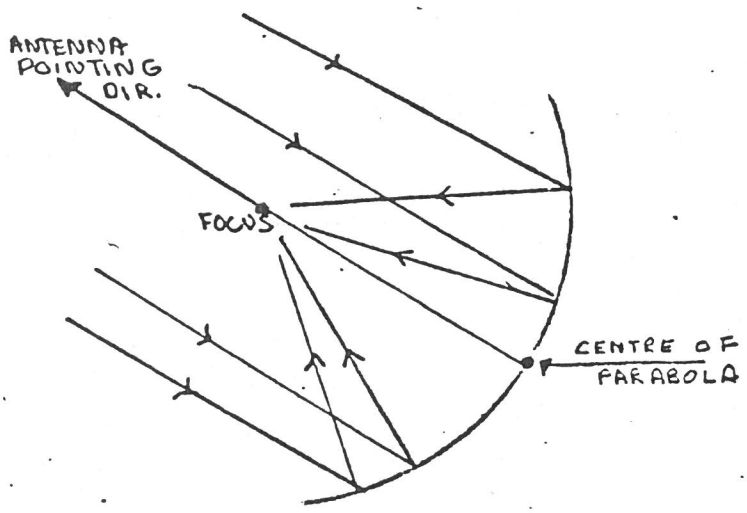


FIG 2 RAY DIRAGRAM FOR PARABOLIC REFLECTOR

THE REFLECTOR:

The reflector is a parabolic metal surface. A parabolic reflector surface is used since the unique property of a parabola is that an RF plane wave incident upon the reflector will be focused at a single point called the focus of the parabola. In the case of our 10 foot reflector, virtually all of the RF energy hitting its surface is funnelled to the focus. This focussing effect occurs only for one direction. That direction is the direction pointed to by the line drawn between the centre of the parabola and the focus. RF energy coming from any other direction does not get reflected to the focus and is therefore rejected. See Fig. 2 for the Ray diagram of a Parabola.

This is equivalent to saying that the parabolic reflector has a very narrow beamwidth and consequently high gain. The larger the diameter of the reflector the narrower is the beamwidth and the higher the gain. The 10 foot antenna will have a 3 db beamwidth of about 2 degrees. The parabolic reflector is not frequency sensitive (ie will work for any frequency). The only requirement is that the parabolic surface be accurate to within a small fraction of a wavelength. The higher the frequency the closer the surface must be to a true parabola. For the 4 GHz band that we

are interested in the wavelength is about 3 inches and the parabolic surface must be accurate to within a few 10's of thousanths of an inch!!

OK our 10 foot reflector is pointed at RCA 3 and most of the energy intercepted by the reflector is available at the focus, Enter the feedhorn.....

THE FEEDHORN:

The feedhorn is a very small (in wavelengths) microwave antenna which collects all of the energy available at the focus. The circular opening of the feedhorn is placed at the reflector focus.
See Fig. 3 for approximate dimensions for a 4 GHz feedhorn.

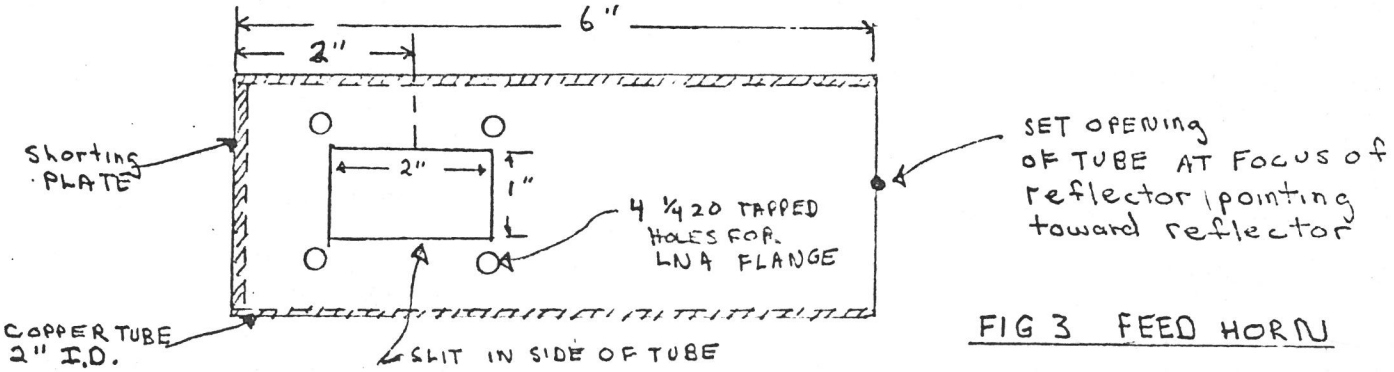


FIG 3 FEED HORN

The collected RF from the satellite will appear at the slot opening. We will find out next month that the Low Noise Amplifier is designed to bolt on to such a slot opening.

