



# HAM HUM

Published by  
AK-SAR-BEN AMATEUR RADIO CLUB, INC.  
Post Office Box 291 — Downtown Station  
Omaha, Nebraska 68101

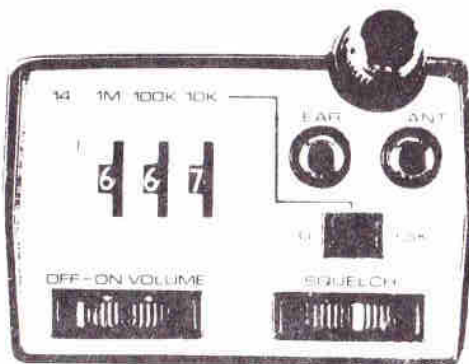


Vol. XXIX  
No. 4

April 1979

## OMAHA AMATEUR CENTER INC.

2565 Dodge Street Omaha, Nebraska 68131 (402) 346-5530



TEMPO PRESENTS THE S1 SYNCOM  
...the worlds first synthesized 800  
channel hand held transceiver.

**DON'T FORGET THE FLEA MARKET THE  
SECOND SATURDAY OF THE MONTH**

**HAM HUM** is the official organ of the Ak-Sar-Ben Amateur Radio Club, Inc., of Omaha, Nebraska, mailed monthly to all members and to others upon request.

Full permission is granted for reprinting articles appearing in this official organ provided a credit line is given to HAM HUM and in reprinting, to the author and publication from which the article was taken.



Published by:  
**AK-SAR-BEN AMATEUR RADIO CLUB, INC.**  
 Post Office Box 291  
 Omaha, Nebraska 68101

President . . . . . Thomas L. Thiessen, KØPQR  
 Phone: 556-9120  
 Editor . . . . . Dick Eilers, WØYZV  
 Res.: 397-3999  
 Phones: Bus.: 342-1402, X-20  
 Assistant Editor . . . John Snyder, WØWRT  
 Res.: 556-1538  
 Phones: Bus.: 397-3000, X-3542

**Copy deadline for May issue is April 17th**

**Dues-Annual Basis**

(Dues and Payable each January 1.)

New member initiation fee . . . . . \$ 1.00  
 Regular member . . . . . \$10.00  
 Regular member and spouse . . . . . \$12.00  
 Student member . . . . . \$ 4.00

**Dues-Quarterly Basis** (For each quarter or part thereof for balance of calendar year.)

New member initiation fee . . . . . \$1.00  
 Regular member . . . . . \$3.00  
 Regular member and spouse . . . . . \$3.60  
 Student member . . . . . \$1.05

**NEXT MEETING**

**WHEN:** Tuesday, April 10th, 1979

**TIME:** 7:30 P.M.

**WHERE:** JEWISH COMMUNITY CENTER  
 333 South 132nd Street  
 Omaha, Nebraska 68154

**PROGRAM:** "THE TOMORROW MACHINE" — Join us for an amusing look at what your telephone will do for you in the future with Touch-Tone, electronic switching and visual communications.

Sue Wilbur of Northwestern Bell Telephone Company will present the program. Come and see the world of tomorrow.

73s  
 Tom, KØPQR

\*\*\*\*\*

**MEMBER ADDRESS CHANGE**

Paul R. Mason  
 8262 South 50th Street  
 Omaha, Nebraska 68157  
 Phone: 731-9692

The handle of the door of opportunity is clearly marked PUSH.

-Service

\*\*\*\*\*

\*\*\*\*\*

## THE PREZ SEZ

I wish to take this opportunity to thank the hosts of the Sioux City Cornboree held last month. Thanks not only for the invitation to participate in the event, (QSL Bureau) but also from me personally for one of the best luncheon meals I've ever had at any Convention. It was a most enjoyable day.

It was extremely gratifying to see such a good turnout for last month's meeting on severe weather. Over 30 visitors signed the logbook, all from out-of-town locations. The flow of information into the National Weather Service Radar Facility should be better than ever this year. We are still weak and need more "eyes" in four places, Fremont and Mills counties in Iowa, and Washington and Cass counties in Nebraska. The new ARES group in Saunders County is going strong, and will certainly fill a large gap in that area. Each year our service to the Radar Facility seems to get better, and all the help we're getting from our outstate friends this year will certainly give a large boost.

