



# HAM HUM

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



Vol. XVII  
No. 7

July 1967

IN LIEU OF A REGULAR JULY MEETING,  
ARRANGEMENTS HAVE BEEN MADE TO  
TOUR THE COMMUNICATIONS CENTER AT  
THE STRATEGIC AIR COMMAND, OFFUTT  
AIR FORCE BASE, FRIDAY, JULY 14, 1967.

FINAL DETAILS AND SPECIAL ARRANGE-  
MENTS WILL BE ANNOUNCED BY FLYER...  
INCLUDING TIME AND MEETING PLACE.

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



June 10, 1967

Dick Eilers, WQYZV  
Editor - Ham Hum  
AK-SAR-BEN Radio Club, Inc.  
P. O. Box 291  
Omaha 1, Nebr.

Dear OM:

I have been receiving copy of Ham Hum for the past several years and enjoy reading it very much, especially some of the technical articles on antennae, swr, etc. The President of our club, K4SKI, has been receiving the magazine for some time and appreciates it very much.

The Brightleaf Amateur Radio Club was just organized back in January this year as the old Greenville A.R.C. folded, and we are looking forward to big things for the Club in the future.

I will send you a copy of our bulletin each month (no issues in July and August). 73 and hope to BCNU on the air one of these days.

Sincerely,

Robert H. Knapp, W4OMW/W8GUI  
Secy/Treas.

R#7, Box 187

Greenville, N.C. 27834

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PS: My route and box number has been changed from R#2, Box 145-C to: R#7, Box 187 by the Greenville PO Dept.

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Beware of half truths. You may have the wrong half.

from MIKE & KEY

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**YES, VIRGINIA, THERE IS CW!**

In the recent SET, two publications have commented on the poor showing of CW operators in the tests. As I said in my comments to the FCC regarding incentive licensing: 10 wpm solid is a far better test of operating skill than 13 or 16 or 20 wpm with errors. There were many discrepancies in the received text, ranging from a couple of missed letters to the entire text being completely altered - addressee, message body, and all. In some cases message delivery ranged from 47 minutes to 46 hours!

Yes, CW does get through - so does airmail.

de Bandsread  
Cedar Rapids, Ia.

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## JUNE MEETING AT GMTC WELL ATTENDED

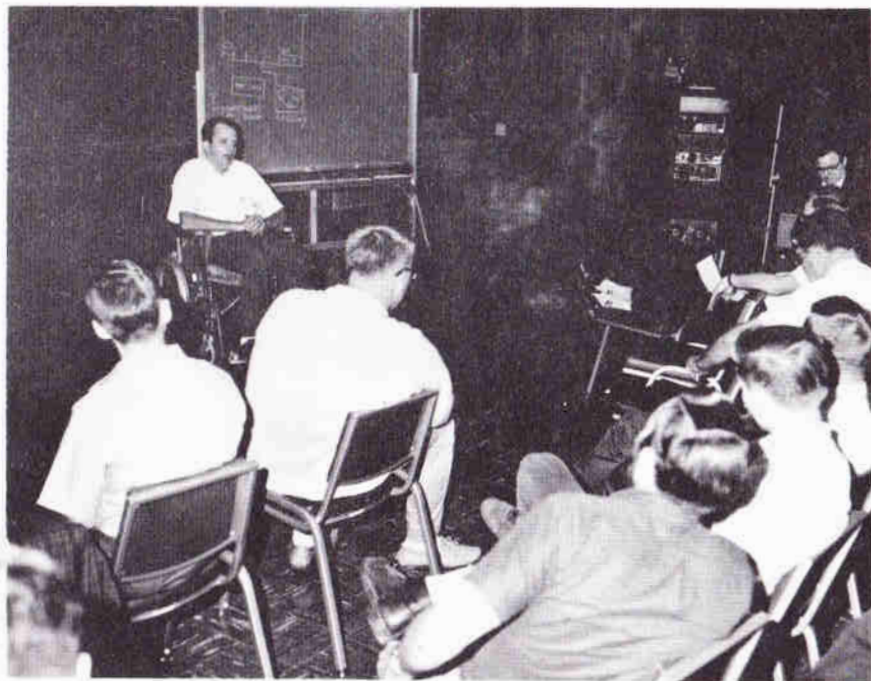
A very interesting program was held at the General Motors Training Center with Royal Enders, KØLYO, host. Jay McAleer, WAØLLQ, addressed the Club with a short talk on the Amateur Radio Emergency Corps (AREC). Registration forms were handed out and participation encouraged.

Jim Droege, WØYCP, gave a short technical talk on the 2-meter FM Repeater. It looks like this repeater may stimulate more activity on 2 meters.

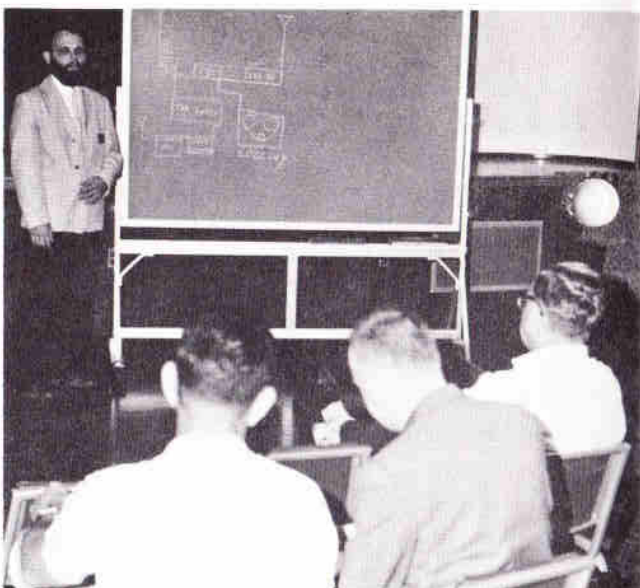
To encourage getting better acquainted with all the members at Club meetings, a prize is given to the 3rd person who shakes the hand

of Mr. Ak-Sar-Ben. You do not know who he or *she* is until the 3rd person shakes his or *her* hand and introduces himself. Yes, this time it was Mrs. Ak-Sar-Ben. Connie Bowen, WAØMYF, presented the *sur-prize* to John Orr, WØPHW. (Sure can tell John likes to meet the ladies! Hi! Hi!) XYL Evelyn trusts him though, and sent him on a week's vacation to California to study last week.

