



# HAM HUM

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



Vol. XXVI  
No. 9

September 1976

## COME ONE, COME ALL, TO THE AK-SAR-BEN AMATEUR RADIO CLUB PICNIC!

- WHEN: SUNDAY, SEPTEMBER 12, 1976
- TIME: FROM 1:00 PM UNTIL 9:00 PM
- WHERE: LONGS LANDING — COUNCIL BLUFFS, IOWA  
(See map for directions.)
- BRING: YOUR OWN FOOD AND BEVERAGE. 807s ARE PERMITTED. ALSO, DIG OUT THE WHITE ELEPHANTS AND BOAT ANCHORS FOR A FLEA MARKET.
- FACILITIES AVAILABLE: 2 LARGE ENCLOSED BARBECUE PITS FOR COOKING, PLAYGROUND FOR THE HARMONICS, AND RESTROOMS.
- CAMPING SPACES AVAILABLE FOR THOSE WHO WISH TO COME EARLY. FOR FURTHER INFORMATION CALL (712) 366-0093.
- SOMEONE WILL BE MONITORING ALL LOCAL REPEATERS. CALL FOR ASSISTANCE OR DIRECTIONS.

ALL AMATEURS, FAMILIES AND FRIENDS ARE INVITED TO  
ATTEND

\* \* \*

### SPECIAL NOTICE

REGULAR SEPTEMBER MEETING DATE CHANGED FROM SEPTEMBER 10 TO SEPTEMBER 24, 1976. SEE DETAILS PAGE 2 THIS ISSUE.

**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.

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**Deadline for October issue is September 17th**

**Annual Dues:**

Regular member . . . . . \$7.50  
 Regular member and XYL . . . . . 9.00  
 Student member . . . . . 3.50  
 (due and payable each Jan. 1)

New member initiation fee . . . . . \$1.00  
**Quarterly for balance of year:**  
 Regular member . . . . . \$2.00  
 Regular member and XYL . . . . . 2.45  
 Student member . . . . . 1.00

**NEXT MEETING**

**WHEN:** FRIDAY, SEPTEMBER 24, 1976

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

**WHERE:** COMMUNICATIONS WORKERS OF AMERICA HALL  
 1920 South 44th Street, Omaha, Nebraska  
 (Ground floor entrance - air-conditioned - parking)

**PROGRAM:** CARDIO-PULMONARY RESUSCITATION by  
 William L. Gravell, WBØTWE

Bill Gravell has been in the U. S. Air Force for 11 years. Originally earning his Advanced Red Cross First Aid card while working for a private ambulance service in Southern California, he received invaluable experience in CPR (Cardio-Pulmonary Resuscitation). At present he is involved in a CPR training program for maintenance technicians and computer operators within the Air Force Global Weather Central, where he is assigned.

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## 1976 MIDWEST ARRL CONVENTION

Excitement mounts in Omaha as the 1976 Midwest Division Convention draws nearer. It is more than a month before October 8, 9 and 10 rolls around and already Kaye Ramsey's group has over 25 major exhibitors. Some companies are now writing us asking if they can come to Omaha to exhibit. (We tell them yes of course!)

Jim Peterson's committee is still arranging some fantastic speakers. At the time of this printing over 200 participants have pre-registered. The Holiday Inn folks tell us over half the rooms are already gone. Things are shaping up!

Plan to attend the September 24th Club meeting to find out what is happening. Perhaps you wish to jump on the bandwagon and participate with your talents. Planned for that meeting will be a discussion of the Convention and the schedule of events.

Remember, the Ak-Sar-Ben Amateur Radio Club is making this a CONVENTION to MENTION.

Marty, WAØGEH and  
Mike, WBØDXA  
\*\*\*\*\*

## SOME DATES TO REMEMBER

Multiple Sclerosis Bike-A-Thon on either September 19th or 26th.