The next two months should teach you more than you probably wanted to know about that device we all have and take for granted, the telephone. The April program will show us what Ma Bell has up her sleeve for the future. In May, we will not have a regular meeting at the J.C.C. In lieu of a meeting, we will be taking a tour of the Northwestern Bell switching facility at 90th and Western Streets. Full details will appear in next month's Ham Hum. Don Novotny,

KØCR, has arranged the tour for us, and I am told this switching center is one of the best we could possibly view. It contains both the older crossbar electro-mechanical switching, and the modern electronic ESS equipment.

By the time this is read, all 1979 Membership Cards should be in the mail. Let me explain that only on renewal years where you would be receiving a renewal stamp with your card, are the cards mailed directly by the people who keep track of everything. On years where a Membership Certificate is involved, such as 1st year, 5th year, and all other 5 year points, the Certificate and card are sent to me for presentation at one of the regular meetings. If two meetings pass without the Certificate and card being claimed, we then mail them out. If you have a card and stamp coming and have not received them yet, either write or call me so I can find out what happened to them. If you have a Certificate and card coming, I will probably have them at the next meeting. I hope this explains the process, and will help eliminate some confusion.

I will close this month with an examination of Lewis's First Law which states: No matter how long or how hard you shop for an item, after you've bought it, it will be on sale somewhere else cheaper.

73s and see you at the next meeting.

Tom, KØPQR  
\*\*\*\*\*

## QSL CARD SIZE

Last June I reported in Ham Hum that the U. S. Postal Service proposed some new restrictions on the size of postcards, including QSL cards. At that time the Postal Service postponed the effective date to "March or April" of 1979. Mr. Carl Thompson of the post office has advised me again that the proposed change is scheduled to go into effect in March or April, but there is a possibility of a further postponement. Under the new rules postcards must be at least 3 and 1/2 inches high and 5 inches wide, or they will not be accepted. Also, if the card is more than 3 and 13/16ths inches high, it will be subject to a surcharge in addition to regular postage. The amount of the surcharge has not been set as yet.

Again it is suggested that you watch the local newspaper, or other media, for any official announcement of the effective date of the change.

Sam, WDØBVH  
\*\*\*\*\*

## NOTES FROM MARCH 6TH BOARD OF TRUSTEES MEETING

Treasurer's report read by Mac, BMJ. Motion made to accept as read by Frank, IWF. Seconded by Dave, DLN, and approved by the Board. Motion made by Dave, DLN, to purchase one 220 Ringo Ranger Antenna for installation on the JCC. Seconded by Dick, KØGD, and approved by the Board.

Motion made by Mac, BMJ, to sell at the auction, one 34/94 repeater that has been at the Red Cross Bldg. for

several years and has not been in use for several years. All proceeds from this sale will be turned over to the Repeater Fund. Seconded by Dave, DLN, and approved by the Board.

Motion to adjourn by Jim, QGV, seconded by Bob, UQJ and approved by the Board.

\* \* \*

A special Board Meeting was held February 22, 1979 for the purpose of allocating funds for the Auction.

Motion made by Mac, BMJ, to purchase 250 stickers for marking Club equipment at a cost of \$10.95. Seconded by Jim, QGV, and approved by the Board.

Board members also approved to allocate \$235.00 to Jim Sanford, Auction Chairman, to secure the Holiday Inn facilities needed for the Auction.

Motion made by Jerry, PPF, to have \$25.00 for miscellaneous items at the auction. Seconded by Mac, BMJ, and approved by the Board.

Motion to adjourn by Jerry, PPF, seconded by PQR and approved by the Board.

Robert R. Chereck, Jr.  
WBØTVP  
Club Secretary

\*\*\*\*\*

## RECENT CONTRIBUTORS

### Repeater 34/94

Richard L. Mrsny, WAØFTH  
James R. Peterson, WBØQGV

### Repeater 22/82

Richard L. Mrsny, WAØFTH  
James R. Peterson, WBØQGV

(Continued at top of Page 5)

(Continued from Page 4)

Repeater 40/00

Richard L. Mrsny, WAØFTH  
James R. Peterson, WBØQGV

Thanks Dick and Jim!