Bob Lockwood, WAØDHU, presented an enthusiastic report on Field Day and slides were shown of previous Field Days. Afterward refreshments were served and eyeball QSO's enjoyed.



Jay McAleer, WAØLLQ, addresses the Club

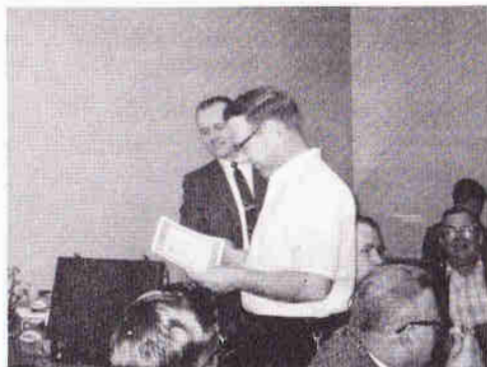


Jim Droege, WØYCP



Connie Bowen, WAQMYF and John Orr, WØPHW

Vice President John D. Snyder,  
WQWRT, presents 20 Year  
Membership Certificate to  
Alan H. McMillan, WØJJK



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June 25, 1967

Ak-Sar-Ben Radio Club, Inc.  
P.O. Box 291 Downtown Station  
Omaha, Nebr. 68101

Hi:

The North Platte VHF Gang, joined by members of the Nebr. 160 meter net, had the most successful Field Day operation ever held by North Platte Amateurs. Contacts were made on 6 meters, 40 meters, and 75 meters. Believe it or not, no hard luck stories.

Made 142 contacts, 24 states, 3 Canadians, including the VE2XPO/2 Canadian Centennial Station.

WAØCBJ furnished the beams, KØYRL furnished the generator, WØVEA the 40 meter rig and antenna, WAØPDW a tent, KØFRU a truck and a keyer, W8ULD/M from Little Rock, Colo., technical advice, WØEFV the bacon and eggs, and others also had a helping hand.

Would you believe it, fair weather, clear and calm! Signals coming in strong on dipole antennae,

even on six meters. What is so rare as a Field Day in June?

Even packing out was surprisingly easy, not even a kink in reeling in the antenna. Now there is a method to that madness; prepare your antenna ahead of time, of course, but we tried braided copper trolling line, and heavy nylon fishing line. No kinks, good enough for Field Day, and no insulators. That nylon fishline eliminates the insulators, and makes a practically invisible antenna, with the copper trolling line. To eliminate strain and sag, we used three poles; have found from other experiments that an antenna level, or even high in the center, loads better than if it sags.

As the zero hour, 2100, approached, the rigs warmed up, operators waited, everyone watched the time, and talked some about the possibility of rattlesnakes there on the hill, an alarm clock set on a tin bucket went off, and so did most everyone else.

Dayton, WØVEA

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## FIELD DAY 1967

That long-awaited day has come and gone. Field Day 1967 goes into the record book as one of WØEQU's best. Thanks to the efforts of a good number of amateurs who really pulled together to make Field Day 1967 the success it was.

The weather, which is always a factor on Field Day, for the most part cooperated quite well. However, Saturday morning was the exception. Have you ever tried putting up an antenna in the rain? Boy, that's fun. Hi! Hi! But thanks to a number of hard-working guys, WØEQU had some real efficient antennas installed for Field Day. After the antennas were installed it stopped raining. We had real nice Field Day weather from then on.

Antennas are real important on Field Day. Ours were better than many home station installations. On 75 meters we had a semi-inverted V with the center up about 40 feet in the breeze. On 40 meters we had an inverted V also. On 30, 15, and 10 we had a 14AVQ and a 14AUS. These verticals really worked, as we worked Guam on 20 and made three contacts in a row to the Canal Zone. On 6 meters we had the Club's big six meter beam, which was mounted on the Club's tower. Yes, WØEQU wasn't hurting for antennas this year!

We had good rigs to feed these antennas. World Radio Lab supplied us with three Galaxy Mark 2s and a back up Galaxy 3. One of the

Mark 2s had trouble when the rigs were checked out before Field Day. We returned it to WRL and exchanged it for a Galaxy 3. To our surprise, WRL repaired the Mark 2 and made a trip clear out to the site to bring it to us. We express our deepest appreciation to World Radio Lab for their effort in supplying us with these rigs.

On 6 meters WAØMRH brought a Swan 250 to the site for use on six meters. The rig developed trouble, however, so we had to resort to the Club's Thor 6. We express our appreciation to WAØMRH, John Bruckner, for a job well done. We are sorry his rig went bad and we hope the trouble wasn't serious. Overall we experienced very little trouble with breakdowns. WØEQU was lucky this year!

Of major importance on Field Day is the cook shack. Doris Moses, XYL to WAØGED, and Eva McClenahan, XYL to WAØDGA, did a good job. These girls didn't get much sleep because they were so busy keeping us well supplied with goodies. At 3:00 A.M. a good hot cup of coffee and rolls sure do taste good. The girls made several trips to the various shacks with food during the night and if a guy wanted coffee or rolls in between time, they were always available in the cook shack. As far as the meals were concerned, there was plenty of food on hand for a hungry Ham. If I were to make a list of all the goodies one could choose to eat, the list would be a

mile long. It can be summed up this way: - if anyone went away from the table hungry, it was his own fault. These girls deserve the highest praise for a job well done.

