HAM HUM

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

June 1970

Vol. XX
No. 6

NEXT MEETING

WHEN: Friday – June 12, 1970

TIME: 8:00 P.M.

WHERE: Red Cross Chapter House – Club Room
432 South 39th Street, Omaha

WHAT: Plans and preparations for Field Day. Slides and movies of former Field Days. (If you have any to show, bring them with you to the meeting.)

Eyeball QSOs and refreshments.

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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.

Next copy deadline: June 26th

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FIELD DAY 1970

By Bob Lockwood, WAØDHU

The big event is almost upon us with Field Day falling on Saturday and Sunday, June 27th and 28th. What does Field Day mean to you and what part can you play? Come to the June meeting of the Ak-Sar-Ben Radio Club and find out. This meeting will center around Field Day.

In the past many novice operators have taken an active roll in the activities and have been a great asset in the project. The ARRL rules have made it possible for our club to set up a station to be manned strictly by novices, so now is your chance to really get into the swing of things.

Also don't forget we still have competition with the Bellevue Radio Club for possession of the Field Day trophy. The trophy is won for a given year by the club whose two top scoring rigs net the most points. This arrangement was made to put the two clubs on an equal basis in this competition. The club which wins three out of five years wins the trophy for good. The Ak-Sar-Ben Radio Club, Inc. has won two years in a row. Let's go all the way in Field Day 1970!

Come to the June meeting; come to the big pep rally; but most important, come to Field Day 1970. Our Club has taken top honors in our call area and has been high on national standards for three years straight. Let's do it again in 1970. Come to Field Day, have a ball, and let's have that old teamwork. Let's make this one a winner.

****

NEWS NOTE FROM WAØDHU

As a result of the Code and Theory classes, two more individuals have completed their novice exams and are patiently waiting for new novice tickets:

Milo J. Nechvatal
Dan C. Pettengill

Congratulations for a job well done and good luck!

****

SUGGESTED INSTRUCTIONS FOR USE OF TWO METER FM REPEATER STATION

The Ak-Sar-Ben Radio Club, Inc. has provided a Two Meter FM Repeater Station for the benefit of all amateurs in the Greater Omaha area. Your cooperation in observing the following instructions will be appreciated:

1. Repeater will receive your transmission on 146.340 Mhz and retransmit on 146.940 Mhz.
2. Logging of the repeater takes place during the first 12 seconds of a QSO. Log your station and local time.
3. To log a breaking station, allow the repeater a few seconds without carrier; it will drop out and reset the log tape. Then make your identification within 12 seconds.
4. If possible, all stations in QSO should use repeater to avoid excess use of tape. Not, for example, one station direct on 94 and the other through the repeater.
5. Two or more stations working direct are requested to use some other frequencies. We suggest 146.760 Mhz.
6. Please maintain your FM deviation between 5 and 7 Khz.
7. Do not give the repeater a carrier unless you intend to call and identify as it wastes logging tape. Unless down for repairs, the repeater is on most of the time.
8. Tape logging for the repeater does not mean you should not keep your own log. You must follow regulations regarding the use of your own station. Please complete your log for each transmission and don't forget to reidentify at intervals according to regulations.
9. Any suggestions may be addressed to the Club.

Thank you!
REPEATER COMMITTEE
****

No. Platte, Nebr. 69101
May 17, 1970

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

Gentlemen:

Thank you for running the ad on the ham gear of my late husband, WØWFG and also for sending me the copy of Ham Hum.

I delayed writing you until now to see if I got any replies. I received a letter yesterday from Stamford, Conn. asking for the Galaxy GT 550.

My thanks to you again.

Sincerely,
Mrs. G. E. Scott
2015 Beverly Blvd.
North Platte
Nebraska 69101
****

FOR SALE

Office desk for ham shack, oak wood, 34 x 60, good condition. Asking $30.00.

Call Jim Anderson, KØDNE
556-2412
****

MAY MEETING

By Erv Heinz, WAØEEM

Our May meeting was highlighted with the presentation of two NASA films, Apollo VIII and Apollo XI moon shots and landings, which were supplied to our Club through the courtesy of Congressman Glenn Cunningham. The entire viewing membership (including many oldtime members) applauded both films which attracted them to this meeting as they were impressed with the photography and coverage of both missions.