\*\*\*\*\*

**ADDITIONS TO ROSTER**

Walter J. Brown, Jr., KAØDMB  
6202 Sprague Street  
Omaha, Nebraska 68104  
Phone: 451-1072

Leota L. Brown  
(XYL of KAØDMB)  
6206 Sprague Street  
Omaha, Nebraska 68104  
Phone: 451-1072

Roger A. Flannery, KAØDKJ  
2748 Redick Avenue  
Omaha, Nebraska 68112  
Phone: 455-7459

Capt. James F. Karasek, KAØBVV  
804 West Perry Street  
Papillion, Nebraska 68046  
Phone: 331-7652

Robert L. Kraushaar, WBØPZU  
503 Main Street  
Modale, Iowa 51556  
Phone: (712) 645-2151

Paul H. May, WDØHRG  
11019 X Street  
Omaha, Nebraska 68137  
Phone: 331-8508

Lawrence R. Merriman, KAØDKP  
8923 Valley Street  
Omaha, Nebraska 68124  
Phone: 397-2550

\*\*\*\*\*

April 1979

**VIDEO SYSTEMS**  
"The Professionals"



- Television Systems
- Security Systems
- Portable Production
  
- Installation
- Repair, All makes
- Rentals

**Video Associates Inc.**  
324 No. 115th Omaha 333-2288  
Frank Wolczak, WAØIWF, owner

**omaha**  
**COMPUTER**  
**store**

**NOW AVAILABLE!!**

Ohio Scientific Computer  
with floppy disk system and  
TV interface — Less than  
\$1000

*No TV terminal required —  
Use your own television set!!*

See it demonstrated at

(402) 592-3590  
4540 S. 84th  
Omaha, NE 68127  
(Behind the Penthouse  
Lounge)

## PARTICIPATION

Fred Somebody, Tom Everybody, Pete Anybody, and Joe Nobody were friends. But they were not like you and me, of course, They were very odd people. All four belonged to an amateur radio club, however.

Everybody went out bowling on Tuesday and drank with his bowling buddies that evening. Anybody wanted to go to the club meetings, but was afraid Somebody wouldn't speak to him. So guess who went to the club meetings . . . Nobody!

Really, Nobody was the only faithful one of the four; Nobody brought others to the meetings. Nobody worked on committees. Once they needed teachers for license classes. Everybody thought Anybody

would do it, and Anybody thought Somebody would do it. And do you know who did it? That's right . . . Nobody!

This excerpt, taken from the local Omaha Chapter Newsletter of the Data Processing Management Association (DPMA), has been modified to reflect an amateur radio club setting instead of that of a professional society. However, it does provide food for thought. Let's all continue to share the load, strengthen our Club, and provide an increasingly valuable contribution to our community. As our Club and amateur radio grow, so do we as individuals.

Dick Jugel, KØDG  
\*\*\*\*\*

- Appointments Calendar
- Shopping Lists
- Daily Diet Planner
- Recipe Expansion
- Household Inventory
- Burglar & Fire Alarms
- Financial Planning & Budgeting
- Special Occasion Mailing Lists
- Environmental Control



**Have the Home  
of the Future Today!**

**HOME COMPUTERS**

10am-9pm Weekdays ·  
10am-6pm Sat · 12-5pm Sunday

**BYTE SHOP**  
the affordable computer store

**8523 Park Drive**  
**339-7350**  
Next stoplight south of 84th & Q

# TOP QUALITY MOBILE ANTENNAS

FROM

## G & C Communications

- Stainless Steel Radiator
- Heavy Nickel-Chrome Plated Brass Base and Fittings
- Mounts Come with 17' RG-58AU and PL-259 Connectors.
- Compatible with Motorola TAD and TAE Mounts.

*When ordering, suffix "T" indicates complete antenna assembly with trunk lid mount. Suffix "M" indicates for 3/4" hole mounting.*

**BM-2700T** — 27-31 MHz 1/4 wave base-loaded. 200 watt rating. Covers 10 meters or CB. Great mobile antenna for converted CB rigs. 49" at lowest frequency and is approximately 42" when cut for ten meters. Complete with trunk lid mount assembly. . . . . **\$29.95**

**BM-MATH** — Extra whip (Cut one for 10 and one for CB) . . . . . **\$5.00**

**BM-4700T** — Same assembly except for 47-54 MHz. **\$29.95**

**BM-5800T** — 144-174 MHz 3/8 wave gain antenna. 200 watt rating. Complete . . . . . **\$29.95**

**BM-MAT 58** or **BM-MAT 22** — 3/8 matching coils (these coils with whips allow same mounting assembly to be used on different bands) . . . . . **\$14.95**

