

# DX News

PUBLISHED BY THE  
**NATIONAL RADIO CLUB**

ISSUED WEEKLY DURING DX SEASON -- \$4.00 PER YEAR -- 34 ISSUES



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"INTERNATIONAL DX DIGEST"  
(SEE QRA ATOP DIGEST SECTION)

Volume 31 - Number 31

Our Thirty-First Season

May 16, 1964

## GETTYSBURG ADDRESS!

Here are my dues for another year. It is a real fine Club. The Bulletin is worth the dues. Keep up the good work. Guys like Ray, Ernie, Pete and Ev are doing a fine job.  
\*Herbert C. Rhoads Jr. - 122 Carlisle Street - Gettysburg, Pa. 17325

## SPECIAL DX

Monday, June 8 H J N X 670 Medellin, Colombia - 10,000 watts - 3:00 a.m. EST to ???  
HJNX has asked for a time and date on which to present a special DX program for the National Radio Club, in a letter of verification to our member, Peter Bengtson. Peter suggested the above date and time, when WMAQ, Chicago, is off the air, but there is another one to interfere - the Cuban all-nighter. However, HJNX transmits with 10,000 watts and should be heard in most DXers' homes in spite of this Cuban. Reports should be sent to Sr. Mario Lopez C., Gerente, "Radio Sistema Tricolor" - La Voz de Bello - Medellin, ~~Colombia~~ Departamento de Antioquia, COLOMBIA. Don't let this date slip by without trying for friendly HJNX "Radio Tricolor" - it is on Monday, June 8, at 3 a.m., E.S.T. Our thanks to Sr. Lopez, and to Peter Bengtson!

Sunday, May 17 H C D E 2 945 "Radio Ifesa" Guayaquil, Ecuador (200w.) 12:00-12:30EST (NRC I)

## CHANGES IN STATION DATA - F. C. C.

(Purchased from Seabrooke Printing Company, Washington, D. C. - 20004)

### NEW STATIONS

1230 Belfast, Maine 250 U-1  
1460 Vega Baja, Puerto Rico 500 D-3  
1540 San Antonio, Texas 1,000 D-1

### CALL CHANGES

1010 W I T L Lansing, Mich. from WMRT  
1340 W L O K Memphis, Tenn. fr. WHHM  
1480 W M Q M Memphis, Ten. fr. WLOK

### NEW CALL

1540 K B X M Kennett, Missouri

### DELETED

1500 W T H N Thomaston, Georgia

### FACILITIES

540 K V I P Redding, California, 1,000 D-1. Dancel increase to 5kw.  
950 W P E T Greensboro, North Carolina, 500 D-1. Cancel power increase to 5,000 D-3 and move of XR location.  
1010 W B I X Jacksonville Beach, Florida, 10,000 D-3. Cancel increase to 25kw.  
1150 W C N X Middletown, Connecticut, to 1,000 D-1 from 500 D-1. (Around 6/16-NRC)  
1260 K T E E Idaho Falls, Idaho, 5000 D-1. Move XR NW, new (shorter) antenna.  
1490 W R O L To Knoxville, Tennessee, from Fountain City, and to 1,000/250 U-1.  
1500 W G E N Geneseo, Illinois, 250 D-1. New (taller) antenna.

## NEXT ISSUE IN FOUR WEEKS - 6/13

And let's make it a fine, big issue, as we usually have in the good old summer time! Send your Musings in, and your International DX Digest items, by Tuesday, June 9th, and your DX Down the Dial notes by Wednesday, 6/10. Let's make sure the June issue is one which will take us hours to read! Also, look for more details on the BUFFALO CONVENTION in the NRC June issue. And make those plans NOW to be a part of the fun and festivities! This one could be our largest NRC Convention ever, and if YOU come, it will be that much better! Bring your veries (if you wish) and bring your cameras, and best of all, bring yourselves to Buffalo, for the Labor Day weekend, September 4-5-6-7!