We are in debt to Dick Eilers, WØYZV, for lining up these films and who is currently visiting the NASA project in the Bahamas. Maybe we can entice Dick to give us a briefing of his recent trip at our next meeting.

Picture 1—Charles Kelly, WNØ-UZX, of Missouri Valley, Iowa commended the instructors who conducted the Code and Theory classes and presented them with tie clasps and cuff links with call letters. His most appropriate presentation speech follows:

"As most of you know, we had a Code and Theory Class for 15 weeks the first part of this year. I was one of the many who participated in this class and it did me a lot of good. I had failed the theory test twice before and I passed it this time, so I give the instructors credit for this.

"Members of this class decided that they would like to give the instructors a little gift and appointed me to take care of it. Some of you know that I am in the jewelry business, so it will be a pretty good bet that the gift will be something in the jewelry line.

"If you give a jeweler a chance to talk, he will eventually get around to talking about diamonds, so I would like to take this opportunity to tell you something about diamonds. When diamonds are first found they look like a clear crystal rock, in fact it is sometimes hard to tell a diamond from a clear crystal rock. The experts will study this diamond in the rough to see how they can cleave and cut it to get the most out of it. Then they cut it to the proper shape and then put the high polish on it and it becomes a shining thing of beauty.

"Now I would like to compare our class to diamonds in the rough. In the first few weeks the instructors studied us to see how they could cut off the rough edges; the next few weeks began to get us in shape; the last four weeks Bob Lockwood brought his keyer down and sent us code from the newspaper and this really put on the high polish. We were then ready to go forth into the world as shining examples of what could be accomplished by the Ak-Sar-Ben Radio Club.

"I see that we have two of our instructors with us this evening; Mr.

Bob Lockwood, WAØDHU, and Mr. Bob Andrus, KØLUG (picture 2). If they would please come forward I would like to present them with their gifts and take this opportunity to thank them and the Ak-Sar-Ben Radio Club for the time and effort that they devoted to us."

Picture 3—Bob Andrus, KØLUG, 1970 Field Day Chairman, fires up the membership for another competitive Field Day.

Picture 4—Larry Caccomo, WØNMN, was the first Ham to finally shake the hand of Mrs. Ak-Sar-Ben, Eva McClenahan. For this he received a nice memento for his friendliness and cordiality. To his right is Sharlene Anderson, who says she's expecting their baby on Field Day. What do you think of that QSO, Jim? This would be the first Field Day they would miss since they affiliated with our Club. Dollars to donuts they'll be there! Be at Field Day yourself to find out and you'll know for sure!

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OFFICIAL BULLETIN NR 271 FROM ARRL HEADQUARTERS NEWINGTON CONN MAY 2 1970 TO ALL RADIO AMATEURS BT

The ARRL Board of Directors in annual meeting May 1 - 2 directed the filing of strong opposition to restrictive FCC proposals on VHF repeaters. League will request rules permitting maximum privileges such as chain linking, code access optional rather than mandatory, crossband operation permitted, elimination of restrictive subbands. The Board discussed all aspects of radiotelephony subbands on lower frequencies and decided it was not in best interests of U.S. amateurs to propose expansion at this time. The Board established a permanent structure of advisory committees, continued the present two on contests and VHF repeaters, and announced a new one on DX matters. The VHF repeater committee in particular was commended for outstanding work on FCC rules proposals. Family and blind membership dues were raised to two dollars to more nearly represent true costs. W3GKP and W4HHK jointly received the ARRL Technical Merit Award for outstanding achievements in Moonbounce communication. A national convention was approved for Labor Day weekend 1972 in Long Beach, Calif. Studies in depth were ordered on several additional matters, such as reduced teen-age membership fees, W1AW daytime code practice and bulletins, a League station on West Coast, payment for articles in QST, retired staff employee pensions, a series of articles on construction of hand held emergency gear, and interference to solid state home entertainment devices. A list of manufacturers supplying free high pass TV filters will be assembled and published. Subjects discussed but rejected were a move of W1AW frequencies, a propagation column in QST, mandatory meetings of the Board twice yearly, and a promotional book aimed at teen-agers which the Board felt needed further study. Directors ordered the sponsorship of a 160 meter contest, and change to 175 miles the current 100 mile limit for affiliated club aggregate contest scores. Charles G. Compton, WØBUO was newly elected as First Vice President and incumbent W. M. Groves, W5NW, was given a standing ovation for his 35 years of dedicated service to ARRL and made an honorary VP. Robert Thurston, W7PGY, was elected to the vacancy on the Executive Committee. Carl L. Smith, WØBWJ, is a new additional Vice President and Gilbert L. Crossley, W3YA, a new honorary VP. All other officers and Executive Committee members were reelected. Highlights of the meeting will appear in June QST and full minutes in the July issue AR

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CB NOTICE

Al McMillan, WØJJK, of World Radio Lab calls our attention to the fact the FCC has declared Channel Citizen Band for emergencies only after July 24, 1970. Those of you who also have CB licenses, please note.