**BM-5822** — 220-225 MHz 3/8 wave gain antenna **\$29.95**

**Note:** Deduct \$4.00 from "T" price for "M" assemblies.

*Additional Information On Other Antenna Models Available*

Bill, W0BM

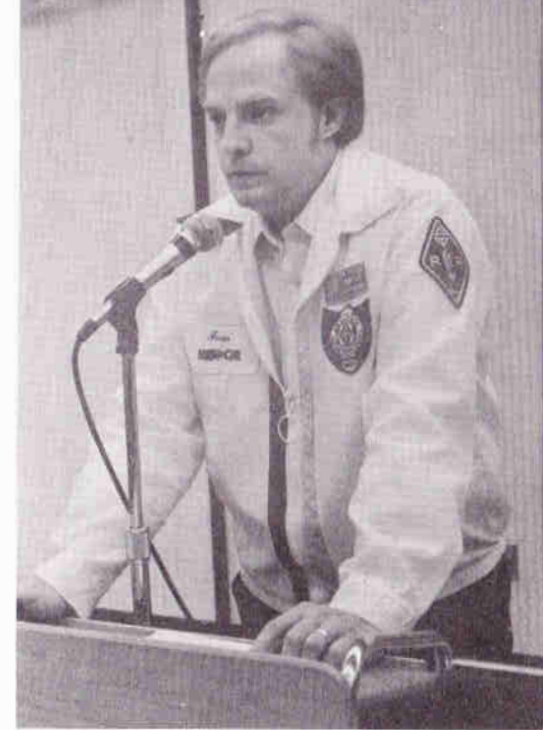
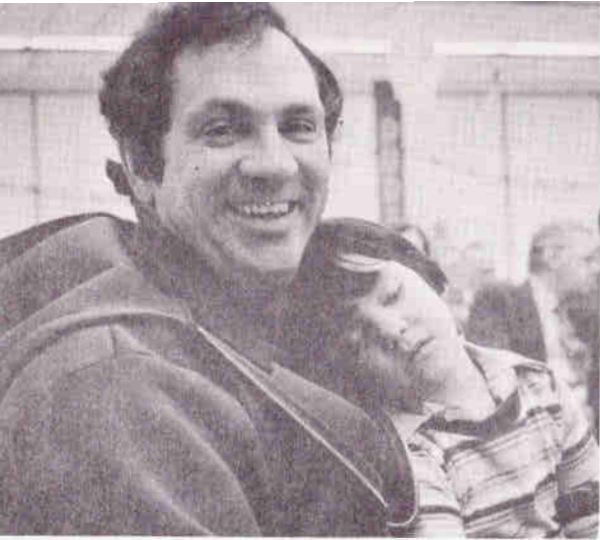
Chuck, K0NG

Mike, W0MQ

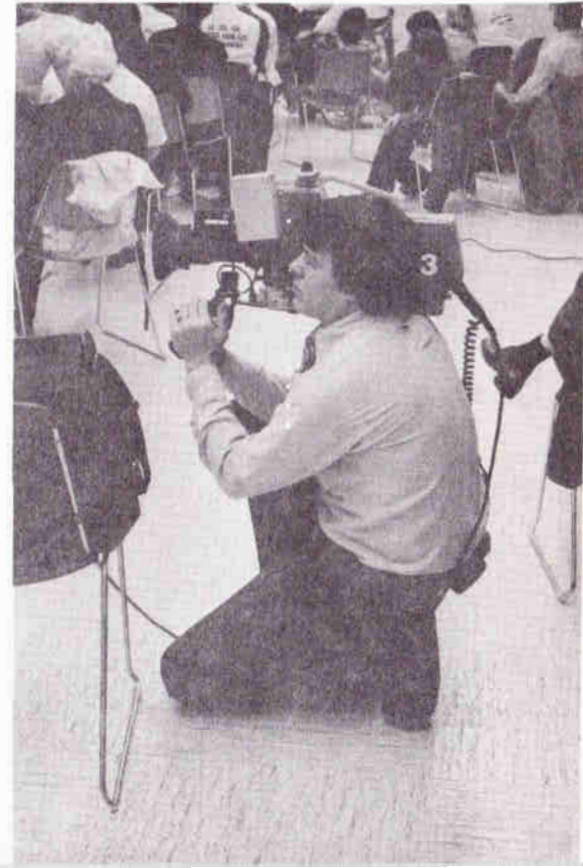
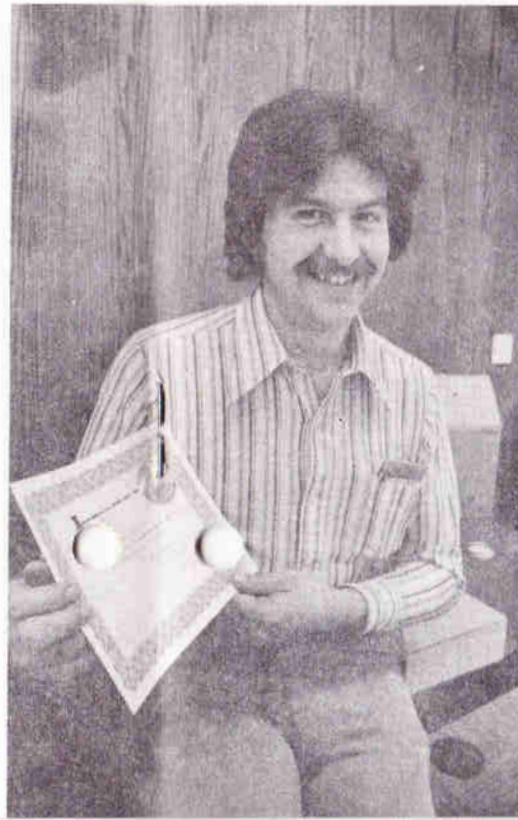
## G & C Communications

