

PACK RATS'

CHEESE

BITS



PACK RATS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.



MT. AIRY V.H.F. RADIO CLUB, INC., PHILA., PA.
(50.2, 145.2, 221.4, 432.3 & 1296.3 MC)

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

MEETINGS: THIRD WEDNESDAY OF EACH MONTH AT 8:00 P.M.

VOLUME V

APRIL 1971

NUMBER 4

THE PREZ SEZ

As I sit wondering what to write about this month, my thoughts turn to who is doing what in the club. An interesting topic, and perhaps in one of the future issues of CHEESE BITS we will list those members who have taken on additional responsibility. Additional?? Right. Additional because being a Pack Rat is a responsibility in itself.

What have you done for your club lately? I mean now that the January contest is over and the scores are in. Are you going to sit back and relax until Ladies Night rolls around? Isn't there something that you can do between now and then to help the club?

Could you write an article for CHEESE BITS, technical or otherwise?

Could you design a circuit to be used as a club project and put together as a kit?

Could you solicit an additional ad or two to help defray the cost of the paper?

Could you present a program at one of the meetings? Do you know someone else who could?

Do you know of an active VHF'er who would make a good Pack Rat?

If the answer to any of these questions is yes, why haven't you done anything about it?

73,
K3JJZ, E1

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

EDITOR:

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PHILADELPHIA, PA. 19152
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215 - ME 5-1078

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COLLINGS LAKE, N. J. 08094

AWARDS CHAIRMAN:

W2EIF, JOSEPH KILGORE
#5 SUNNYBROOK COURT
STRATFORD, N. J. 08084

DIRECTORS' MEETINGS ARE HELD ON THE SECOND WEDNESDAY OF EACH MONTH AT DESIGNATED LOCATIONS.

MONDAY NIGHT NETS:

145.2 - 7:30 P.M.
50.2 - 8:30 P.M.
221.4 - 9:30 P.M.
432.3 - 10:00 P.M.

OFFICERS - 1970-1971

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VICE-PRES.: W3CJU, DONALD HAMPTON
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K3CIV, RALPH HERSH
(Ex-Officio)

PACK RATS' CHEESE BITS is a publication of the Mt. Airy V.H.F. Radio Club, Inc., Philadelphia, Pa., and is published monthly.

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We operate on an exchange basis with other publications and anything that is printed in CHEESE BITS may be reprinted, unless so stated, as long as the proper credit is given.

MEMBERSHIP

Reinstated to Full Membership -
K3GOZ, Herman Klein
2600 Welsh Road, Apt. 39
Philadelphia, Pa. 19152
215 - HO 4-6555

From Student Member to Full Member -

WA3NFV, Dan Mitten
997 Holland Road
Holland, Pa. 18966
215 - 355-5269

From Active Member to Retired Member -
W3HKZ, Edward Kushner
2212 Oakwyn Road
Lafayette Hills, Pa. 19144
215 - 825-0775

2 METER REPORT

Activity on 2 meters has been consistent with good action at 144.11 both sideband and CW. Ernie, W3KKN; Jo, W2EIF, and others have been copied in Michigan by W8YIO, who is building highpower gear to answer. (He only has 25 watts on now.) Also, new to the band is K4KFD, Dick, of Fairfax, Virginia, who is a ardent VHFer and can be heard every night. There has been very little aurora activity but Ernie worked W9YYF, Chicago, on one brief opening.

W2EIF, Jo

CONVERTER NEUTRALIZATION

JACK POWER, W2AXU

An important requirement of converter alignment is the neutralization of the RF stages. Proper neutralization provides stability to the RF stages eliminating regeneration or "birdies" and produces the lowest noise figure obtainable with the device used.

After a converter is wired, the wiring checked and before the solid state devices are wired into the circuit, the tuned circuits should all be resonated to the desired frequency by a grid dip meter. The devices can then be wired in and voltage applied, the oscillator chain tuned and with a strong signal the RF and mixer circuits tuned for maximum signal to the IF. The next operation is to use a weak signal or a noise generator and tune the RF and mixer circuits, including the neutralizing circuits, for maximum signal to noise ratio or the lowest internal noise consistent with optimum gain.