As stated before, many devoted men made it possible for the success of Field Day 1967 and the list is quite impressive. I will start by thanking Dave Moses, WAØGED, and Harold McClenahan, WAØDGA, for their part in the planning and the preparation leading up to the big day. I have said in the past that a well planned Field Day generally goes off smoothly with a minimum of last minute troubles. This Field Day was a big success and the effort these men put into the preparations payed off for the Club.

We thank Lonnie Merritt, WAØKOD, and Tom Moeller, WAØEXQ, for their part in Field Day 1967. Lonnie made a special trip from Nebraska City to help WØEQU. Tom, who attends a school of broadcasting in Falls City, also made a long trip to be at our Field Day site. Effort such as these boys displayed shows the true spirit of Field Day.

Also to be noted are the efforts of Glen Swanson, KØJQX, Bob Gamble, KØJBS, and Joe Roberts, KØKEO. These men came to the site at a time when relief was much needed.

A good logger is very important in Field Day and we were well supplied. A few of these included Kurt Fischer, son of WØEGP; Jean Kilton, XYL to KØEYR; Harry Silver, WAØDJK; Ken Borchert, KØSCE; Bob Larsen, KØKQI; and many others.

We had quite a number of loggers, many of them holders of Tech privileges who, when they were not operating, volunteered to log for other stations in need of a logger. Our hats go off to these loggers who did a fine job!

One could go on and on praising each individual for his part in this exercise, but space doesn't allow. Therefore, here is a list of people known to have been at the site: Ed Donze, WØYEYV, Charles Michel, KØQVL, Jay McAleer, WAØLLQ, Jim Droege, WØYCP, Jim Knudsen, WAØMHF, John Evans, WAØLMA, Bud Smith, WAØICK, Erv Heinz, WAØEEM, Fred Fischer, WØEGP, Bob Welshinger, WAØKUI; and many others. Field Day 1967 is what we made of it. WØEQU did a fine job in 1967.

The task of preparing the logs to be sent into ARRL is a big one. We made a lot of contacts this year. WAØGED and WAØDGA are coming to my QTH on Monday, July 3 to work on this project. We will have these logs sent in as soon as possible. At a later date we will announce the number of contacts made, but you can take it from me, the number was impressive.

Yes, Field Day 1967 is over and the Ak-Sar-Ben Radio Club did a good job. I said in the past, "Let us pull together to make Field Day '67 the best ever." WØEQU did a good job.

Your Field Day Chairman,  
Bob Lockwood, WAØDHU

P.S. In behalf of the general membership of the Ak-Sar-Ben Radio Club, Inc., your Field Day Chairman expresses deep appreciation to The Rt. Rev. Msgr. Nicholas H. Wegner of Boys Town for the use of his Chalet for our Field Day site.

(Editor's Note: Bob Lockwood, WAØDHU, your Field Day Chairman, would not toot his own whistle in his report. He deserves the commendation of the Club for his energy and effort extended in behalf of the whole Field Day operation. Our thanks to you, Bob, from the Club. A successful Field Day it was!)

\*\*\*\*\*

3490 Bowling Green Way  
Atlanta, Georgia 30040  
June 15, 1967

I do enjoy reading HAM HUM, so here is \$2.00 for postage to keep it coming for awhile. I like to talk to old friends back there, but I just do not hear Omaha very often down here. I'll keep listening, though.

73,  
Lawrence R. Schumacher  
WA4SNS - ex KØSJD

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Office of the  
Section Emergency Coordinator  
May 30, 1967

There are many counties in Nebraska with one or two amateurs. For the benefit of public service in the event of an emergency, it would be beneficial to have these amateurs listed among the AREC members. In counties where there is a sufficient number of amateurs to warrant the appointment of an Emergency Coordinator, but there is none, select someone for appointment. (EC appointees must be a member of ARRL, assistants and members do not.) Many believe no organization is necessary when an emergency arises.....I'll be there! For sure, but how do we know whom to count on? Sign up in AREC, get listed, then we will be sure! Complete an AREC registration form, give it to your EC. If you have no EC or don't know who the EC is, forward the form to me, I'll take care of the rest. Don't delay, we need you now! 73

Tony Cashon, KØOAL  
SEC Nebr.  
P.O. Box 488  
Chadron, Nebr. 69337

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**OFFICIAL BULLETIN NR 116 FROM ARRL HEADQUARTERS  
NEWINGTON CONN JUNE 8 1967 TO ALL RADIO AMATEURS BT**

The United States has concluded reciprocal operating agreements with Norway, Honduras and Switzerland. Amateurs of one country visiting or residing in the other may obtain

permission to operate their amateur stations there. These countries, with Trinidad, are in addition to the list appearing on page 86 of June QST AR

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## MORE ON FIELD DAY

The Ak-Sar-Ben Radio Club held its annual Field Day during Amateur Radio Week, June 24th-25th. We moved our stations to the Elkhorn bluffs about 20 miles west of Omaha to test emergency preparedness. The object of this exercise is to give our hams a chance to test the equipment and procedures we use to help such agencies as the Red Cross, Civil Defense and public utilities when normal communications are disrupted by disasters such as floods, fires and tornadoes. We operated our equipment from gasoline-driven electric generators, just as if power should fail during a real emergency. Bob Lockwood,

WAØDHU, Dave Moses, WAØGED, and Harold McClenahan, WAØDGA, all deserve very special recognition for working as a team before, during and after Field Day exercises. A special work of thanks goes to all who participated in all the various phases of activities, including food service.