Dept. HH

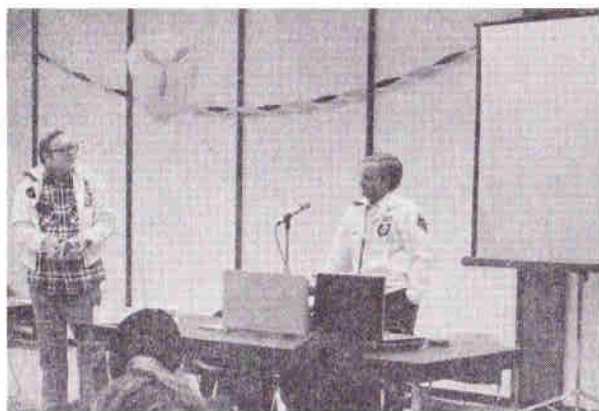
730 Cottonwood  
Lincoln, NE 68510



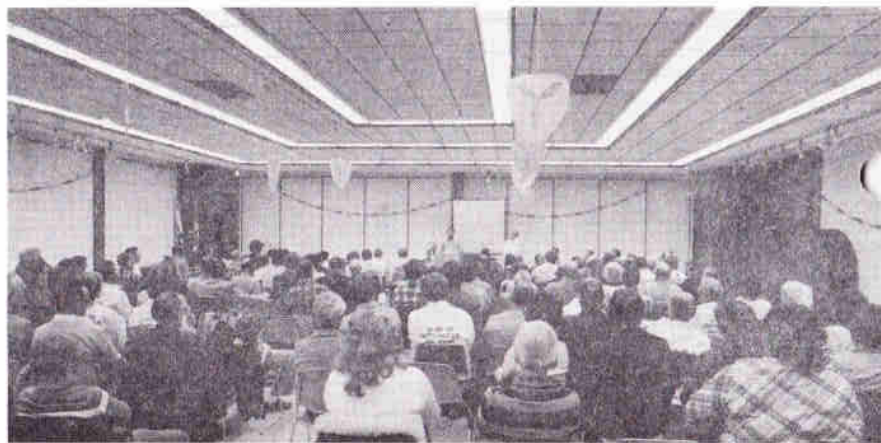
PHOTOS  
MARCH 13, 1979  
MEETING  
By  
Dave Hamilton, WDØDLN







MORE PHOTOS  
FROM  
MARCH  
MEETING



Dear Editor:

Referring to WØCMC's article on page 20 of your March issue of HAM HUM, I fail to see anything difficult in converting cycles-per-second to one Hz, be it sound, electrical or otherwise. Thus kilocycles per second is kilohertz and megacycles per second is megahertz (MHz). Cycles alone have no equivalence in hertz.

Remember one ampere is one coulomb of electricity passing a point in one second. Anyone want to say "Ten coulombs of electricity per second battery current?"