May 16, 1964

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NEW MEMBERS

KENNETH R. ANDREWS	(Massachusetts)	CHRISTOPHER MASLEN	(New York)
JACK MOLNAR	(Ohio)	JOHN POOLE	(Ohio)
AL REILLY	(Massachusetts)	EDWARD J. SEMRAD	(Wisconsin)
RONNIE VERNER	(Georgia)	JOHN F. WILSON	(Delaware) (3yrs)

RENEWALS

WILTON C. BAY	ELWOOD BOROWSKI	ERNEST R. COOPER	MIKE KING
ROBERT S. DUGGAN	KENNY SHIRLEY	DANIEL F. MILLER	

MORE CHANGES IN STATION DATA - F.C.C.

(Purchased from Seabrooke Publishing Company, Washington, D. C. - 20004)  
(These received on deadline date, Tuesday, 5/12/64, as we go to press!)

NEW STATIONS

680 Central Newfoundland, Nfld. 10,000 U4 960 Baker, Montana 5,000 D-1

NEW CALLS

1460 W A C Y Moss Point, Mississippi 1500 W K B X Winston-Salem, N. C.

CALLCHANGE

660 K O W H Omaha, Nebraska, from KMEO (reverting to old call of 1960)

FACILITIES

680 C - - - Change location from previous notification to that listed above, new.  
 990 K T R G Honolulu, Hawaii, 5,000 U-1. Move XR NE & taller antenna.  
 1330 W A S A Havre de Grace, Maryland, to 5,000 D-1, from 1,000 D-1, same channel.  
 W E S R Tasley, Virginia, to 5,000 D-1, from 1,000 D-1, same channel.  
 1400 K T R C Santa Fe, New Mexico, to 1,000/250 U-1, from 250 U-1, same channel.  
 K T N M Tucumcari, New Mexico, ditto.  
 K B Y G Big Spring, Texas, ditto. / 550 W G R "AN" SITUATION - ALL OFFS  
 K D W T Stamford, Texas, ditto. / 590 CK E Y (Weds.) 1250 C H W O MMs.

HEARD SINCE LAST ISSUE

570 W A A X	Now 5,000/500 U-2	FCC	1340 W L O K	Ex-WHHM	NRC
660 K O W H	ex-KMEO	NRC	1350 W W B R	Winaber, Pennsylvania	NRC
740 W G S M	Now 5,000 D-3	NRC	1390 W P L M	New nighttime pattern	FCC
790 K C A M	Glenallen, Alaska	FCC	W H P B	Now 1,000 D-1	FCC
W R M S	Beardstown, Illinois	FCC	1400 W F P A	Now 1,000/250 U-1	FCC
860 W A Z E	Clearwater, Florida	FCC	1410 K W B B	Now 5,000/1,000 U-4	FCC
910 K L S I	Salina, Kansas	FCC	1420 K O O O	Now 1,000 D-3	FCC
W R K L	New City, New York	NRC	1460 W A C Y	Moss Point, Mississippi	FCC
960 K R I K	Roswell, New Mexico	NRC	1480 W M Q M	Ex-WLOK	NRC
1010 W B I X	Now 10,000 D-3	FCC	1490 K X A R	Now 1,000/250 U-1	FCC
W I T L	Ex-WMRT	FCC	W S F B	Now 250 SH-1	FCC
W R C R	Maplewood, Minnesota	FCC	W S R A	Now 1,000/250 U-1	FCC
1080 W K A C	Ahrens, Alabama	FCC	1520 W T L N	Opopka, Florida	NRC
1220 K O F O	New XR & antenna site	FCC	1530 W E R X	Wyoming, Michigan	NRC
1230 K A A A	Now 1,000-250 U-1	FCC	W U P R	Utuaado, Puerto Rico	FCC
W S S O	Dit to	FCC	1540 W R P L	Charlotte, North Car.	FCC
1250 C K B L	Now 10,000/5,000 U-2	FCC	1550 W S M A	New (taller) antenna	FCC
C H S M	Steinbach, Manitoba	NRC	W M I R	Lake Geneva, Wisconsin	NRC
1260 W J B L	New XR site & antenna	FCC	1560 K B I B	Monette, Arkansas	FCC
1320 W A X K	Ex-WQMN	FCC	1560 W G O E	Ex-WRGM	FCC
C J S O	Now 10,000/5,000 U-4	FCC	*1440 K I L O	Now 1,000/500 U-4	FCC

WATCH FOR:

1510 W R A N Joe Fela says they're planning on a June 1 opening. (Dover, N.J.)  
 1500 W K E R Pompton Lakes, N.J., plans to open 8/12, says ex-NRCer Charlie Territo.  
 910 W R K L New City, N.Y. now on the air on daytime OC/ET (Territo also)  
 It was Ernie Wesolowski who sent in the Primary Election Dates given in the 3/28 issue.  
Dave Aichelman says he'd appreciate any phone calls, at 609-561-1591 (Hamonton, N.J.)  
Alex Bowab sent in a list of Carrier-Current college stations, but the piece doesn't give the frequencies. It wouldn't seem to be very newsworthy - what do you-all think?  
Ron Schiller reminds of his meeting at his house on Sunday afternoon 5/24, and asks that all who are coming please drop him a card so he'll know how many to expect.

The next issue is in four weeks. Please send only one report, boys, and keep it to 30 lines of DX NEWS print, and please DOUBLE SPACE, whether you type or hand-write, as it makes it a bit easier here. And don't forget the BUFFALO CONVENTION, SEPT. 4-5-6-7!

MUSINGS OF THE MEMBERSRay H. Kraul - 6423 53 Street - Berwyn, Illinois - 60403

There sure hasn't been much DX here to write home about. An awful lot of noise in the air, both inside and outside the house. Got some veries, but there are a lot out yet that haven't answered. Received letters or cards from KQWL KFAX KWIX WELI WYLO WEEF & WCOW. Only six new ones were heard since last Musings. They were: 4/11- KNIA-1320 was heard with rr/ET 2:04-2:19. Then I tuned to 850 to hear AN WRAP, but did not report as I was too tired to take a log. Sunday PM 4/12, listened to WDOH-910 for about 45 minutes in mid-afternoon. MM 4/13- This was a very noisy morning, and I was just checking the static at 12:30 when I heard WELI-960 on f/c-TT till 12:40. This was only #6 from Connecticut. The other two new ones were both by SSS. On 4/13, WSPT-1010 s/off at 7:45, and WCOW-1290 went off at the same time on 4/16. Now it is 4/23, and the only other thing I heard was a lot of noise. Must have been those Cub bats! Verie from WYLO states that RS will begin on 5/1. They are directional towards Milwaukee, so that they should get out to the S and SE pretty well. I guess that is one way of fighting those Cuban pests.

Roger Winsor - 3306 South Clinton Avenue - Berwyn, Illinois - 60403

Well, I guess it's about time to evaluate this year of DX now that CX have really gone bad and Spring has appeared. Static is just about completely dominant every night, and the skip is getting worse each day. Right now we are having a Spring shower out of nowhere. New stations since joining the NRC total 130 with many thanks to various tips from members and also that fabulous f/c list. Total now 1,857/97. States, 43/32, Canada 8/2. I haven't tried too much for them for some reason. I have noticed the TV and FM are starting to pick up with a couple 200 milers in the evening hours. Drool. DX here only very slight - WPCPC s/off almost nightly with a real good signal. I thought they would protect WMIX, but I guess not. Does anybody know if KBEW has a Vi-til Defense or Air Force program just before s/off? They faded during s/off and then came back for SSB 4/14. I could use them. Oh yes, every Tuesday morning at 5:00 an SS is on 720 before WGN comes on with their carrier. Do I hear any hints? (Ross Hirsch says HJAM -ERC) Ray thought it sounded like "Radio Tiempo". Maybe if the static goes away some Tuesday I'll be able to hear a few 730 s/ons while WGN's on OC only. Many thanks to all the members who took time out to write to me and be patient, I'll get them all answered - Harv, Mike, Wayne, Ernie W. Only new veries are CKOY after four months, WBAA WDUZ. No new ones in the mail as of late. I've finally gone days at work, so now I can get some of those other nights next year. A verie from WVMT for my first Vermont, CM with two other stations compared. Also reception of KTRI-1470 and letter sent. First time for them in four years. WYLO-540 RS 5/1! So long & best.