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UNDERSTANDING TRANSISTORS

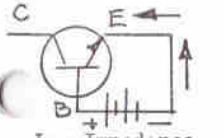
by Jim White
Associate Member, M. E. M. E.

Transistor action can be considered as a small input current controlling a larger output current. The transistor in question is capable of amplification or power gain due to the difference of input versus output impedance. The input circuit of the transistor (base emitter for most applications) is biased in a forward direction. This will cause the base emitter circuit to be quite low in resistance (impedance) and a current will flow. The output circuit of the transistor (base collector circuit for most applications) is biased in a reverse direction. This will cause the base collector circuit to be in a very high resistance state (non-conducting). The impedance ratio therefore, between the forward biased emitter circuit and the reverse biased base-collector circuit is very high, in some cases 1,500:1.

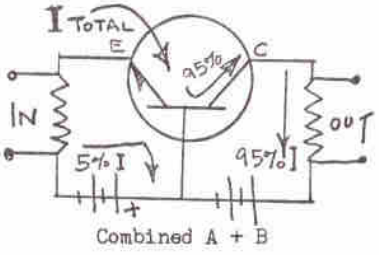
As per the above description, the emitter base is forward biased and a large amount of current flows. The collector base is reverse biased and practically no current flows.

The two circuits when combined as shown in the drawing create a surprisingly different effect. The large current (I) flowing in the forward biased diode, which initially appeared in the emitter base circuit, now diffuses through the thin base region and appears as collector current (95% I). The former large current through the base circuit now diminishes to a mere trickle (5% I). This is a result of the strong positive charge at the collector terminal diverting the previous flow from emitter to base to emitter collector. Over 95% of the current (I) flowing in the low impedance emitter circuit, now appears in the high impedance (reverse biased) collector circuit. Since power equals current squared, times the resistance ($P=I^2R$), it is readily apparent that if I remains substantially the same (I compared to 95% I) and R changes radically, a considerable power gain is realized. In other words, practically the same current is flowing in the low impedance input circuit as

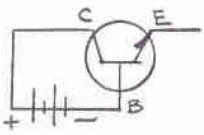
(copy continued on page 10)