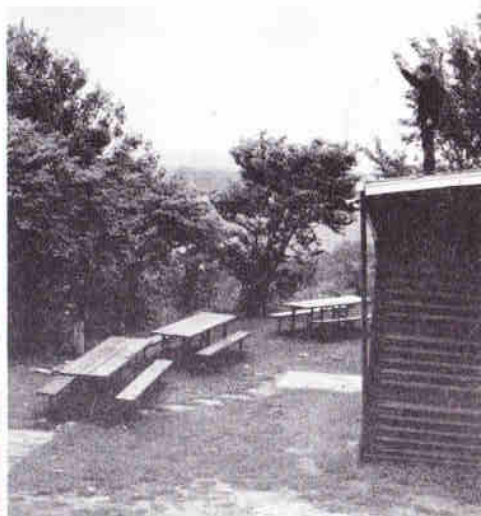
The Centennial touch was added to Field Day activities by the McClenahan's, who were dressed in Centennial costumes and beard. Fidel, WAØDGA, XYL, Eva and YL, Patricia, celebrated Eva's birthday again this year at Field Day. We were wondering why we had all that Caribbean Skip!

WØWRT

Bud Smith, WØICK and John, WAØMRX -  
6 meter station



Bob Lockwood, WAØDHU,  
Chairman of Field Day  
putting up antenna





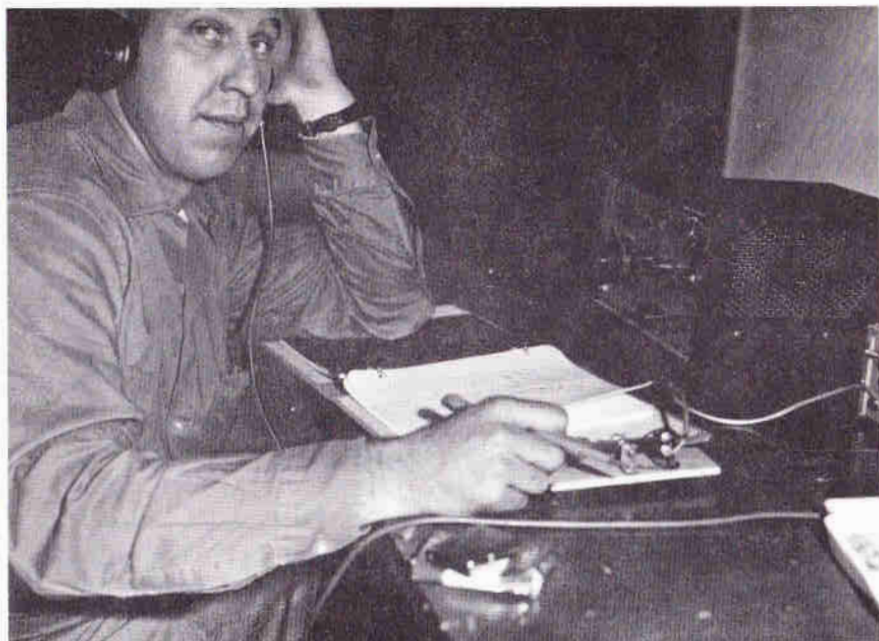
Dave Moses, WAØGED - 20 meter station



WAØKOD, Lonnie; WAØEXO, Tom;  
WØEGP, Fred; WAØDGA, Harold -  
20 meters

WAØDGA and WØYCP - 40 meter station





Dave Moses, WA0GED - CW: W/J.C. Higgins bug  
0300 CST (3 A.M.) 6-25-67

WA0DGA, Harold; XYL, Eva;  
YL, Patricia



**OFFICIAL BULLETIN NR 118  
FROM ARRL HEADQUARTERS  
NEWINGTON CONN JUNE 15 1967  
TO ALL RADIO AMATEURS BT**

Two amateur stations will be operated at the World Scout Jamboree in Farragut State Park, Idaho, August 1 to 9, 1967. The call K7WSJ will be used for general contacts and K7BS for traffic. The weekend of August 5-6 will feature the tenth Jamboree on the Air in which Scouts visit amateur radio stations and talk to other Scouts. Amateurs wishing to help may offer their services to the nearest office of the Boy Scouts of America. Full details appear on page 10 of July QST AR

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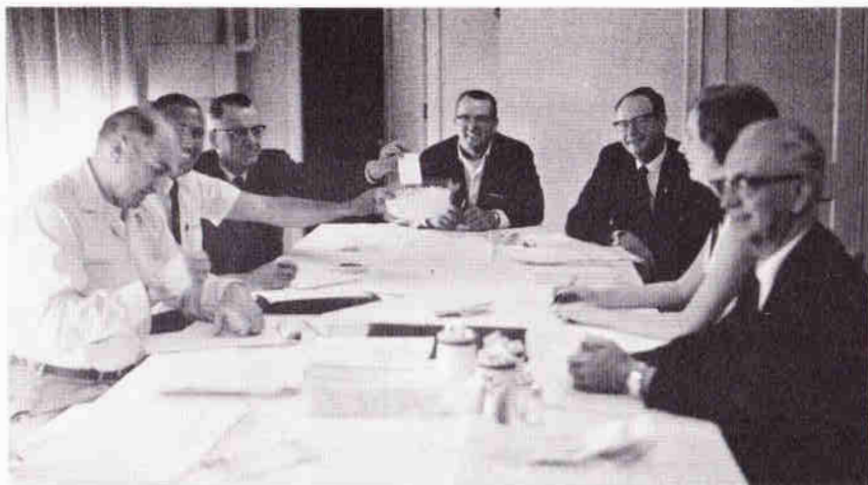


## MIDWEST DIVISION DIRECTOR VISITS...

Sumner Foster, WØGQ, Midwest Division Director of the ARRL Communications Department, arrives at Omaha Eppley Airfield from Cedar Rapids, Iowa, on his way to the Midwest Division Convention at North Platte, Nebraska, for a local eyeball QSO with the Ak-Sar-Ben Radio Club delegation.



Dick Eilers, WØYZV, John Orr, WØPHW, Lou Cutler, WØVLI, and Erv Heinz, WAØEEM (shooting pic), welcome the Midwest Division Director, Sumner Foster, WØGQ to Nebraska Land. A very pleasant QSO and dinner were enjoyed at the Silver Lining.