Martin Johnson, WØRJA  
Alliance, Nebraska  
\*\*\*\*\*

### TIME VS COST —By WØQQN

To avoid the high cost of exchanging QSL cards, the Bureau was established. Since nearly all QSL Bureau workers around the world are volunteers and cards are shipped in bulk at lowest rates, the total cost of an exchange is greatly reduced. However, while the cost is going down, the time element is going up. Cards are seldom received at the Zero QSL Bureau in less than three months and sometimes it has taken up to three years. All that is required to get your cards out of the Bureau is to have a self-addressed stamped envelope on file. We usually can get 6 to 8 cards in a 15¢ one-ounce envelope and around ten more in the same envelope for an additional 13¢ for the second ounce. This in simple math amounts to about 2¢ per card to you for your incoming DX cards.

\*\*\*\*\*

### "THE EASIEST MAN TO DETECT"

Dick Jugel, KØDG

At almost any gathering, I'm the easiest man to spot. I enter inconspicuously and tend to stay by myself. If it's a social hour or reception, I don't "float" or mingle with the crowd. I usually keep near the door, hoping someone I know will come in and greet me.

The members are casually seated, or quipping to others in small groups. If many are waiting, they strike up conversation and obviously have a good time. I hang back until the rush is over, but I don't linger where people can walk by me without a routine "Hi" instead of pausing to chat.

When the meeting begins, I wait until the others are seated. Then I look for a spot with several empty chairs, so I won't interrupt conversations or be a barrier between buddies.

I wore an expectant look when I came in. Forgive me if it's gone by now. Your invitation was sincere, I know, and I liked the "welcome" bit and the plea to participate and become acquainted. But don't worry! I'll try for awhile. Maybe next time I won't feel like such a problem.

Who am I? Oh, I thought you knew!

I'm a new member.

\*\*\*\*\*

## WHO CARES...ABOUT DX?

With forty and eighty on their way out for the year because of summer storm conditions, 10 meters seems to be shaping up very well. Most every day now 10 is filled from at least 28,500 to 29,000 KHz or so. DX is now worked around the clock on 10 meters. Can it get any better? You betcha. The solar flux is still holding steady around 190.

Al Caplan, WØRIC, and others in the Lincoln area have formed a DXers group. They use Al's repeater (147.630/.030) for coordination of DX info. Omahans can work into this repeater with only a small yagi. It is my understanding that this group is intensely interested in DX. Therefore, if you don't already have a pair of rocks for this repeater, get some!

I've talked to several people recently who claim to have worked some very interesting stations. All of them said that they were in the process of writing it down to send to me, but somewhere it got lost...or forgotten. Please get me some whens, whens and hows on your own DX.

I would like to relate a personal experience in the QSL department. Since about one year ago in March, I've contacted nearly 150 different countries. Each and every one (except for the forbidden ones) was QSLed direct with the required amount of IRCs, plus one. I thought this was a good practice, and it was. It rendered me 120 very fine QSL cards. With no reply from the remaining stations, I tried sending one more time, only on this occasion I included a one dollar bill with each card, Eureka! It worked. True, there are certain countries where

the dollar bill is forbidden, those of which common sense will tell you. Besides, a lot of countries require 3 IRCs for direct return via Air Mail. That's \$1.46. Don't take my word for it, try it yourself.

As you probably noticed from the last issue, a portion of my information was history before you received it. Sometimes a needed country comes on and leaves so fast, you must be there when it happens. Some parties make plans for a DXpedition and fizzle out at the last moment. Usually problems arise with entry into the country. That's another good reason to monitor Al's repeater. Whenever the band is up, and you feel like DXing, see if someone is on the machine and hunt for that exotic one together.

The ARRL DX contest weekend of March 3 and 4 past turned out to be a real dandy deal. Ten meters was wide open. I sat down for a mere two hours and nabbed nineteen countries. With all of the entries across the world, this will be a very competitive contest. Good luck to anyone who entered.

With summer coming on, there seems to be a rash of DXpeditions. Some include:

Aves Island - Running from April 28 to May 1. The call will be YVØAA. They propose to operate 10-80 meters, both CW & SSB.

Spratly - Starting March 29; they plan to run until the need for Spratly has diminished. They plan to work all bands and frequencies. Look for IS1DX.

Cyprus - 5B4DI, 5B4PA and 5B4HF seem to be floating between 14,240 and 14,250. There are also others operating from Cyprus at random. Good luck.