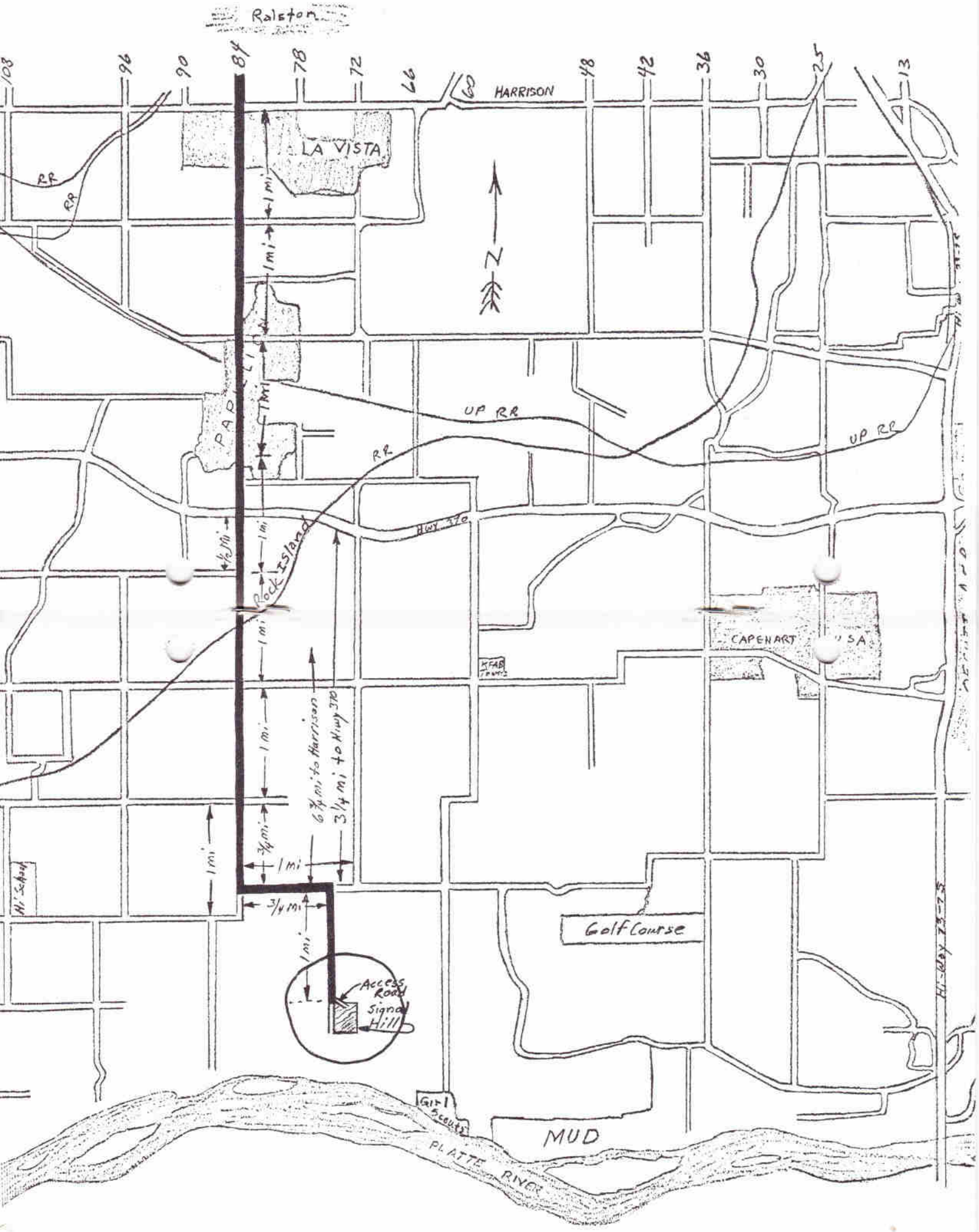
Low Impedance
High Current Flow
--- Circuit A ---



Combined A + B



High Impedance
Low Current Flow
-- Circuit B --


Ralston
108
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72
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HARRISON
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25
13
LA VISTA
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RR
1 mi
1 mi
N
PAPILLION
1 mi
UP RR
RR
UP RR
½ mi
1 mi
Rock Island
Hwy 370
1 mi
CAPEHART
USA
KFAB
1 mi
6¼ mi to Harrison
3¼ mi to Hwy 370
¾ mi
1 mi
Hi School
¾ mi
1 mi
Golf Course
Access Road
Signal Hill
Girl Scouts
MUD
PLATTE RIVER
Hi-Way 275

(Cont'd from page 7)

the high impedance output circuit. All transistor operation is based on this principle. The transistor can be connected in various ways regarding input and output configurations. The type of connection determines the type of power gain the signal will control.

de Fresno Skip

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MORE ON FIELD DAY

Field Day coming up, 27 and 28 June, 1970. Field Day Committee is: Bob Lockwood, WAØDHU, hf; Harold McClenahan, WAØDGA, food; Jim Droege, WØYCP, VHF; and Bob Andrus, KØLUG, activities chairman.

The rules and regulations are like last year with one or two exceptions: novices can operate their own frequency, with our four frequency concept; opening time is one hour earlier than last year.

Galaxy Electronics will again furnish four 550 Transceivers for our use. Everyone is encouraged to come out for the antenna raising party and stay as long as you can – all night if possible. Remember, this is a family outing so bring the better half to hold your head up after midnight. Further info may be had at the Club meeting on 12 June and the map on how to get there is included in this issue.

KØLUG

****

Can YOU remember when telling a person he looked as sound as a dollar was a compliment?

de Ham Monitor

****

CHECK YOURSELF ON POINTS LIKE THESE . . .

Are you willing for others to furnish you with a peaceful, orderly world? Or do you realize that you really owe it to everybody to carry your own share of the burden?