Now comes the neutralization procedure. The preceding alignment may satisfy you but you really can't be sure. There are several methods for neutralizing. An accurate but time consuming technique is to inject the desired frequency signal into the output circuit of the stage to be neutralized and monitor it with another converter from the input connector. Using a low level signal, adjust the tuned circuits for maximum signal and the neutralizing circuit for minimum signal. With vacuum tubes, the signal can be injected into the front end, and, with the B plus voltage removed, the neutralizing circuit tuned for minimum signal transfer. This method can't be used with solid state devices because of the capacitive coupling inherent in the device.

If a second converter is not available, another technique can be used. After the converter is aligned for best noise figure, the converter gain is noted as the supply voltage to the RF stage is varied from the value used for the alignment. Varying the supply voltage will cause the feedback capacitance to vary. If the stage gain increases as the voltage is increased or decreased, it is an indication that the stage is improperly neutralized. The gain should decrease if properly neutralized.

This effect is particularly true when using junction fixed effect (JFET) transistors. The reverse transfer capacitance

Continued on Page 6

WHO DO YOU KNOW IN THESE PHOTOGRAPHS



WHERE'S

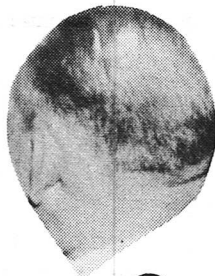


CHARLIE & DOC

AND HE



GUESSES



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YOUR XYL

WHO MIGHT

HINT - HE



WIN SOMETHING



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HOPE TO SEE
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WHERE



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QUACK

HOW MUCH



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WHAT'S
TO EAT



DOES
IT COST



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FUN
AS
PULLING
TEETH

BUCK HOTEL
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PRIME RIB ROAST

CONVERTER NEUTRALIZATION (Continued)

(CRSS), which is the feedback capacity from the drain to the gate, changes as the drain voltage is varied.

When you're finally satisfied that the stages are neutralized, make one final check. Operate the converter with the input circuit shorted and opened. The converter should be stable with no signs of regeneration or "birdies" in the IF receiver.

W2AXU, John B. Power

SAVE THAT CONVERTER (Continued from March Issue)

Now, at this point (1964) you began to do some soul searching. Was it really worth it to buy a UHF converter for two stations which were destined to go off the air anyhow? What would you do now? You talked the situation over with the fellow in the TV shop and he told you to hold on. He pointed out that a new group would soon buy Channel 17 and a group is looking into the possibility of re-activating Channel 29. Channel 23 would soon be on the air under the call of WGTT-TV. When you asked him when this miracle would take place he answered, "I really don't know". He pointed out that you could test your converter from time to time by listening to the police. So you tried this. You discovered that by setting the channel selector to Channel 4 and tuning the UHF converter to Channel 14, you could receive the police rather well. Then you recalled the fact that your son showed you this technique in 1962.

By listening to the police calls an old interest was revived within you. It was that of being a short-wave listener. You recalled how you would listen to crystal sets in the late 1920's. Your interest shifted to ham radio in the 30's. How you wanted to be a ham! Then, in the late 30's, television broke into the Philadelphia scene. In 1939 New York had two channels (WCBS-TV, Channel 2, and WRCA-TV, Channel 4). Philco was experimenting in Philadelphia with K3XRA operating on Channel 3. A friend of your's worked at Philco and had his very own TV set. So you would spend night after night at his house. In 1946 you bought a Philco and had a TV set of your very own. You would have bought one sooner (K3XRA became WPTZ in 1941) if it wasn't for the Second World War. You were the first on the block to have a TV so all the neighbors would cram into your living room, especially on Friday nights to see the fights. By 1948, Philadelphia had three channels and WDEL-TV went on the air in 1949 from Wilmington, Delaware. While you remembered all this you remembered above all the ham broadcasts you heard in the 1930's. You would listen night after night to W3CL, W3EU, W3GEW, W3OR, W2VX, W2IL and countless others. Oh, how you wanted to be a ham! Then in the summer of 1964 it dawned on you. Why not? And why not now? So you asked your ham friend to give you a demonstration of his station. He also gave you a copy of the ARRL license manual and a morse code record (10 lessons). After a summer of frustration you enrolled in a ham radio course, and in December you took your examination. Your ticket arrived late in January 1965. Now you were ready to operate that 6 meter rig you bought six months earlier. Thus your interest in police calls declines and you also hear rumors to the fact that it may soon be illegal to listen to police calls unless you are authorized by the Police Department. So it looked as if you would have to get rid of your UHF converter. You probably would have if it weren't for other rumors you heard.