In microwave terms the circular pipe is called a circular wave guide, and the slot is a rectangular wave guide. A tripod or quadrapod bolted to the reflector can be used to support the feedhorn at the focus.

THE MOUNT:

The mount is a very important part of the earth station and has to support the reflector without distorting it, while withstanding the high windloads associated with a solid reflector. Many different designs have been used including single pipe and tripods. Many new mounts are "polar" meaning that by moving only one axis they can track all of the satellites. The polar mount lends itself to remote motor drive since only one motor is required.

The concept of the parabolic antenna, which is used in variations for most microwave antenna work is quite simple. Due to the surface accuracy required of the reflector and tolerances for the feedhorn the antenna is probably not well suited to home construction. Dishes can be obtained surplus or from local distributers dealing in satellite reception. Prices will likely plummet as the mass market develops.

PHIL VE3 LNE

NEXT MONTH: THE LNA.

SELL BUY SWAP

FOR SALE: CALL BOOKS, 1979 u.s. $5.00, & 1981 u.s. $10.00 . FREQ. COUNTER MICRONTA 50 Mhz. COMPLETE WITH POUCH etc., $50.00 . CONTACT STAN HUGHES VE3MDV 705/738/3336.

****

FOR SALE: COPE 1030 TERMINAL USED CURRENTLY AS PRINTER FOR AN "EXIDY SORCERER" MPU INTERFACE IS PARALLEL. COMES WITH 6 (SIX) IBM GOLF BALL TYPE ELEMENTS.

COPE 1030 TERMINAL USED WITH RADIO SHACK MODEL I MPU. SERIAL INTERFACE. NEEDS MINOR REPAIR. C/W 2 GOLF BALL TYPE ELEMENTS.
CONTACT ALFRED BENGEL. 416/576/4839.

****

FOR SALE: MODEL 15 TELETYPE C/W DEMODULATOR. ALSO G.E. 2 METER PROG. LINE C/W OSH, RPT, AND 147.520 XTALS. CONTACT RANDY, VE3NUR, 416/576/4577

****

FOR SALE: TRI-BAND TRANSCEIVER. EICO 735. EXCELLENT FIRST RIG. 100 WATT OUT ON 80/40/20M. THIS ONE DOES NOT DRIFT. MAKE OFFER TO JACK AT 416/725/9464.

****

FOR SALE: YAESU 207R, C/W DC & AC CHARGER,BATTERIES ETC. $450.00. ALSO MOTOROLA HT 220S (2) @ 250.00 EACH CONTACT PHILL AT 416/655/4069.

****

WANTED: SHARP CW XTAL FILTER, AUDIO FILTER, OR "Q" MULTIPLIER TYPE, TO BE USED WITH HEATH COMANCHE. CALL BERNARD FERRIS AT 416/668/6177.

****

WANTED: EXTERNAL VFO, TUNING 6 thru 8 Mhz. CALL MOE AT 705/277/2984.

****

WANTED: TELETYPE MACHINES. ANY TYPE OR MODEL. SET YOUR PRICE AND CALL ME.
PHIL AT 416/655/4069.

****

FOR SALE: DUMMY-LOADS. QUART SIZE, FOR UP TO 200 BIG WATTS. THESE UNITS ARE FILLED WITH SPECIAL OIL AND CAN BE HAD FOR ONLY 18.00 OR IF YOU GO WITH A FRIEND 2 FOR 30.00 DOLLARS
CALL MAC AT 416/723/8484

****

WANTED: 3 ELEMENT 10 OR 11 METER BEAM IN RESONABLE REPAIR.
CALL GARY VE3EPY AT hm. 416/723/1210 or bz. 416/683/8200 /226.

****

WANTED: HALLICRAFTERS MODEL HA-16 VOX CONTROL UNIT WORKING OR NOT EVEN JUST THE SHELL
CALL DOUG COLLECT AT 705/786/2086.

****

THIS SPACE IS NOW AVAILABLE DUE TO
CRAMMING

ALSO IF ANY OF THE ABOVE ITEMS ARE
NO LONGER AVAILABLE WOULD YOU PLEASE
INFORM ME.

ED.