Do you throw "cold water" on people who show a bit of imagination and enterprise in tackling the big problems of our day? Or do you give them the assurance you would want if you showed similar initiative?

Do you habitually show others the same warmth and attentiveness that you expect for yourself? Or are you inclined to be impersonal and even abrupt in dealing with others?

Do you tend to make many judgements about others? Or do you make it a practice to "judge as you would be judged?"

Do you hold grudges? Are you quick to take offense? Are you easily hurt? Or do you make the same allowance for the thoughtless blunders and oversights of others that you think they should make for you?

Do you devote to others less fortunate the time and attention that you would wish if you were in their circumstances? Or do you spend practically all of your time, energy and money on self?

The Christophers

de Florida Skip

****

When the XYL lowers her voice it's a sign that she wants something; when she raises it, it is a sign that she didn't get it.

de Ham Monitor

****

May 9 – 1970

Dear OM:

Received the May issue of Ham Hum and I enjoyed it very much. I especially liked the center spread of formulas, and if it is possible, I would like to get your permission to have a few copies made to give to our club and net members. Of course I'll give Ham Hum credit. Oh yes, I am interested in collecting amateur call letter auto plates; if you would note this in next issue of Ham Hum I'll appreciate it. I need one from all states in the Ø call district.

73's and best wishes to you and Ham Hum.

K4EO
Clarence V. Blalock
334 Belmont Circle
Albemarle, N. C. 28001

****

THANK YOU!

I would like to express my thanks to the members of the Club's 1970 Code and Theory class for their presentation of the engraved tie clasp and cuff links. Good luck to all of you!

John Snyder, WØWRT
Associate Editor

****

FOR SALE

HQ-170 Receiver like new condx. Must sell. Guaranteed. First $175. Tom Bracket, KØJFN, Fremont. Fone 721-6139 or find on 3982 kc at 12:30 noon.

****

"WHY NO X CALLS"

In the April issue of Ham Hum was an article asking why there are no ham X calls.

From a 1931 "Radio News" magazine, an article said X calls were for television. The calls were like W2XCR. The number on the call told what area the station was in, like our present ham areas. Some stations were W2XCR of New York City, W2XCD, W3XK, W2XBU and W3XE. These early stations used scanning discs and radiovisors. They worked from 100 to 150 meters.

Bill Snyder

****

Always try to drive so that your license will expire before you do.

de Ham Monitor

****

ADVERTISING RATE SCHEDULE HAM HUM

	Per Issue
Full page	$15.00
One-half page	8.00
One-fourth page	4.50
One-eighth page	2.50
One-twelfth page	2.00

Specials

Front (three-fourths page)	20.00
Inside front cover	18.00
Inside back cover	17.00
Center spread	32.00

Above prices are for camera ready copy.

Hams ads free, subject to space limitation.

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FIG. 1.
FULL WAVE

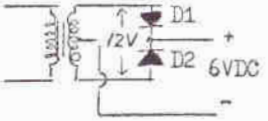


FIG. 2.
HALF WAVE

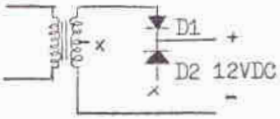
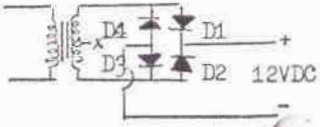
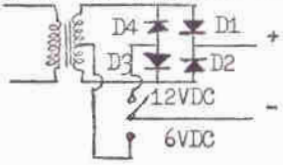