Ross Hirsch - WIBA - Madison 1, Wisconsin

I have been quite impressed with many of the NRC members. I started BCB DXing in 1921 at the age of 13 and took the whole bit. At that time we had a stamp book with all the stations listed and they would answer our reports with their stamp. I think I had 400 in a couple years when my interests diversified considerably and there weren't many more than 400. This was mostly with a W Aeriola Sr., WD11 with a one step (201) home-built amplifier, which I still have and the original WD11 still works! PWX Havana, 6XE San Francisco, KGU Honolulu, and CFCN Calgary were some of the most interesting stations I remember from '21-'22. Every Monday night was "silent night" in Chicago, just for DXing. There were no f/cs because there were only three frequencies assigned -400 meters for first class stations, 360 meters for second class stations, and 485 meters for government, university (WHA Madison, 9XM) etc. stations, and each station just tuned themselves to the nearest clear spot possible and let fly. I would never start verifications again but have started a list recently. I do not expect it to amount to anything but always have had an interest in all kinds of DXing. One reason is HJAM, every Tuesday morning when I turn on the equipment (during the winter) at 5:30 EST, here they are on the Conelrad receiver, 720 kc/s., many times QSA 5 until WGN puts on their carrier about 6:00, and I see no mention of them in DX NEWS!. I see no mention of WIBA either but that's understandable as that 1310 spot is a mess after midnight, but that 50 kw. CKOY has kinda turned it into a one-man race most nights! And they're supposed to stop the signal at the border! 4/30, 11-12pm EST I was hearing that SS on 1220 QSA-5 and all alone but couldn't ID and I understand a little SS. 73. (Welcome to the NRC, Ross, & your Buffalo letter now on hand, but I used the above instead as it covers just about all of it. We hope to hear from you regularly! (ERC)

May 16, 1964

DX NEWS

Gordon Nelson - 19 Irma Avenue - Watertown, Massachusetts

Greetings from a new BCE DXer and NRCer. I'm an academic bum type; a perpetual student at a well known Trade School in Cambridge. I started DXing with my old SX99 a couple of months ago, and have concluded that PCB is a bit harder than SWBC, hi. ~~It has only a bare existence of work~~ Count me in, and kudos to the NRC's dedicated editors and officials. Recent DX here amidst the QRN: HOK-640 u/CMQ Midnight; YV??-1200 "Radio Tiempo" good SS 10:50pm; Barbados-795 nightly 10pm; YVKE-1100 w/unID SS 9:40; HOJ2-1046 11:53pm HOV44 good MM on 1015, 3:30; YVMH-700 w/JBS 10:22pm ID; XERF-1030 Mms lam on; Trinidad-730 5am s/on; HJDK-750 11:28pm; Ljubljana-917 6:30pm; Dakar-1304 1:15am native; Kelboom-1435 9:30pm EE ID and s/off; Lisboa-~~2557~~665 6:40; Porto-1579 2:10am; Wien-1475 2:02; BBC Regionals 1457, time pips and ID 2am; Szolnoc-~~1~~1187 1:15; AFRTS-1103 Stuttgart midnight; Bratislava-1097 11:55pm; Cairo-818 11:15; East Germany-782 10:20 w/CSB9 off; Martinique-1500 u/WTOP/XERF 9<sup>3</sup>/<sub>4</sub>30pm; Brussels-926 2:04am; Nice-1554 1:12; Mainflingen-1586 1:30am; Antigua-644 8:30pm; Andorra-998 SS often around 5:30pm; St. Lucia-840 FF 7pm; Hilversum-1007 1:45am, plus all of the common BBC & RTF outlets. Best catches so far are: Tentatively Enugu as the West African messing up Radio Intercontinental, Spain, on 953 with native W. African mx 12:27-1:21 fadeout on 3/30. AFRS-1425 Thule Beatles, rr request program weak to fair 9:24-9:30pm. UnID TP on 1020 w/KGBS and unID LA 3:40-4:23, killed by KDKA OC, British or Pacific accent, details rather sketchy but reports off to 2KY and to the F. Merrill Radio Station, hi! Hope, hope, hope. This on 3/30, MM. Dakar-764 first heard 3/2 testing, best TA by far, in one hour and 32 minutes before sunset. General CX deteriorating quickly! Best of DX to all. I hope to be contributing for a long long time. With the outstanding crew of DXers that you have, the NRC will survive until all channels go AN, hi! (Welcome to the NRC, Gordon, and we hope to hear often from you - you have some fine info for Pete T's International DX Digest there - why not send it to him for his fine section? -ERC)