Pitcairn Island is still on, only now some new fellows will help operate it. The call VR6HI will be used by ZL1ADI and ZL1AMO. They plan to operate 10-160 meters with extra emphasis on the lower bands and on 7.

Mayotte - Going on right now near 14,220 KHz from about 1300 UTC via long path. QSL via Box 86, Dzaoudzi, Mayotte 97600.

South Georgia - From 1900 UTC, VP8SU operates on 14,275.

This fellow is regular. QSL via G3RCA.

Don't forget, let's hear what your DX is all about.

73's es good DX  
Bob Grinnell, WDØFDE  
\*\*\*\*\*

## ACTION REAL ESTATE

Kent Sinram, WBØBOR  
Associate Broker

Specializing in Residential Sales  
Nebraska and Iowa

339-1200 Office  
571-7423 Home

8434 Park Drive, Omaha

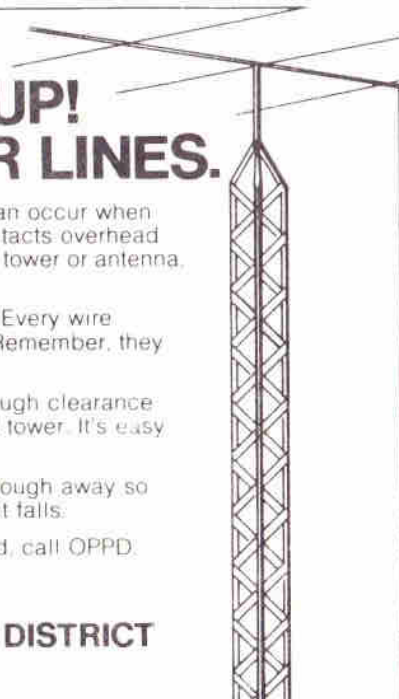
## STOP! LOOK UP! AVOID POWER LINES.

Serious and even fatal accidents can occur when an antenna or any metal object contacts overhead power lines. If you are putting up a tower or antenna, observe these rules:

1. Check for overhead power lines. Every wire should be considered dangerous. Remember, they are not insulated.
2. Make sure there's more than enough clearance for carrying, raising or lowering the tower. It's easy to misjudge this clearance.
3. Erect the antenna or tower far enough away so that it will not hit any power line if it falls.

If power lines are a possible hazard, call OPPD. We are interested in your safety.

**OMAHA PUBLIC POWER DISTRICT**



## COAXIAL CABLE DATA

By: Bill Welsch (W6DDB)

De Lockheed ARC, Burbank, CA

This list provides basic technical information on all existing transmission lines identified by RG/U designations. Most of these cables are coaxial but there are other types such as triaxial and waveguide. Much of the information in this list is extracted from Military Specification MIL-C-17.

The simplified explanation in the following seven paragraphs can help you select good coaxial cables for your applications.

Transmission line cables with outer protective jackets are available in several classes of outer jackets. Class I, Class II, and Class IIA outer jackets are used on most of these cables and they are of primary importance.

Class I polyvinyl chloride (PVC) protective jackets are used on older cables such as RG-8U, RG58/U, and RG-59/U. Class I jackets have a plastisizer (extender) incorporated during their manufacture to improve cable flexibility. Cable flexibility is satisfactorily maintained by this method but the extender migrates through the shield braid and attacks the polyethylene insulation surrounding the center conductor. This insulation deteriorates and the RF losses increase rapidly. The lifespan of this kind of coax is only about two years from the date of manufacture and old coax of this type is no bargain at any price.

Class IIA non-contaminating synthetic resin protective (black) jackets are used on newer cables such as RG-215/U (RG-8/U replacement), RG-58C/U, and RG-59B/U. This

jacketing has a long service life, is abrasion resistant, and is not damaged by sunlight. These IIA jackets do not contain an extender which would contaminate the insulation surrounding the center conductor. Cables with Class IIA jackets can be buried for underground use. These cables have a service life of about 15 years and they do not cost more than those with Class I jacketing.

Class II jackets are also made from a non-contaminating synthetic resin. Class II jackets are similar to Class IIA jackets but they are gray, not black.

An asterisk (\*) preceding a cable designation (RG/U) indicates a cable known to have a Class II or Class IIA jacket.

(Continued on next page)

# AMERICAN COMPUTERS

ANNOUNCING!!!

## APPLE MICROPROCESSORS

Complete line now available.  
Sales and Service with a full  
complement of accessories.