Boy Scout On-The-Air Jamboree October 15, 16 and 17. Open your station to a prospective aspirant of amateur radio. We need youth to grow!

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September 1976

## NOTES FROM PREZ ED, WBØBCB

Another big meeting! There is no doubt that Ak-Sar-Ben Amateur Radio Club meetings are the place to go for *Ham action*. During these summer months, there has been an average of over 100 in attendance at every meeting. Don't be left out next time! Get in on an eyeball QSO with your friends. Bring new friends to the meetings. Each program covers a topic that is educational and pertinent to the development and growth of each amateur and to amateur radio.

At the August 13th meeting, Lloyd McElhaney, KØDKM, and John Gebuhr, WBØCMC, presented a tremendous program regarding the age-old problem — automotive electrical interference. Lloyd discussed the basic ignition system from the battery to the alternator to the spark plug. John pointed out problem areas and solutions for electrical interference to amateur radio mobile operations. Questions and answers followed. Thanks, Floyd and John. Your program was very well presented.

Cecil DeWitt, WØRMB, "popped his balloon" with his 04-64 airborne repeater (see August issue of *Ham Hum*). Cecil discussed at length his plans and procedures to package the repeater, antennas, parachute and weather balloons for the launch October 10th. Cecil needs a lot of materials and personnel for the project. Contact WØRMB and offer assistance.

Bob Lockwood, WAØDHU, announced that novice Code and Theory classes will be starting in September. There are a number of people who

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attended the Omaha CB Jamboree this summer who are interested in amateur radio. If you know of others, contact Bob Lockwood or write to the Club address. WAØDHU will contact you for time and dates.

It never happens to one of us, but if you listen to Jim Droege, WØYCP, you'll know that it can. Jim accidentally connected up to a 4000 volt transformer. The voltage passed through his body, his breathing and pulse had stopped. Gratefully, a fellow companion who had no training but who had seen cardio-pulmonary resuscitation procedures demonstrated on TV, applied these procedures to Jim. He is alive today. The CPR procedures will be demonstrated at our next Club meeting. Further interest will produce a 4-hour course in the near future for YL, XYL and OM.

Don't forget the Club picnic on Sunday, September 12th. Johnny Baria, K5QKT, has arranged for excellent facilities right here in the local area. See front cover for details.

Please note that the next Club meeting will be September 24th (not the usual second Friday of the month) at 7:30 P.M. sharp at the CWA Union Hall. Marty, WAØGEH, has the key so the building will be open so that meeting will begin at 7:30.

Nobody seems to be interested in success or everybody is successful and nobody needs to know. Certainly somebody should be curious enough to ask about  $A + D2 + CIT = SU + C2 + ES2$ . How about you?

The Convention is on us NOW. It's time to pull all the committees and Club members together for final plans. Your Prez has travelled over 1500

miles promoting this Convention and will travel another 1500 or so before October 8th. There are many questions and much enthusiasm to the programs. Now only you can make it a GREAT CONVENTION TO MENTION!

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## RECENT CONTRIBUTORS

### Ham Hum Postage

E. A. Stenberg, KØORM

### Repeater 10/70

Jon K. Taute, WBØMNK

### Repeater 22/82

John P. Bergmann, WBØMFL

William L. Gravell, WBØTWE

### Repeater 34/94

John P. Bergmann, WBØMFL

Robert Broom, Jr., KØOQL

Wayne Lee Goetz, WBØHEU

William L. Gravell, WBØTWE

Martin J. Griffin, WAØGEH

LeRoy Hilt, WBØMSN

David N. Smith, K3CRF

Jon K. Taute, WBØMNK

### Repeater 40/00

Wayne Lee Goetz, WBØHEU

Jon K. Taute, WBØMNK

Sincere thanks to all!

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## MEMBER NEWS

William L. Gravell, who passed the general class exam in April, now has his call - WBØTWE.

Congratulations, Bill!

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## WHERE?