Dick Russell - 36 Alice Avenue - Lynn, Massachusetts - 01902

Greetings from the Den of No Veries, hi! DX has been rather slow because of school, track, and very little enthusiasm for DXing. Recent loggings are VWJ-950 at 4am and WBIC-540 at 12:05 on 4/12, WRYM-840 at 6:25pm s/off on 4/17, Radio Rebelde-720 on 4/18 (I forgot the time), WOLF-1490 and WBTA-1490 at 1:15 and 1:30 respectively, KWLA-1530 f/c through KXEL slopover at 1:05, WISM-1480 from 1:53 to s/off and WSAI-1360 at 2:41 on 4/20. Oh yeah, WOLF and WBTA were heard on 4/19. I had a nice, but rather cold, get-together with P.E. Crocker in Boston on 4/20, where we took in the B.A.A. Marathon and a Sox game. Also, I'm supposed to tell everyone to listen to "The Ever Newer WMEX." I joined one of their contests and won a \$25 Savings Bond. I have sent WMEX two reports and they fail to verify. Can I count the Bond as a verie, hi? I also heard where they are giving away a blonde. What an addition she would make to QSLs, hi! I have about two dozen WMEX SCs, just one to a customer with SAS and a trader. I also have extra WDRC WDAK & WHK SCs. I knew I forgot something, my veries. KAAV and KYW v/q and WCSS v/l. Totals are 404/116, states 37/33 with only Kansas, Kentucky, Mississippi, and North Carolina heard but not verified. Best wishes to date are WG00 CKPT WLSC WAWA WKTJ WHTC WDOV WJNH WWML WACB KRSI WILM WARO WKID WCSS WDMV WHWB. If anyone wants a Boston Red Sox radio sked, just write me. 73 and "Did you Fenway it this morning?"

Russ Edmunds - 24 Roslyn Court - Little Silver, New Jersey - 07739

Well, Canada visited here again this week! New loggings: CHEX-980, CKSO-790. Veries out to: CBT CFMB CHSJ CHEX CBO CKSO CJNR CFCF. Also out from last logging, CMOV and CKEN. Since I got an un-verie from CKLB, must be one of the two above on 1350. Veries in on last logging: CKCR CBA CJBQ. F/ups out to WGTO WCOP WGUS WSAV WMFD. That spells out 26 reports out in two weeks! SC from WJIM, and CM from KEYS, thanks to J. Daller. WPOW CM and CHAT something-or-other from R. Schiller. CM from CKCR. Ron had an extra verie from WACE, whom I reported three times so he gave it to me. An deciding if I should count it. Totals, 489/91. Extensive antenna repairs for this week. I may be able to get about three old ARC-series sets. One is 3-6 mg/s., another 1.8-3 mg/s. Two others unsure as yet. Offers? Bill Stone - I'll check on that 129. Last week I received a giant envelope from WYNS-1150. Init were about 20 of their CMs and about 20 SCs. Just send an SAS with your request and it's yours (your request, that is). Actually, I'll send it if you just enclose a stamp! 4/20- lam, EST, HJCC (I guess) giving WINS a rough time on 1010. GSC- how about a WRSU SC? Guess that's it from here, so take it easy and let's make those summer issues bulge! See you at Ron Schiller's on May 24th! Boys, send those verie signers to me!



May 16, 1964

Roger Bowman - 3506 Midiron Drive - Winter Park, Florida - 32789

The Summer QRN has returned to the Sunshine State. Not much in the way of DX. WJDB-1150 was rolling into here on their test of 3/23 at 3:09-3:31am. A few other new ones. 3/26- WCOA-1370 at 10:04pm. 4/12- KWKH-1130 at 10:55pm. 4/13- WZOK-1320 at 9:20pm; WSMB-1350 at 9:48. 4/20- CBL-740 at 4:01am. Veries have been scarce with WVOB v/1, WJDB v/c, and KAAV v/c the only new ones in. It seems we have had a little discussion over our way between WABR-1440 and the people who live near their station. The FCC approved 24-hour operation, but the people living near the station are protesting, saying it will create more night traffic in the area. I think I'll try to see the owner of WABR, Tom Sawyer, and see what is cooking. (Tell him Huckleberry Finn sent you, hi-ERC) 73s and good DX to all!