Stop in and see why the  
APPLE is one of the hottest selling  
computers on the market.

Get a demonstration today at

4442 South 84 Street  
Omaha, Nebraska 68127  
Phone: 592-1518

## HAM HUM SWAP

NO CHARGE FOR SWAP ADS (NON-COMMERCIAL) SUBJECT TO SPACE LIMITATION. MUST BE SUBMITTED IN WRITING TO P.O. BOX 291. SEE COPY DEADLINE PAGE 2.

FOR SALE: 12 volt power supply, maximum 20 amps output @ 12V regulated.

Charles A. Michel, KØQVL, 8720 Charles,  
Omaha, NE 68114; phone 402/391-3782

\*\*\*\*\*

### (COAXIAL CABLE DATA – continued)

RG-8/U cable is no longer manufactured to military specifications and individual cable manufacturers now produce cheapened versions of RG-8/U which are not a good value. The braided shield on these cheapened cables is usually reduced to the point where any bend in the cable causes an undesirable gap to open in the sparse shielding. This inadequate shielding results in unacceptable RF leakage even at relative low frequencies and this leakage is worse when one of these cables is used at higher frequencies. It is not advisable to use cables which are not manufactured to military specifications unless you specifically know they meet your requirements. These commercial equivalent cables are less efficient but they are just as expensive as their superior counterparts. It has recently become common to see cheap coax with aluminum shielding in lieu of the usual copper braid. This aluminum shielding is usually found on cables sold with connectors already attached. There is no satisfactory way to solder to aluminum and users of this kind of cable are forced to use the

less desirable crimp type connectors when these cables are cut.

Manufacturer's specifications would seem to indicate the coax with foamed insulation is better than coax with the usual solid insulation. Foamed coax has a higher velocity of propagation and less loss when comparing specifications. However, these foamed coaxial cables are not as good as they appear to be at first glance. None of the existing common foamed coaxial cables are manufactured to rigorous military specifications and none presently have Class IIA jackets. Most of these foam insulations are not gas impregnated and moisture accumulates in the air bubbles. This moisture accumulation changes the velocity of propagation, alters the characteristic impedance, and increases RF attenuation in these foamed cables. There is another practical disadvantage to foamed cables; they are physically more susceptible to damage at bend points. When using a cable with foam insulation, one must exercise extreme care to avoid mechanical bending stress.

(To be continued in May Ham Hum)

\*\*\*\*\*

# KENWOOD

...pioneer in amateur radio



PS-30

SP-120

TS-120S

VFO-120

### VFO-120

This is almost like adding a second rig to your station since it allows the operator to operate split frequency when DX chasing, net monitoring, and finding a clear frequency while holding the original frequency; in short, it is a valuable addition to the station.

The VFO-120 also incorporates new features such as the T-F set switch which prevents misoperation in double split frequency operation and also aids quick setting of transmit frequency. A positive indication of VFO functions is available at a glance.



### AT-120

The AT-120 is a compact and lightweight antenna tuner designed for base or mobile use.



### SP-120

A good-looking compact speaker matching the TS-120S styling and designed for home station use. A low distortion speaker unit provides clear reproduction of the TS-120S high-quality audio.



### HS-4

Headphones



### PS-30

Supplies regulated 13.8V DC at 15A continuous, 20A intermittent load with complete ease and safety due to the use of generous heat sinks and an automatic reset electronic overload trip.



### YK-88C

CW Crystal Filter



### MS-100

Mobile Mount



### MC-50

50 k $\Omega$ /500  $\Omega$  Dynamic Desk Microphone



### MC-306

(500  $\Omega$ )

### MC-356

(50 k $\Omega$ )

Noise-cancelling Dynamic Hand Microphone



ALL SOLID-STATE AND 'NOTHING'  
TO TUNE BUT THE VFO(52 Ohm Load),  
FULL 80/10M PLL COVERAGE, 200  
WATTS PEP & 160 CW 80/15M AND  
160W PEP/140W CW ON 10M, SMALL  
---3.75"x9.5"x11.6" HWD & 12.32Lb.  
VOX/PTT, BLANKER, IF SHIFT, RTT,  
DIGITAL & ANALOG DIALS --WOW!



P. O. BOX 864  
1401 AVE. "D"  
COUNCIL BLUFFS, IOWA 51501  
PHONE: (712) 323-0142