Where else? Where else can you get so much for your money? Just one of the microprocessor programs "The Altair Short Course" or something very similar would cost at least six times the price of the Convention with banquet ticket elsewhere.

Where else can you listen and talk with a senior applications engineer from Motorola? Where are you going to talk to a Ham who practically homebrewed a system that controls and analyzes his stations transmissions and receptions?

Where else can you hear an FCC man talk of direction finding, learn about antenna tuners from a manufacturer, be fascinated by laser applications, hear worldwide communications through the Strategic Air Command's facilities, be spellbound by getting the secrets of QRP operation from the man who spoke to the Dayton Hamvention?

Where will you hear about new equipment, learn about teletypes, see how novices are helped, view AMSAT models, discuss disaster communications with Red Cross officials, a meteorologist, and a panel of emergency coordinators, learn about SSB generation in a way only economically feasible recently?

Where will you get all this and more? Would you miss hearing a publisher converse about the future of amateur radio? We think you'll be where it's at!

Don't miss it, know where your hobby is going in a fast changing world. After you attend the 1976 Midwest Division ARRL Convention, you'll know where!

de WBØQGV, Jim

\*\*\*\*\*

September 1976

## ADDITIONS TO ROSTER

Robert W. Arant, WØGOT  
9705 Redman Avenue  
Omaha, Nebraska 68134  
Phone: 572-8025

Day B. Davis, Jr., WNØTTL  
7523 South 76th Avenue  
LaVista, Nebraska 68128  
Phone: 339-5832

Robert D. Duncan, KØABI  
1004 Lincoln Avenue  
Plattsmouth, Nebraska 68048  
Phone: (402) 296-5988

Michael P. McClure, WAØYUN  
8733 Hickory Street  
Omaha, Nebraska 68124  
Phone: 391-5804

William L. Moeller, WBØDLM  
8464 Browne Street  
Omaha, Nebraska 68134  
Phone: 572-1919

Sgt. Carl J. Quijas, WNØTUE  
2967 Poppleton Avenue  
Omaha, Nebraska 68105  
Phone: 344-3677

C. Steven Robertson, WNØTKY  
5315 Boyd Street  
Omaha, Nebraska 68104  
Phone: 455-9993

Howard E. Stenner, WNØTLA  
8114 Valley Road  
LaVista, Nebraska 68128  
Phone: 592-3937