George Winingder - 1201 Citadel Drive N.E. - Atlanta, Georgia - 30324

Howdy ever'body! I just received my membership card and figured I'd start Musing right off. My latest (latest being since 3/1) loggings are: CEV WHOC WYMR WSEI WAPG WCEM WHHY WQOK WGBF WPMX WVOL WCHK WJQS WOKJ WHLO CMCH WISE WEN WAKR WCIN QADC & WBIX. Of these, WHOC WHHY WQOK & WOKJ have sent v/ls and WCEM & WGBF sent v/cs. This brings my totals up to 319/115 with 74% of those sent for verified. Right now, I'm using a Hallicrafter S-120 and a five tube Motorola but I'm thinking of buying a used National NC-190. If anyone has one, how does it bring 'em in? For a fellow newcomer, yes, XERF verifies by stamping and signing it, Russ. I suppose the biggest feather in my cap (the smallest too for that matter) is receiving a verie from WBSG for its first day on the air. I like to think of it as "We're the Big George Station," hi. Here's a tip for anyone wanting a few hit records. Listen after midnight, to WPLO. About two mornings each week, they offer "Hit Kits" to all who send in a report from out of state. The Hit Kit consists of two records and pictures of the DJs. P.S.- "Big George" is me! (Hi, Big George, and welcome to the NRC! We will be watching for more fine reports from you! -ERC) (This was forwarded to ERC by Ray Edge)

Bill Bens - 5575 Spruce Wood Drive - Cincinnati, Ohio - 45239

DX seems to be falling here, due to "Thunderstormism" and "Fluorescent Light-Idias", hi. Ralph H. Johans - in your 4/18 Musing you mentioned on 800 kc/s. with NX, minute beeps. Did you get an ID on this and if so, what is it? I hear this station every MM but I can't get an ID. (It's one of Castro's finest, Bill -ERC) Now to DX. 4/11- 3:01am, CKKY-590; 3:40, WTRY-980. 4/12- 2:10am, WHOA-870; 2:29am XEMO-860 c/KONO; 3:04 KXYZ-1320; 3:24 CKOC-1150. 4/13- 7:30pm, KMIS-1050; 7:45 WVNA-1590. 4/15- 5:59pm, WMPO-1390. 4/19- 1:16am, CKOY-1310. 4/20- 1:45am, WKSK-1500; 1:52, WBRO-1310; 2:07, WNWV-1590; 2:09 WSEM-1500 very loud, 2:30am, WTHB-1500; 2:37 WFEL-1390; 2:45 WGKV-1490; 3:17 "Radio Progreso"-660-670-690; 3:32am WNGA-1600. On 4/20 I missed a lot of IDs due to static and crashes of thunder. No Radio Senegal which is usually heard. At about 3:45am WFLI-1070 came booming in during a test program. I wready wrote to them three times but no QSL received. V/q from WNEW, in envelope, and postage returned. I have some WCIN rear-window stickers for trade and if you want one, send me a rear-window sticker that you might have. Hey Ernie, are there any NRC members in Cincinnati besides me, and if so, who? Good DX & 73. (No membership list here, Bill, but we do have a couple near-by. Ray Edge could help you with this request -ERC)

Dewaine Anderson - Box 501 - Roseburg, Oregon - 97470

My First using. Latest DX from the Timber Capital of the World: New stations logged: 4/18- KTEE-1260 (was 900) s/on 7:45am EST. KHER-1600 s/on 8am EST. KMSL-1250 8:10-8:38am (ID @ 8:30). 5/26- KSUN-1230 7:04-7:24am EST, with SID @ 7:15. KGAR-1650 s/on 8am, EST. Latest veries: KIMA KDON KXL WAAY KFQD WMAZ CKLG KLDV KDOV. Also, KRDR-1230 4/26 8:40-9am EST, ET/M, then s/on RS. Logged all stations in Oregon and I am interested in correspondence with YOU on any info on stations in Oregon. Will do my best to give all info available to me to you Eastern DXers. 73s. (Welcome to the NRC, Dewaine, and we also hope your name will appear here frequently! -ERC)