Continued on Page 7

SAVE THAT CONVERTER (Continued)

Channel 29 would come on in March under the call of WIBF-TV, Channel 17 had been sold and its call was changed to WPHL-TV, target date was September 17. Kaiser Broadcasting had acquired the license for WKBF-TV which it would operate on Channel 48. WGTT-TV would finally come on the air on Channel 23. All transmitters were completed except that of Channel 23. WKBF-TV became WKBS-TV because the call was easier to say. The Philadelphia UHF renaissance was all you could read on the TV pages of the newspapers. However, at this point, you developed a seeing-is-believing philosophy and you continued to operate 6 meters night after night. Then March comes and goes and no Channel 29. April also passes. Finally on May 15, 1965, Channel 29 went on the air. It was the first UHF station in this area to operate on a seven-day-week basis. By October Channels 17 and 48 were operating also. You liked what you saw on the new stations, especially the sports and old movies. It reminded you of the mid 1950's when WPFH and WVVE-TV were operating on Channel 12. Color soon appeared on UHF. However, you weren't interested in color since you remembered what color was like in the mid-1950's. Then you saw a color set on display and decided to buy it as a second set. This set also had built-in UHF. You discovered that early in 1966 Philadelphia had four UHF stations on the air (Channels 17, 29, 35, 48). In the Spring of 1965, Channel 35 returned as an in-school station. It would broadcast special events (such as school board meetings and Earth Day Rally - 1970) unable to be carried by Channel 12. It was announced that WGTT-TV would not go on the air because Philadelphia "had three commercial UHF stations which could adequately serve the area".

In February of 1966 a new UHF station went on the air. It was WLVT-TV, Channel 39, Allentown-Bethlehem. It was a non-commercial station (like Channels 12 and 35). You put up an outside antenna to see if you could pull in Channel 39 and to your surprise, it worked. The fact that you could pick up nine channels, where as a year before you could pick up only four, astounded you. Also you noticed that you could pick up New York VHF-TV stations and sometimes New York UHF stations. Channel 9 is excellent, this is good because the Mets are on Channel 9. Also, Channels 4, 5 and 7 are good. The rest are so-so.

Much to everyone's surprise the crash UHF program was over. People began to realize this in the summer of 1966 when Philadelphia still had only eight stations plus one in Allentown (Channel 39).

Philadelphia VHF also made the news in 1965. In June, the FCC ordered the Westinghouse Broadcasting Company and NBC to swap their Philadelphia and Cleveland TV and radio stations since the 1956 swap was in violation of the anti-trust act. Thus WRCV-TV became KYW-TV. This was one more new call Philadelphians had to get used to.

Eventually the novelty of UHF-TV wore off and you gradually drifted back to ham radio. Your novice had run out but you still had your tech. ticket. So you returned to 6 meters (Channel 1, the lost TV channel). You were invited to become a Pack Rat, so late in 1966 you were made a member. W3MVF was the first to welcome you into the club. In February of 1967 you expanded to 2 meters (Channel 6 $\frac{1}{2}$?). This was due to contest frustration in January.