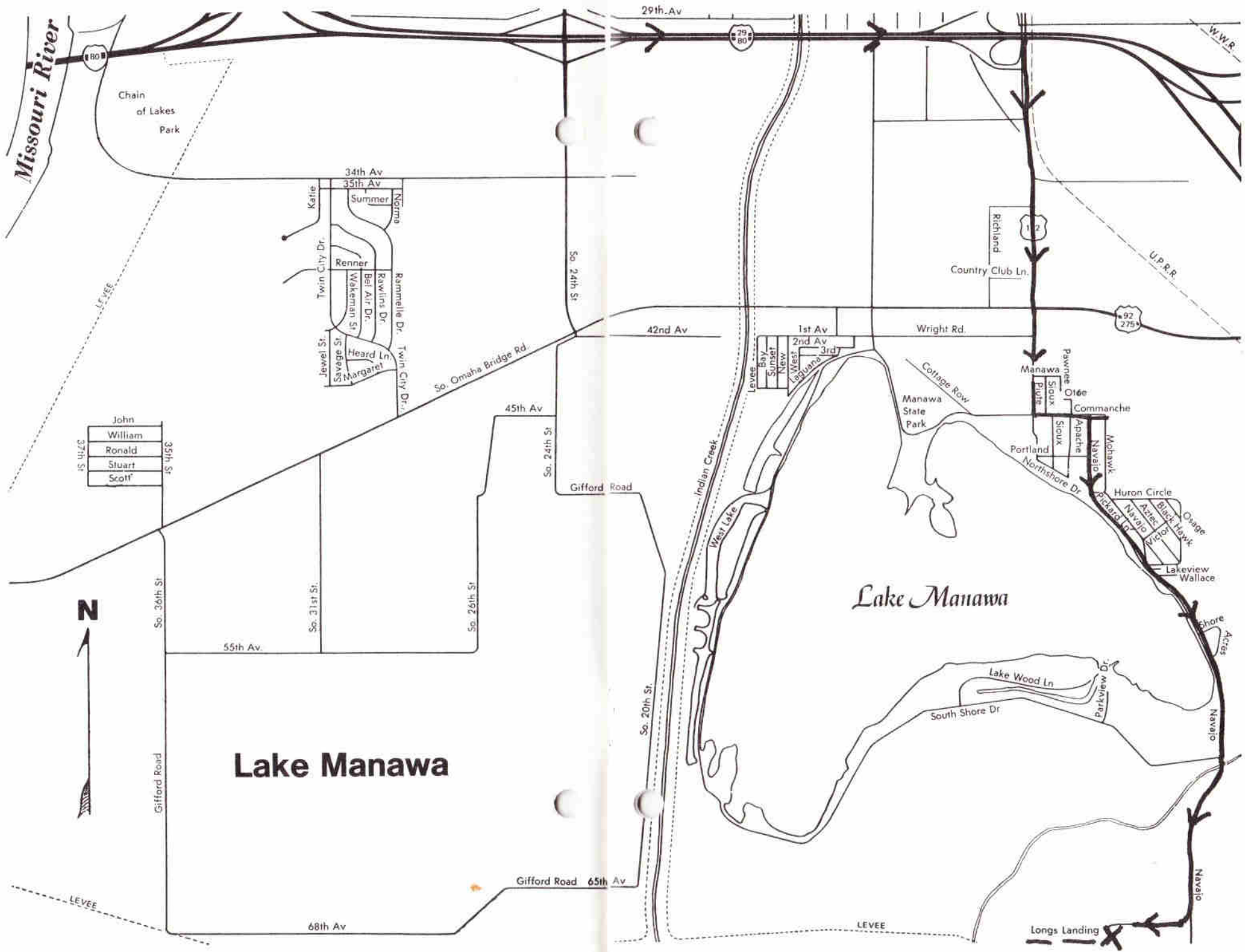
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Pre-register now!

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HAM HUM

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*Missouri River*

Chain of Lakes Park

John
William
Ronald
Stuart
Scott

**Lake Manawa**

*Lake Manawa*

Longs Landing



LEVEE

LEVEE

W.W.R.

U.P.R.R.

LEVEE

Gifford Road

Gifford Road 65th Av

29th Av

29  
80

112

92  
275

34th Av

35th Av

Katie

Twin City Dr.

Jewel St.

Renner

Wakeman St

Bel Air Dr.

Rawlins Dr.

Heard Ln

Margaret

Summer

Norma

Rammelle Dr.

Twin City Dr.

So. 24th St

So. Omaha Bridge Rd.

42nd Av

1st Av

2nd Av

3rd

Levee

Isby

Sunset

New

West

Laurens

Wright Rd.

Manawa

Cottage Row

Manawa State Park

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## BIOGRAPHIES – ADDITIONAL CONVENTION SPEAKERS

James W. Zoller – B.A. in chemistry, certificate in meteorology from California Institute of Technology. With Weather Bureau since 1949. 10 years at forecast office in Anchorage, Alaska, including enduring the earthquake in 1964.

Meteorologist in charge Grand Rapids, Michigan during Tornado in 1967. Supervising forecaster at Detroit, Michigan, the first state forecast center in the nation.

Since 1972 in charge of forecast center in Omaha.

Adrian B. Weiss, K8EEG/Ø – First licensed in 1954 as WN3COB, General Class license in 1957. Lives in Vermillion, S.D.

Has PH.D. in English. Has written or is currently writing for QST, CQ.