Charles Kucera, WØFZZ (on left in pic) chairs the Selections Committee meeting at the Clark Hotel in Hastings for the purpose of selecting another O.T. for the Nebraska Hall of Fame. YL Barbara, WAØNFL, did a fine job as Secretary for the meeting. Ballots were being cast in the beautiful white hat. Leo S. Weiler, WØLZO, of the Hastings Radio Club, with 47 years of Amateur Radio behind him, was selected and elected to the Nebraska Hall of Fame. He was nominated by Al Wolf, WØLJO, (right in pic) representing the Hastings Radio Club. Curt Smith, WAØEUM, of Lincoln, Nebraska (holding hat) was nominated as Secretary-Treasurer, with Charles Kucera, WØFZZ, as president of this State Selections Committee. The Hall of Fame Award was presented by Sumner Foster, WØGQ, ARRL Midwest Division Director, to Leo S. Weiler, WØLZO, at the Convention at North Platte following a banquet in his honor.

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### AM vs. SSB?

"Nine-tenths of the serious controversies which arise in life result from misunderstandings, result from one man not knowing the facts which to the other man seem important, or otherwise failing to appreciate his point of view."

Louis Brandeis  
de Bandsread  
Cedar Rapids, Ia.

\*\*\*\*\*

### FOR SALE

Galaxy V and AC Supply  
plus Ranger I

Make offer.

Steve Lustgarten, WAØJES  
4417 N. 78 Avenue  
Omaha, Nebraska 68134  
Phone: 391-5461

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## CANOE RACE 1967 SOUTH DISTRICT

It was very good weather for the Canoe Race. Twelve canoes started at Camp Eagle. Two canoes were pulled at Camp Ashland and ten canoes finished the race. There were 3 hours and 19½ minutes between first place and the last canoe at the finish line. Canoe #4, Post 58A, was in first place in very good time of 10 hours and 14 minutes. Second place #16, Post 95; third place #3, Post 478; fourth place #1, Post 355; fifth place #6, Post 369A; sixth place #17, Post 58B; seventh place, Post 489; eighth place #12, Post 77; ninth place #9, Posts 412, 409, 345; tenth place #7, Post 369B.

Stations operating and riders were: Jay McAleer, WAQLLQ, base station operator.



Royce Johnson, WAQKIL/O, at Camp Sokol, first changeover point.

Start of race was Dick Eilers, WQYZV, and son Tom Eilers; also they were at checkpoint two, High-  
14



Royal Enders, KQLYO, Joe Roberts, KQKEO, Louie Cutler, WQVLI, and Ed Donze, WQYEV, at changeover point at Camp Ashland. Note: Ed was not in the picture - he was at the river edge.

way 77. At checkpoint three, Highway 64, was Fred Fischer, WQEGP, and Jr. Op, Kurt. At checkpoint four, the first changeover at Camp Sokol, were Royce Johnson, WAQKIL, XYL Virginia, WAQNCO, and Jr. Op. Buddy. At checkpoint five at Elkhorn River Junction was Bud Smith, WAQICK. At checkpoint six, second changeover at Camp Ashland, were Royal Enders, KQLYO, Joe Roberts, KQKEO, Louie Cutler, WQVLI, and Ed Donze, WQYEV. At checkpoint seven at South Bend were John Evans, WAQLMA, Stu Russell, WAQNZG, and Bill Lamp. At checkpoint eight, third changeover point at Louisville Lake Area, were Ed Kilton, KQEYR, and XYL Jeanie. At checkpoint nine at Camp Maha were Larry Wise, K5UYH/Q, XYL Millie, W5OVH/Q, and family. At

checkpoint ten at finish line at Merritt Beach were Ervan Heinz, WAØEEM, XYL Sharon and family; also Harold McClenahan, Jr., WAØDGA, XYL Eva and family.

Major Stu Burtt thanks all operators and riders for their help. I want to thank all these operators, helpers and families for a job well done.

Harold McClenahan, Jr.  
WAØDGA, Mobile Chairman



Ed Kilton, KØEYR, and XYL Jeanie at changeover point at Louisville Lake Area.



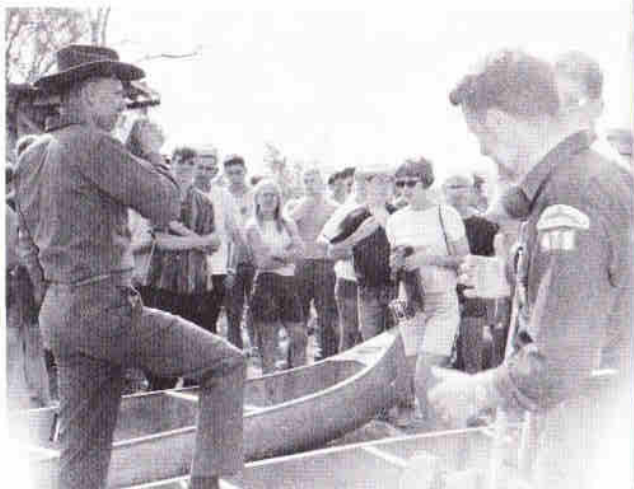
Harold McClenahan, WAØDGA, installs antenna at finish line.

Ervan Heinz, WAØEEM, and Harold McClenahan, WAØDGA, at finish line at Merritt Beach.