To Be Completed Next Month

* * * * *

20 REPORT - Activity remains constant.

K3GAS, Doc

CALENDAR OF COMING EVENTS
 Syllabus by Lee, K3MXM

- April 14 - Board of Directors Meeting
 QTH of K3BPP, Walt Bohlman, 101 East Street, Doylestown, at 8 p.m.
 Directors and interested parties invited.
- April 21 - General Club Meeting - 8 p.m.
 West Oak Lane Jewish Community Center
 Thouron and Sedgwick Streets, Philadelphia

 ATV - K3ZKO, Ron Cohen
 Explain how cheap and easy it is to get on Amateur TV. Receive live TV from home QTH to meeting hall. Equipment explained in its simplest form and language. A real ham achievement.

 Guests and non-members invited. Refreshments after the meeting.
- May 8 - 15th Anniversary Dinner - Buck Hotel, Feasterville, Pa.

 The best of the past 15 years. Meet your old buddies once again, see long lost members, re-hash these old times.

 Prizes and surprises, excellent meal, danceable band, congenial bar

 Watch your mail for your invitation and special notices.
- May 8-9 - Space Net VHF Contest - 6 p.m. to 6 p.m.

 Check in Tuesday nights with WB2MTU for further details.
- May 16 - ATV from Aircraft

 Freq 439.250 MHz with audio on 50.20 MHz. The Shriners Hospital in Northeast Philadelphia will be receiving pictures, along with other ground stations from New York City to Philadelphia.
- June 12-13 - June QSO Party - Hilltown, Pa. Receiving pictures, along with other ground stations from New York City to Philadelphia.
- August 8 - Pack Rat Picnic - Ft. Washington Park, Flourtown, Pa. - ALL DAY

Interesting Addendum

party - Dues are D U E
 picnic - Send your check now to K3GAS, Doc
 \$8.00 General Membership
 \$4.00 Retired Members
 Send your check now to K3GAS, Doc
 \$8.00 General Membership
 \$4.00 Retired Members

Hamfest Dates

- April 17 - Syracuse - Send to R.A.G.S., Box 88, Liverpool, New York 13088 for information.
- April 24 - Dayton Hamvention, Wampler Arena - Send to Dept. Q, Box 44, Dayton, Ohio 45401 for information.
- October 24 - Gaithersburg
- May 15 - Rochester West New York (a good one)

NEW PRODUCTS OF INTEREST TO HAMS

1. Two Meter FM Trans/Rec. FM-2X - Swan Eastern Office, P. O. Box 2288,
Ocean, New Jersey 07712

Two new VHF units are about to be introduced by Swan (which is now selling direct to amateurs, or through dealers at a 10% markup). The first item is the FM-2X, a 2M FM transceiver, which like the very popular Varitronics unit, has a large meter and speaker on the front panel. Again, like most available FM 2M jobs, the FM-2X has an output of 10 watts and the receiver is a double conversion line-up. The unit has 12 channels available, of which two are supplied, 146.94 T & R and 146.94 R and 146.34 T for use through repeaters. An AC supply which fastens to the back of the FM-2X is included, according to the literature received. Unit is made in Japan for SWAN and sells for \$299.

2. Crystal Controlled Converters - Janel Labs, P. O. Box 112, Succasunna,
New Jersey 07876

Three new converters have just been introduced by Janel Labs, which up until now has been known mainly for the 432 converter they manufacture. All units use FET RF, MIX, and IF stages, and are available with 14-18 and 28-32 MC IF frequencies. In addition, the 50 MC converter is also available for 7-9 MC IF. All units have built in power supplies which are zener regulated for the oscillator. Noise figures on first production run show 2 db on 50 MC, 2.5 db on 144 MC. Four tuned circuits are used between the RF and Mixer stages. The circuit boards are silver plated as are the tuned circuits. The converters are housed in die cast boxes for stability. The IF amplifier has a gain control and there is front panel selection of two injection crystals. Input and output connections are through BNC fittings and the input is double diode protected. Price: 50CA - \$59.95; 144CA - \$64.95; 220CA - \$69.95 (postpaid). All units available direct from factory.