Mike Hunter – Has math and physics majors. Graduated from the University of Florida. Was with Field Engineering Division of I.B.M. Will give the Altair Short Course and has given it approximately 65 times at various locations around the U.S.A.

Tony Dorbuck, W1YNC – Assistant Technical Editor of QST. He has a M.S.E.E. from the University of Connecticut and has been on staff there in the math and electrical engineering departments. Tony first joined the League in 1955 as a summer student. He was an operator of W1AW in 1971, and started in the Technical department in 1972. Tony is currently responsible for a new R.F.I. booklet and is coordinator for "The Radio Amateur's Handbook."

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### FCC EXAM REMINDER

Don't forget to send in your Form 610 for your FCC exam. Please mention "Omaha Convention" when you answer the "place" question.

If you need 610 forms, drop a note to P. O. Box 1173, Omaha, NE 68101 and we will be happy to send them to you.

FCC exams will be given at 3:00 PM on Friday, October 8, 1976, at the Holiday Inn.

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### NEWS NOTES

Charles A. Michel, KØQVL, informs us that "A good deal can be found for a 2-line, 2-color plastic engraved pin at a cost of \$1.00." If interested in further details, call Charlie at:

391-3782

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8 Hours of microprocessor programs.

\*\*\*\*\*



August 3, 1976

Ak-Sar-Ben Amateur Radio Club, Inc.  
P. O. Box 291  
Omaha, Nebraska 68101

During emergencies, simulated emergency drills, Field Day, etc., the emphasis is on the "operator" at the key or mike; he carries the ball. But little is said about the importance of another member of the team, the "logger," who keeps the record, organizes the messages, incoming and outgoing, assists the operator by double-check on calls, repeats, and prepares answers to queries, makes the local deliveries by relay and prepares return answers.

What makes a good logger? Preferably a Ham, but anyone can do it that is interested in learning the routine of net communications. For practice, tune in a net and just try to copy the calls and other comments that are made, weather, signal conditions, etc. Follow a pair off frequency and try to copy the message traffic. A few minutes a day and you will soon find if this is interesting enough for you to work at it.

When you do check into a net, get the scratch paper out and closely follow the NCS, the replies, instead of finding the NCS then waiting your turn, halfway paying attention to the QNIs, traffic listing, until something comes your way, or it is your turn to NI. With this practice you will be able to back up an operator, as well as improve your own operating ability. And during emergencies, a good operator can keep two "loggers" busy, and more than triple the handling of

traffic. The operator receives and transmits the messages, but the loggers look up the answers and prepare the outgoing messages.

Kick this around and open it up for further discussion and improvements.

Best regards,  
Dayton L. Phifer, WØVEA  
East Tyron Route  
North Platte, NE 69101  
\*\*\*\*\*

## HOMEBREW ANYONE?

How would you like to demonstrate your homebuilt pride? Well, you can at the '76 ARRL Midwest Convention. All that is required is that your project is of your own design (not a kit) and that you have a page or so written up on it (how it works, etc.). There will be a prize (according to how many entries received) awarded to the best presented project.

A small \$1.00 entry fee will be charged. For info call:

Jim Peterson, WBØQGV - 558-0643  
Jon Penner, WBØGQT - 571-5076  
\*\*\*\*\*



## AFRAID TO ASK?

Whether or not we as amateurs want to admit, microprocessors are on their way into the home. Most amateurs will have them for use in home entertainment or small control duties, just as the rest of the public will. Why not use them in your hobby?

There has been some talk about being appliance operators currently.

Grab back that leading edge of electronics experimentation and learn about digital logic. It's coming anyway so why not learn and use modern technology as we should.