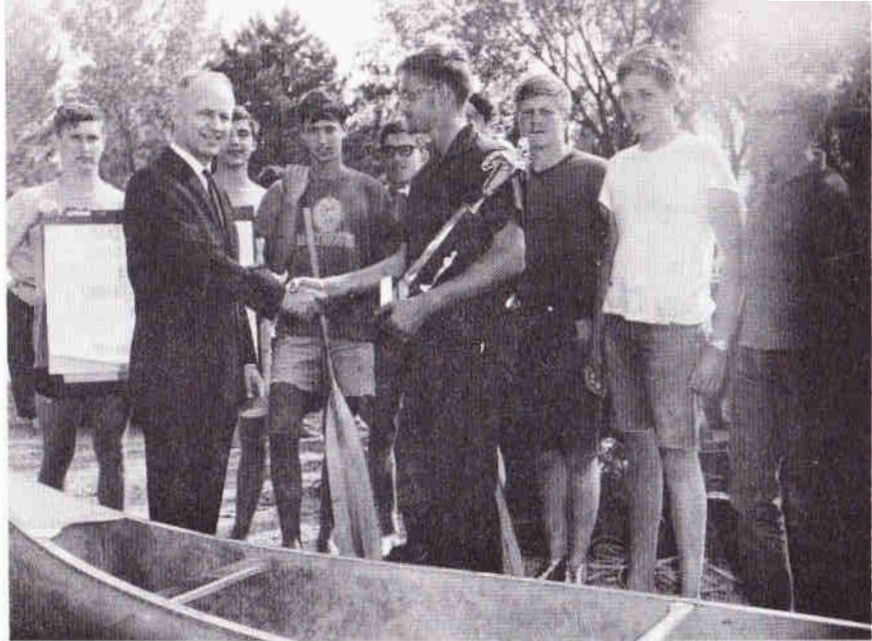
The finish line



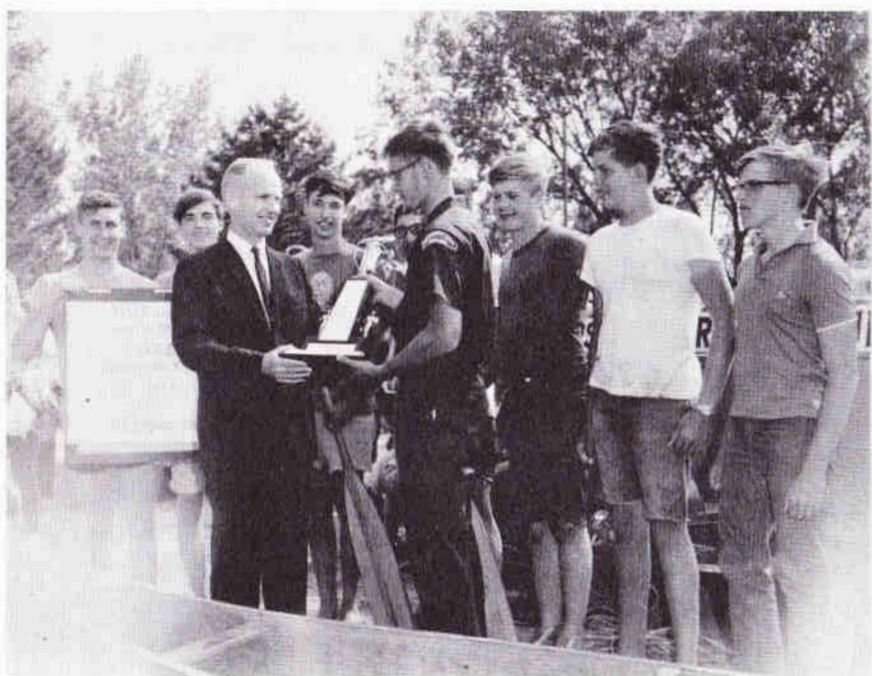
The Winners - Canoe #4, Post 58A







General Knapp presents award to Ray Bosiljevac, coach of winning team, Post 58A.





Winning Team, Post 58A - Roger Olnesory, Gary Ritter, Norm Vogel, Mike Shranek, Chuck Elsasser, Wally Gasper, Bob Krance and Frank Kucirek.

Ray Bosiljevac, coach of winning team, is dunked in Platte River.



## THE OLD GROUCH

In leafing through old copies of periodicals preparatory to putting them out of the way up in the attic (on a pack-rat of the first degree) I discovered that, with this issue, this column begins its fourth year of existence! We have created some arguments, we have received some very laudatory comments on the contents of this column (all forwarded through ye editor), and, in general, feel that the effort has been entirely worthwhile, but still aren't quite satisfied that we are being read as widely as we would wish!

As the bands are monitored, we still find so many things which are wrong with operating practices that we wonder if the run-of-the-mill amateur is ever going to act, voluntarily, on various recommendations made by experienced amateurs or even OBSERVE THE REQUIREMENT OF THE FCC REGULATIONS in certain respects.

Early in 1963, in the interest of improving amateur operations, the ARRL Directors recommended that all amateurs be urged to observe the following principles:

a. Make proper choice of bands below 30 Mc/s appropriate to the distance to be covered.

b. Achieve equipment flexibility so that adequate choice of frequency bands and power input for desired communications distances could be made.

c. Use minimum bandwidth consistent with good engineering practices.

d. Use VHF for local contacts whenever possible, with the ultimate

aim of conducting all short distance communications on these bands.

e. Use the minimum power necessary for each communication.

Monitoring of the bands definitely indicates that little progress has been achieved in the application of these recommendations to an average operating situation!

Conversation with a well-known ARRL Official Observer corroborates my observation that amateurs frequently violate several of the FCC regulations pertaining to the Amateur Service. Specifically some of the Sections of the Regulations which are subject to violation, probably mostly unintentionally, are 97.73 - Purity and stability of emissions; 97.75 - Frequency measurement and regular check; 97.87 - Transmission of call signs, especially the provisions relating to identification when operating portable or mobile; 97.97 - Notice of operation away from authorized location (for periods over 48 hours away); 97.119 - Obscenity, indecency and profanity, and 97.125 - Interference.

Unfortunately, I have observed several instances of intentional interference to amateur communications. The questionable practice of dependence on receiver calibration or reliance on the marking of crystals is more widespread than is generally recognized; it can lead to out-of-hand operation in some cases. The improper identification of stations operating portable or mobile is al-

most universal; refresh your knowledge of the FCC requirement by re-reading Section 97.87 (old Section 12.82), the wording is identical of the FCC Rules.