W3NSI, Lyn Rowland

IT'S JUNE QSO PARTY TIME AGAIN

It's "QSO Party" time again. What's going to be your part in the show? - Operating, Logging, Erecting Antennas, Checking Out Equipment, Loaning Equipment, or all of these? The June contest is the second chance every year to show the rest of the country (even the world) what the Pack Rats can do. It's one of the reasons that you're a Rat. This contest is also one in which we haven't done as well as we would like - always up near the top, but still not quite there.

This is the year when we're going to be on top. It will take hundreds of man hours but with all of the Rats nibbling away at the job it can't take long to get things together. The team captains for each band are listed below. If you haven't already been contacted give them a call. We're working all bands from 50 to 2300 MHz this year including FM on 6M and 2M. It will require a lot of gear because each band will have a complete backup capability. If you can't be there to operate you can loan us your equipment (even a VSWR bridge or a variac), help check equipment, rebuild antennas, build new antennas, etc., and above all give us contacts. It seems that a lot of members never work W3CCX/3 during the contest. This year we are planning a remedy to this situation. We will reserve two time periods when all antennas swing south to Philadelphia (two because band openings may bring a cancellation of the first time period). During these times everyone will be able to work the club call and this can easily make the difference between first and second place. Last year we missed first place by 768

IT'S JUNE QSO PARTY TIME AGAIN (Continued)

points. If only 15 more club members were worked on the bands of 6M, 2M, and 220 we would have had 1020 more points. Your activity preparing for and during the contest will make the difference.

<u>Band</u>	<u>Team Captains</u>	<u>Call</u>	<u>Phone</u>
6M	Ron Whitsel	WA3AXV	355-5730
6M-FM	Ed Kushner	W3HKZ	825-0775
2M	Dave Zimmerman	W3ZD	675-4539
2M-FM	Ron Cohen	K3ZKO	224-3036
220	Joe Kilgore	W2EIF	(609) 783-9478
432	Don Hampton	W3CJU	348-8969
	Don Mitten	WA3NFV	355-5269
1296	Walt Bohlman	K3BFP	348-8913
	Bert Soltoff	K3IUV	947-4483
2300	Mario Fontana	K3UJD	675-3984
	Jack Carson	K3QPC	IV 2-7170

WA3NGK, Harry
K3ZSG, Bill

DE LADIES NIGHT COMMITTEE

Fellow Pack Rats and friends we would like you to make a special effort to attend our Fifteenth Annual Ladies Nite, May 8, 1971, at the Buck Hotel. This is not only a Ladies Nite but we are also considering it as a grand Fifteenth Reunion of the club.

Ticket prices are still the nominal charge of \$8.00 per person. Included in this will be a Prime Rib Roast Beef Dinner with all the trimmings, a good dance band, gifts for the ladies and awards and trophies for the men.

For tickets contact: K3KTY, John Tate
520 Larkspur Street
Philadelphia, Pa. 19116

See you at the Buck Hotel, Feasterville on May 8, 1971 at 6:30 p.m.

THE BOOK RACK

de Paul R. Behrmann, K3WEU/AREA*

ENGINEERS' RELAY HANDBOOK, Revised Second Edition
By the National Association of Relay Manufacturers
Published by Hayden Book Company, Inc.
355 Pages, Illustrated, \$13.95 Clothbound

In order to simplify the job of specifying and obtaining correct relays for particular applications, the editorial board and members of the National Association of Relay Manufacturers compiled THE ENGINEERS' RELAY HANDBOOK in 1966. Acclaimed by a reviewer as "a relay handbook to rely on", it provided a complete roundup of information on the operating principles, properties, performance characteristics, application requirements, specifications, and testing of relays. The just-published Revised Second Edition of this excellent manual expands upon the First Edition and brings it up to date. Retaining much of the original material with

THE BOOK RACK (Continued)

the important addition of advancements in relay applications, corrections and changes, this book is now an even more valuable source of application engineering information.

The most comprehensive book in its field, THE ENGINEERS' RELAY HANDBOOK, Revised Second Edition, contains several unique and valuable features. The authors have standardized the information they present by deliberately discarding material pertinent only to a particular industry. The more-than-thorough Bibliography provides an excellent guide to publications concerned with these specialized interests. Relay terminology, an area of great disagreement and confusion, has also been standardized. Emphasizing the preferred terminology, the authors cite all "call outs" in order to clear up these misunderstandings.