Here are a few terms you may need to grasp the upcoming microprocessor Convention programs:

<i>C.P.U.</i>	- Central processing unit or (MPU) microprocessor
<i>R.O.M.</i>	- Read only memory
<i>R.A.M.</i>	- Random access memory
<i>P.I.A.</i>	- Peripheral interface adapter
<i>BIT</i>	- A binary digit, usually a 1 or Zero representation of a positive or negative condition
<i>WORD</i>	- An ordered set of BITS occupying one storage location and treated by the processor as a unit. Most microprocessors currently have 8 BITS to a word
<i>BYTE</i>	- A sequence of adjacent binary digits operated upon as a unit and usually shorter than a WORD
<i>MNEMONIC</i>	- Pertaining to assisting the human memory, usually an abbreviation that is easy to remember
<i>OPERATION CODE</i>	- Part of a 4 computer instruction word, specifying in coded form the operation to be performed
<i>MACHINE LANGUAGE</i>	- A language designed for interpretation and use by a machine without translation
<i>ASSEMBLER</i>	- A computer program that combines subroutines and data prepared in symbolic language (MNEMONIC) and merges them into one main program in machine language
<i>COMPILER</i>	- A computer program used to prepare machine language programs from a program written in another programming language. Each statement in the other language usually generates one or more machine language instructions
<i>BAUD</i>	- A unit of signalling speed equal to the number of discrete conditions or signal events per second

BOOTSTRAP

- A technique or device designed to bring itself into a desired state. (A computer routine whose first few steps provide instructions necessary for continued operation.)

ADDRESS

- An identification, as represented by a name, label, or number, for a register, location in storage, or other data source or destination. Loosely, any part of an instruction which specifies the location of an OPERAND for the instruction

OPERAND

- That which is operated upon.

de WBOQGV

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## SWR MEASUREMENTS

From an Engineer Report — Hy-Gain Electronics Corp.

SWR (standing wave ratio) is a measure of the mismatch between the load (antenna) and the impedance of the feedline. A transmission line terminated by resistive load equal to the impedance of the line will have an SWR of 1:1.

If a 50 ohm coaxial line is terminated with a 25 ohm non-reactive load, the SWR will be 2:1. However, if the resistive component is measured along the line, it will vary depending upon the distance from the load.

At an electrical quarter wave from the load it will reach a peak of 100 ohms falling to 25 ohms at one half wave and repeating this cycle every half wave. Inductive and capacitive reactances introduced by the coaxial line vary with the distance for the load but are zero at the one quarter wave points.

The varying resistive and reactive components in a coaxial line not terminated in its characteristic impedance make SWR measurements on a random length line almost meaning-

less. By taking advantage of the 1:1 transformer characteristic of a half wave length (or multiple) feedline, an SWR bridge can be used for a more meaningful SWR measurement. By inserting the SWR bridge at a half wave (or multiple thereof) from the load, the SWR bridge will see accurately reflected the load impedance without any inductive or capacitive reactances introduced by the coaxial cable. Under these conditions, the only error introduced is line loss.

Since the isolation between the forward and reflected sensing elements on a standard SWR bridge is only about 20 db, SWR readings of 1.7:1 or less cannot be fully relied upon. Accurate antenna impedance measurement requires the use of an RF bridge which can measure the resistive, capacitive and inductive components which make up the antenna input impedance.

(Reprinted from Mike & Key)

Via Florida Skip

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# HAM HUM SWAP

**WANTED:** Entries to the homebrew contest at Midwest Division ARRL Convention. If interested, please contact  
Jon J. Penner, WBØGQT, 6227 Nebraska Ave.,  
Omaha, NE 68104; phone (402) 571-5076

**FOR SALE:** SWAN 500 with AC supply and operators manual; B&W Model 600 Dip Meter, complete set of coils and operators manual. All in mint condition; priced to sell immediately. Call after 6 PM.  
Bob Broom, KØOQL; phone (402) 457-4237

**FOR SALE:** Electronic test bench with built in power supplies. Best offer.  
Dean Cumpston, 2418 Ave. E,  
Council Bluffs, Iowa 51501; phone: 322-7632

**FOR SALE: TEST EQUIPMENT**

1. Tektronix 535A Scope, 15 MHz with dual-trace 53/54 plug-in module, very clean, \$450.00.
2. Hewlett-Packard 524D frequency counters, 0-500 MHz with 10-100 MHz modules only included. 100-500 MHz modules available at surplus stores. \$130.00 each.
3. Pulse generators, Hewlett-Packard from \$20.00 to \$40.00, assortment.