FIG. 3.
BRIDGE CIRCUIT



Don't throw away that old 6-volt battery charger! It probably can be converted into a 12 volt system. First, check to see if the existing transformer has a centertap. If so, this will indicate that the overall potential of the transformer is 12 volts, (6 volts each side of centertap). (See Fig. 1.) In this configuration the unit is wired as a full-wave centertap circuit supplying 6 volts direct current in its output. This circuit uses two rectifying arms but only half of the transformer secondary during each half cycle. The potential from either end of the transformer secondary winding to the centertap is equal to the full DC output, therefore, two secondary windings of 6 volts each, in series, will produce the desired 12 volts when used in a half-wave rectifier circuit (see Fig. 2). This change requires no additional parts other than those already provided in the basic unit. Disconnect diode D2 at one end of transformer secondary and let this remain disconnected. Disconnect the negative battery line from the transformer centertap and reconnect to the secondary end of the transformer winding. You now have a 12 volt DC output from a half-wave rectifier circuit. This half-wave circuit is simple and economical, however, less efficient than the full wave or the bridge rectifier, but it will satisfy the demands of a simple battery charger. If you happen to have a couple of extra power diodes just lying around gathering dust, I would recommend the following. (See Fig. 3.) In this system, the addition of the two diodes D3 and D4 will provide a bridge rectifier with improved performance. Connect the two diodes D3 and D4 back to back and shunt across D1 and D2 as indicated in Fig. 3. Disconnect the negative battery line from the transformer centertap and reconnect at the junction of D3 and D4. Your 12 volt battery charger is now complete. If you desire extra refinement, the addition of a SPDT switch will provide a choice of output potentials, either 6 volts or 12 volts. (See Fig. 4.) Switch should be rugged enough to withstand the current drain from the system.

FIG. 4.
6 V. - 12 V. BRIDGE CIRCUIT



A voltmeter no-load test will probably produce a false reading slightly higher than 12 volts, but this is normal with all battery charger transformers. As charger is connected to a load, such as a battery, the potential will stabilize at 12 volts.

Lawrence F. Caccomo, WØNMN

****

Dayton L. Phifer, WØVEA
East Tryon Route
North Platte, Neb. 69101

May 20, 1970

Ham Hum
Ak-Sar-Ben Radio Club Inc.
P. O. Box 291
Omaha, Neb. 68101

Hi:

The trend toward vertical polarization on 2 meters, and the gain problems with verticals presented an interesting situation.

Directional gain antennae are fine, but for mobiles, and group participation, an omnidirectional gain antenna is needed.

For mobiles, I find the ¾ wave, J match excellent; and for fixed station, the ¾ wave ground plane, 30 degree droop radials, with J match, has very good gain and easy loading over a broad range of frequencies.

This J match business, many have complained of difficulty in achieving broad loading with it. The solution seems to be to fasten the lower end of the ¼ wave J match close to the antenna base, then space the top out from the vertical until you get maximum loading, as shown on the Field Strength meter. F.S. antenna placed as far from the antenna as you can get a reading, then tune for gain.

I use the same size tubing for the J match as I use in the vertical, found smaller J match tubing did not work as well.

73,
Dayton, WØVEA
****

PRESIDENT'S CORNER

Dick outdid himself again for the month of May with the movies of Apollo VIII and Apollo XI. We had a good turnout of members and guests at the meeting.

Guest Charles Kelly, WNØUZX, from Missouri Valley, Iowa, presented special tokens to code and theory class officials in appreciation of the time spent in keeping members of the class interested in the programs presented. The classes could not have been successful if it was not for workers such as John Snyder, WØWRT, Bob Lockwood, WAØDHU, Bob Andrus, KØLUG, Bryce Nelson, WAØTSO, Larry Bates, WAØWTP, John Giulietti, K1MNF, and others.

Our thanks to Father Haller, WØGPT, of Creighton Prep for the use of the instructograph and to ARRL for the use of the films. I wish to add my personal thanks to each individual who helped with these classes.

73,
Harold McClenahan, Jr., WAØDGA
****

Sumner H. Foster, WØGQ, Midwest Division Director ARRL, has appointed Dick L. Eilers, WØYZV, as Assistant Director for the Division. This is consistent with appointments made by Directors of the several Divisions. These appointments are made to assist the Division Director, particularly in the area of gathering suggestions, ideas, complaints, comments, and possibly even compliments from the individual member of ARRL so as to improve the communication path throughout the organization.

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OFFICIAL BULLETIN NR 272 FROM ARRL HEADQUARTERS NEWINGTON CONN MAY 14 1970 TO ALL RADIO AMATEURS BT

A group of amateur stations at various colleges calling itself the student informational network is operating on 75, 40 and 20 meter voice. Some stations in the network have said that their activity is with the approval of ARRL and FCC. This statement is totally false repeat false. As indicated in the February 1969 QST editorial the league deplores the use of amateur radio for this kind of activity. At the same time, the league points out that the malicious interference which has occured as a reaction to the student activities is patently illegal and equally undesirable. Nevertheless the questions raised are purely regulatory, and thus the matter is entirely within the jurisdiction of FCC, which is monitoring the activity AR

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"And you complain about your wife's cooking!"