New in the Revised Second Edition are sections on electromagnetic relays, solid state devices and hybrid combinations of the two; reed devices such as switches and relays with both dry and mercury-wetted contacts; and NARM commercial relay specification. The appendices, including the extensive Bibliography, have been largely rewritten as has a section on Government specifications which has been updated to deal with currently applicable documents. Diagrams and charts throughout the book help to clarify essential points.

The National Association of Relay Manufacturers continues to realize its long-term goal of service to industry in general, and the relay user in particular, with the publication of the book. In addition to promoting an exchange of ideas, industry-wide standards, and the advancement of manufacturing technology, the members of NARM felt they could perform an invaluable service to the users of relays by collecting and disseminating pertinent relay information.

*Amateur Radio Editors Association

SWAP SHOP

CONDUCTED BY: W3ZRR, Ray Whitehead
7329 Shelbourne Street
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FOR SALE

- TMC-75 75PF, 10 KV variable \$ 2
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- ARC 5 4-5.3 MC - good 7
- TCS 12 or 13 (?) 1.5 to 12 MC
Rcvr 15
Xmtr and Coil 15
- 2 Traffic Radar 2.4 GC 110V AC
with Antenna and Book @ 10
- Knight 25 Watt HiFi Amplifier
with book less tubes 5
- APQ-2 400 MC Power Osc. w/tubes 10

CONTACT: W2VJN, G. Cutsogeorge
RFD 1, Box 659-A
Princeton, N. J. 08540

FOR SALE

- Zeus Xmmitter \$275
- Interceptor B Rcvr. with all band
converter - includes extra Xtals 275

CONTACT: WA2ONK, Charles L. Grabowski
721 Strawberry Street
Trenton, N. J. 08638
(609) 396-6759

FOR SALE

- Tx 62 Xmmitter - Reasonable

CONTACT: WB2EOD, Roy N. Herman
221 Tracy Terrace
Cherry Hill, N. J. 08034

FOR SALE

- Drake T4XB Xmmitter and Power
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CONTACT: WB2VLD, Leonard E. Oshusher
1352 Sheridan Street
Camden, N. J. 08104

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DE MR. FIXIT'S ACTION LINE The Evening Bulletin (2-23-71)

I'm a computer engineer but even computers can't solve my problem. A few years ago at an auction sale I purchased an Atwater Kent Model 20 radio. It is in beautiful condition but it needs five CX301A radio tubes and I need a schematic drawing of the circuit. The set was built the same year my father was born so I would like to put it in working condition and give it to him on his birthday this month. So far I've struck out at every turn. Radio shop owners and repairmen just laugh when I ask them and say they haven't seen any tubes that old for over 30 years. Got a spare miracle handy?

We have a soft spot for the early radio receivers, so we took on your problem with determination. However, our confidence began to drain away with each fruitless inquiry. "You've got a hopeless problem", we were told over and over. Even the Atwater Kent Museum couldn't help.

One day we mentioned the problem to John Gallagher of the Bulletin composing room. He confessed he is a ham radio operator and would see what he could stir up. Every night for an entire week he sat at his shortwave rig and contacted fellow hams across the nation, begging for a source of the tubes you need. Finally he gave us a good lead. It lead to Herbert C. Butz' electronics shop at 4947 Frankford Avenue. Butz had the radio tubes you need and we put you in touch with him.

ED NOTE: John Gallagher is none other than our own WA3ERQ.

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CONTACT: K3WEU, Paul Behrmann
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A Request From Your Ad Manager

Please tell our advertisers you saw their ad in CHEESEBITS or better yet, leave them your QSL card. There are some who disbelieve that CHEESEBITS is not the best read and circulated local radio club newspaper.



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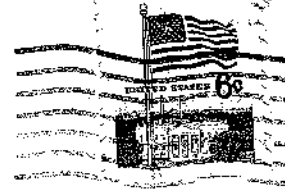
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