Marty Griffin, WAØGEH, 5408 South 106th St.,  
Omaha, NE 68127; phone (402) 331-5080

\*\*\*\*\*

## BULLETIN

Gus M. Browning, W4BPD, will also be a Convention Speaker. He is the publisher of the DXers Magazine and resides in Cordova, South Carolina. Gus was first licensed in 1927. He has held 168 call signs, and visited 168 countries; he also has spent \$130,000 over 9 years in doing so. During the 600,000 DXpeditions he has been involved with, Gus says he has accumulated 2 tons of QSL cards.

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**Welcome ARMY, AIR FORCE and NAVY MARS**

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Welcome Handi-Hams

MENTION CONVENTION

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# HI-SPIRE TOWERS

The Best Ham Tower

- \* Self-Supporting With A Tri-Bander (X's)
- \* 32' - 40' - 48' - 56'
- \* 3 Mounting Bases
- \* Heavily Galvanized

(X's) Limited to JR TriBander, unless guyed, on 56' towers.

## HI-SPIRE CONSTRUCTION

\$159.95  
32 FOOT TOWER

"THE BEST TOWER VALUE!"



Prices subject to change without notice.  
Heavy steel "beaded" channel design for exceptional strength—much stronger than tubular of same weight. "X" bracing & bridge type construction for exceptional torsional stability. Positive fluted construction & heavy galvanizing makes it exceptionally durable for minimum maintenance. Tapering design provides "nesting" shipment at lower cost to you, as well as lighter sections as you go higher, making it easier to erect.

**THREE BASES:** Rigid concrete (recommended base is 3x3x3 in firm soil, 32-40' models), and 4' deep on 48-56' models. **Hinged concrete** base provides option of lay-over, providing you have suitable "gin-pole" and tackle facilities. And the **EARTH ANCHOR** base requires no concrete and holds well in firm (clay, etc.) soil and may be relocated later.

A custom drilled rotor plate is provided that accepts all CDE rotors (AR22R, TR44, HAM-M) and also the HGAIN with slight enlargement of bolt holes. A friction thrust (lateral) bearing is included.

TOWERS WITH RIGID MOUNTING	BASE INCLUDED	CONCRETE INCLUDED
32 FOOT	..1931B	..\$159.95
40 FOOT	..1751B	..\$199.95
48 FOOT	..2431B	..\$259.95
56 FOOT	..3081B	..\$329.95

ACCESSORY BASES FOR TOWERS ABOVE  
 \* PRICES HIGHER IF ORDERED ALONE  
 \* RIGID CONCRETE BASE, ALL SIZES WITH A TOWER ..... \$129.95  
 \* ORDERED ALONE ..... \$39.95

EARTH ANCHOR BASES, NO CONCRETE  
 FOR 32-40 FT. WITH TOWER \$64.95  
 FOR 32-40 FT. ALONE \* \$89.95  
 FOR 48-56 FT. WITH TOWER \$159.95  
 FOR 48-56 FT. ALONE \* \$189.95  
 \* T WRENCH FOR ANCHOR BASES \$15.00

"HI-SPIRE" towers shipped truck collect from Indiana.  
 NOTE! ADD 10% TO PRICES SHOWN FOR WEST COAST - Ari z. - Colo. - Wyo. - Mont. and all states West of these.



1601 AVE. "D"

Box 864-Council Bluffs, Ia. 51501

CALL: Tues. to Sat. - Noon to 5PM. (712) 323-0142

Hurry! --- FACTORY PRICES INCREASED AUG. 1, LIMITED STOCK AT OLD PRICES!