Let's overhaul our operating practices and see if we can improve our relationship with each other and incidentally, with the listening public.

The Old Grouch  
de Auto-Call  
\*\*\*\*\*

## LET US STRENGTHEN THE AK-SAR-BEN RADIO CLUB!

IS  
AMATEUR  
RADIO  
OR  
SHORT  
WAVE  
LISTENING  
4-U-2?  
1. Hobby  
2. Education  
3. Amusement  
4. Recreation

The Ak-Sar-Ben Radio Club is for all Hams and their families in this area. Join today!

Erv Heinz, WA0EEM  
President  
\*\*\*\*\*

A closed mouth gathers no feet.  
\*\*\*\*\*

An attendance drawing of \$4.00 was won by Jim Droege, W0YCP at the June meeting. The sum was paid only after Jim was called upon to explain the workings of his 2 meter repeater. This may set a precedent in the Club of requiring one to work for money or to get paid for his work.

In any event, this was the first attendance drawing held in four months, and we are glad that Jim was there to win and to explain his repeater.

John Orr  
\*\*\*\*\*

## OFFICIAL BULLETIN NR 120 FROM ARRL HEADQUARTERS NEWINGTON CONN JUNE 29 1967 TO ALL RADIO AMATEURS BT

Now that the 1967 ARRL Field Day has been concluded, clubs and individuals are urged to promptly report their results to ARRL. Page 64 of June QST gives the proper form for a Field Day summary. This must be accompanied by copies of your Field Day logs and postmarked no later than July 24 to be eligible. Photos of your setups and comments on your activity are welcomed. Appropriate publicity material and message copies must be attached to your log for possible credit. Please remember to mail by July 24 and send to ARRL, 225 Main Street, Newington, Connecticut 06111 AR

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**OFFICIAL BULLETIN NR 111  
FROM ARRL HEADQUARTERS  
NEWINGTON CONN MAY 6, 1967  
TO ALL RADIO AMATEURS BT**

The ARRL Board of Directors met at Hartford, Conn. May 5-6 with two days of informal sessions preceding. Membership dues were raised to six dollars fifty cents effective August 1 to cover increased costs of League operation and permit continuance and expansion of membership services. A life membership was established at twenty times the annual rate, or at present one hundred thirty dollars, payable if desired in eight quarterly installments. All applications received by August One will result in charter life memberships. Bylaws were amended to provide for minimum age of 21 for Director candidates. Rejected were proposals for four year Director term, to provide classes of Affiliated Clubs, to put QST back on newsstands, and to pay QST authors. The present Executive Committee was reelected.

Studies were ordered by Board committees or headquarters staff on Novice voice privileges at top end of ten meter band, extra voice subbands in Puerto Rico, establishment of an outgoing QSL Bureau, possible reduced membership rates for new amateurs, Technician privileges on Novice CW bands, recognition of continuous ARRL membership, and the scope of QST treatment of recent equipment.

The Technical Merit Award was

made to W6DNG and VK3ATN for outstanding moonbounce work, and the Board provided funds for support of an amateur space communications center at or near HQ. Early implementation was urged of plans for reinstallation of the W1AW rhombic antenna for better West Coast coverage. The Board thanked numerous League volunteer officials and others who have contributed to the advancement of amateur radio, renewed travel authorizations for QSL managers, SCMS, SECS and NTS managers.

Requests will be made of FCC to establish regulations for repeater stations, to obtain more examination points for amateurs, to provide adequate controls for non-amateur operators in RACES activities, and to implement the proposed rule making on relaxed requirements for call sign identification but to additionally ease requirements in short contacts such as in contests, and to ease the requirement on RTTY identification.

Highlights will appear in June QST and full minutes in July QST  $\overline{AR}$

(Editor's Note: Sorry we missed this bulletin in last issue. Perhaps you have already read it in June QST.)

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**OFFICIAL BULLETIN NR 119  
FROM ARRL HEADQUARTERS  
NEWINGTON CONN JUNE 22 1967  
TO ALL RADIO AMATEURS BT**

July 15, 1967 is the deadline this year for registering nets in the annual ARRL cross indexed net di-

rectory. If your net registration has not been renewed within the past year, you should register again following the directions shown on pages 66 and 67 of June 1966 QST. Please give your winter net meeting time in GMT with an asterisk if the net meets an hour earlier six months a year during daylight savings time. Form CD-85, the Net Registration Card, is available upon request from the ARRL Communications Department, 225 Main Street, Newington, Connecticut, 06111 AR

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### HOW COME 50 OHM COAXIAL CABLE?

by W2AXU, Jack Power

Have you ever wondered why we use 50 ohm coaxial cable as a standard? The "why" becomes quite logical once the facts are examined.

The impedance of a coax line is determined by the ratio of the diameter of the inner conductor to the inside diameter of the outer conductor, and by the dielectric constant of the medium between these conductors. Air, for instance, has a dielectric constant of 1.

Cables of different characteristic impedances are best for certain requirements. If power-carrying capacity is required, a cable having a conductor ratio of 1.65, which is equal to an impedance of 30 ohms, would be used. Requiring the lowest attenuation for the transmission of r-f energy, a ratio of 3.6, equaling 77 ohms, would be the best choice.

A cable for use with the highest voltage breakdown characteristic would have a ratio of 2.7 corresponding to an impedance of 60 ohms.

If one looks at all of the various characteristics, it appears that a cable of 50 ohms impedance is a compromise. A 50 ohm cable has about 10 percent more attenuation than the 77 ohm cable, about 1 or 2 percent less voltage handling capacity and approximately 20 percent less power handling capacity. However, another possibility arises. In the early days of UHF and microwave work, large powers were not available so the lowest loss type transmission line was used. This was 77 ohms. Later as low-loss dielectric materials were developed, such as polyethylene, they were used to fabricate flexible coaxial cable. Polyethylene has a dielectric constant of 2.3. Putting this into the formulas for determining the characteristic impedance of a coaxial line, the answer turns out, strangely enough, to be 51 ohms. For those interested, this formula is  $Z_0 = Z_1/K$  where  $Z_0$  equals the characteristic impedance of the cable,  $Z_1$  equals the characteristic impedance of the air line and  $K$  equals the dielectric constant of the materials.