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DX NOTES
By W5GR

No subject is closer to a DX man's heart than that of antennas. Here, certainly, is where one separates the men from the boys. Everyone limited to the same maximum power input, all modern receivers have better than one microvolt sensitivity, but wow, is there ever a difference between antennas! And there are no limits on antennas!

DX-wise, the most important antenna parameter is *angle of radiation* and *low* is the secret. For 10-meter long haul, for instance only that power radiated at angles of less than 15 degrees contributes to the signal strength. The rest is wasted, except for short skip openings. Well, if low is the word, and lower the better, just how do I get my super lightening signal squirter to radiate at low angles? – The answers (and there are more than one) are fortunately simple. If your antenna is a vertical, you must have near perfect ground conduction for at least a wavelength in all directions from the antenna base. Here in the Panhandle (unless you are a Maritime Mobile cruising Lake Meredith) you can get that ground conductivity only through a set of radials.

Thirty-two radials are good, 64 are better and 120 are better yet. They should be of copper or aluminum, carefully bonded together and to a deep ground rod at the antenna base; and they should be buried just beneath the surface of the ground. The antenna itself can be at ground level, must be in the clear; and should be 1/2 to 5/8 wavelength long for the best results. A roof-mounted vertical will work well

provided you can rig enough radials. Will verticals work without radials? Sure . . . sort of, but all too often you will find that they radiate a signal that's "equally well in all directions."

What then of horizontal antennas? ow can you get a low angle of radiation from them? Radials? No, radials are of no help unless they are miles long. The answer for horizontals is *height above ground.* For good DX results, any horizontal antenna should be a wavelength high. Even simple doublets perform wonderfully at this height. If you can't get it up that high, then the higher the better is the rule to follow. Raising an antenna even twenty feet will make a great improvement in DX work.

OK, so we put horizontal antennas as high as possible; but what kind of antenna? Beam? Long wire? Rhombic? For most city dwelling DX-ers, the answer has to be a rotary beam, which now brings us to that breathless controversy – Yagi or Quad?

Well, if both antennas are the same height, it becomes a question of which has the most gain. For Yagis and Quads, gain is primarily dependent upon boom length, not the number of elements (although there is, of course, an optimum number of elements for any given boom length). Here, the Quad has an advantage. To give equal gain, a Yagi must have a boom 1.8 times longer than the equivalent Quad. Thus a 20-meter 2-element Quad with a 10 foot boom has the same gain as a 3-element Yagi with an 18 foot boom. so a Quad has greater bandwidth than a Yagi because of its lower Q. The average Quad can easily be matched with a less than 2:1 SWR over any amateur band; while a Yagi can seldom cover more than 200 kc with a low standing wave ratio.

Why then do Yagis remain so popular? The answer lies in their mechanical strength, their commercial availability, and in the fact that all elements can be at a DC ground, affording that precious essential, lightning protection.

73 & DX
Len Parsons, W5GR
de SARC

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If a politician says yes, he means maybe; if he says maybe he means no; and if he says no, he's no politician.

de Ham Monitor

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If all the excuses for not wearing safety belts were laid out end to end,

we wouldn't be surprised.

What's <u>your</u> excuse?

OM: My daughter is in the dungaree and loafer stage.

"How's that?"

OM: She wears the dungarees and dates the loafers.

de Ham Monitor

****

Great NEW Values from World Radio!

Write for Free 1970 Catalog—

WIRED—Ready for Operation

Designed for the Amateur whose interest is 80 and 40 meter SSB. Here's power and performance at a very reasonable cost! Power to make good contacts...a selective Receiver, Stability and compactness! (5"x11¼"x10"). Weight 11 pounds. Smaller by far than anything in its power class. Beautifully finished...a Fantastic performer! Available in both Fixed Station and Mobile Packages (not shown).

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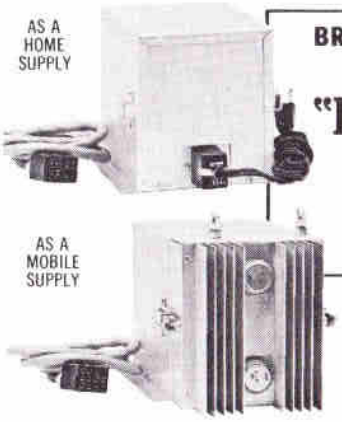

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