The formula for determining the characteristic impedance of coaxial cable is  $Z_0 = 138/K \log_{10} D/d$  where  $D$  equals inside diameter of outer conductor and  $d$  equals diameter of inside conductor.

from Pack Rats Cheese Bits,  
Phila., Pa.

\*\*\*\*\*

June 7, 1967

Dear Friends:

Enclosed find a couple of \$'s to defray postage and mailing. Sure enjoy Ham Hum and hearing and seeing some of the old timers. I will see more later when I get settled. New address below. Bought a home so will have to stay.

73's to all,  
Millard J. Edgerton, WA6VZZ  
825 Sutter Avenue  
Palo Alto, Calif. 94303

\*\*\*\*\*

### FUN AND FILOSOFEE.....

Two disgruntled farmers liked to gripe to each other. "Never did see hay grow as short as mine this summer," grumbled one. "You think yours is short," snapped the other. "I had to lather mine to mow it."

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"What are these tickets I found in my husband's pocket?"

"Your husband is an archaeologist. These tickets are evidence of a lost race."

de Signal Report

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I have found that the easiest way to stay awake during an after-dinner speech is to deliver it.

\*\*\*\*\*

### HELPFUL HINT

Ever wonder what are the ratings or specs on some choice piece of junk in your radio parlor? This won't tell you the answer, but once you do get the info, write it on a small white stick-on label (Avery labels) or put it on a tag and tie to a lug. Then you can clear your memory stack.

de Bandsread  
Cedar Rapids, Ia.

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### OFFICIAL BULLETIN NR 117 FROM ARRL HEADQUARTERS NEWINGTON CONN JUNE 8 1967 TO ALL RADIO AMATEURS BT

FCC has added another nine questions to its study material for the Novice license. The questions with answers prepared by the ARRL headquarters staff will appear in future copies of the License Manual and in the July issue of QST. In addition, preprints are available and will be sent by ARRL upon receipt of a self-addressed stamped envelope AR

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The hardest thing to give away is kindness. It keeps coming back to the giver.

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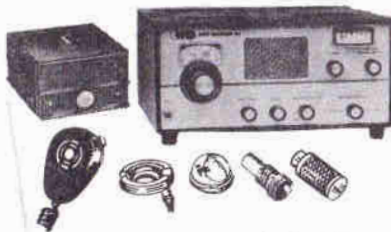
## "Duo-Bander 84"

80-40 Meter  
SSB Transceiver

Ham Net \$159<sup>95</sup>

WRL CHARG-A-PLAN 58 Monthly

### A Complete 80-40 Meter MOBILE PACKAGE!



Includes 1 ea.: Duo-Bander 84, DC384 Power Supply, one Band-spanner Antenna, BDYF Mount, 350C mic, Mic. Plug, PL.259 Plug, UG176/U Reducer and 25' RG58/U coax Cable. All supply cables are included.

ORDER: ZZA-103 package (\$15 monthly)...Regularly \$299.95 WITH BONUS COUPON...\$279.95. (\$14 monthly)

### A Complete 80-40 Meter FIXED STATION PACKAGE!

Includes 1 ea.: Duo-Bander 84, AC48 250 watt supply, 80/40 Duo-Doublet Antenna kit, 350C mic., Mic. Plug, PL.259 Plug, UG-176/U Reducer and 100 ft. RG58/U coax cable.

ORDER: ZZA-104 Package (\$11 monthly)...Regularly \$225.00 WITH BONUS COUPON...\$205.00 (\$10 monthly)

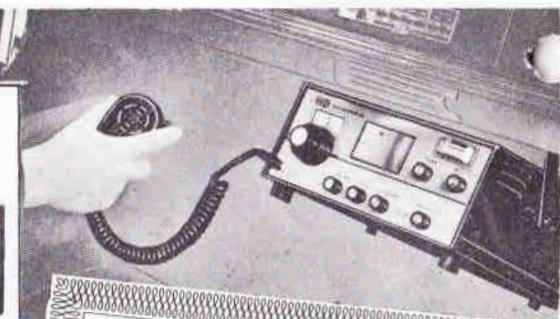
ORDER: ZZA-105 Package (same as above with 300 watt AC supply)...Regularly \$255.00 WITH BONUS COUPON \$235.00 (\$12 monthly)

### Look at these DUO-BANDER 84 FEATURES!

- 300 watts PEP-SSB • Rugged-Reliable Printed Circuitry • 2k-Hz Dial Calibration • Dual-Speed Vernier VFO tuning • E-Z One-Knob Tune-Up - "Just Peak Output" • Built-in Speaker • Mobile Bracket supplied • Combination "S" and Output meter • Crystal Lattice Filter.

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Designed for the Amateur whose interest is 80 and 40 meter SSB. Here's Power to make good contacts...a Selective Receiver...Stability...Compactness (only 5x11 1/4x10"). A GREAT value at the regular price...NOW SAVE \$20.00 on a package with the BONUS COUPON. Purchase yours NOW with our easy, monthly terms, too!

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HHX

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- Duo-Bander MOBILE Package ZZA-103 @ \$299.95
- Duo-Bander Fixed Package ZZA-104 @ \$225.00
- Duo-Bander Fixed Package ZZA-105 @ \$255.00
- Your FREE 1967 HAM Catalog
- I am enclosing one BONUS COUPON as I have no trades. Deduct \$20.00 from the regular package price above.
- My check or Money Order for \$\_\_\_\_\_ is attached.
- Charge it to my WRL charge Acct # \_\_\_\_\_

Name \_\_\_\_\_

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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_