Andy Rugg - 16 Lake Breeze - Pointe Claire, Quebec

WYLD-940 f/up is only new verie. DX: TIW-775 after 11pm 4/19, but as usual (for teyth time in two years) faded out right at ID time. Callerman's little dissertation on counting Washford-881 as Wales because of coverage area makes a point that Millar & I hadn't thought of; I dunno about you Roy but I'm re-entering Wales into my verified column. Let's all be little visionaries & assume all red tape is necessary. Most self-styled martyrs usually forget the sagacity of Francis Bacon's statement "The remedy is worse than the disease." Let's get rid of that itchy finer nail by dumping our hand in sulphuric acid! 73.

May 16, 1964

D X N E W S

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Bill Stone - Box 543 - Stouffville, Ontario

4/20- 1550, 2:35, f/c, OC only. 1560, 1:50-2:06, WVAK, Paoli, Ind. ET/TT/V/OC. 2:15, KSFA & KONO a-fightin' it out, KSFA on OC/V, KONO hymns. WAKR-1590 is off today. WTYN-1550 f/c, OC/V only 2:35-3:05. WAKR-1590 back on @ 4am. 4/19- KYOK on DX 1:10-1:30, TT & mx. Hey Ernie, on CFRB this afternoon, bloke called into CFRB, said tech man with CKWM Winish. You know where Winisk is? Hudson Bay, 100 miles from Manitoba-Ontario border, S & E of Port Severn, at mouth of Winish River (a big one). Up there by gar, men are double-chested and the gals ---. Do you know frequency? Never gave it. (No info here on it, Bill -ERC) Great fishing region - two ways to get in. 1- Air, 2- By boat. #, in winter, dog team RCMP Patrol. 4/19, 860, 2-2:30am, station with Northern Messages Service intermingled with mx, passing messages to people in NWT, likely CHAK Inuvik. KONO covered 2:20-2:30, no sign of 'em after 2:30. That would be midnight there. 675, 4-4:15, YNDS & HIU fighting it out. 900, 2:30-2:45 WKXV ET/M, as good as CHML. WRC-980 knocking out 980 3:15am like local. 4/18- WMNT-1500 f/c-ET (don't know no voice) ID in Morse Code 1:30-1:38. WJBK on test then too. J.B., don't get over-cited ole boy - is this WXLQ? If so I'm sure you got it early December '45 wgeb I had 'em on DX. Was over 600 reports, I think you were one of them.

Wayne Plunkett - 124 John Street - Weston, Ontario

DX only in dribs and drabs now on AM so biggest news here recently is that I achieved my objective of verifying all states byt Alaska by end of April. This took me 16 mos. with last three states added to the foal being Idaho (KBOI-950), Arizona (KWBV-1440 on f/up from last year's TEST; KRDS & KTAR also have unanswered reports of mine) and the 49th was elusive Vermont where f/up brought verie from WMNT-620-DX. Big two domestic objectives in the future will now definitely be P.E.I. & Alaska although chances of reception are of course slim. Also will be continuing to look for some good catches from especially Utah & N.M. where nothing better than KSL & KOB are verified so far. In fact, Utah is a complete blank other than KSL as KSVK-980 r/c unlikely due to CEPL and KLO-1430 impossible due to NSP CKFH. Best bet otherwise would be KALL-910 I think - any comments? Only other N.M. heard here is KWEW-1480 & not enough for report so far. What are other likely possibilities? KBIM-910 & KQEO-920 perhaps? DX recently consists of: 4/4- Two new ones on 1590 in ten minutes - WACA s/off 7pm, WLFA s/off 7:15. 4/5- Finally dug CFRA-580 out good enough for log 1:03-1:10; TT on 1380 during KCII r/c time but no ID made it. WLUV-1520 s/off 7:29pm with SSB, first time on RS; WMNT-1580 s/off 7:45 to return at 5:30 CST. MM 4/6- CHWO-1250 is off most MMs now shortly after midnight; WNAO-680 ID @ 12:35, having trouble holding this one for log, WTVN-610 way o/ WIP 12:40. For about sixth time, TT-860 during WEVA r/c time but always either mis ID or they don't give it; CFMB-1410 s/off 1:02; KDLM-1340 r/c ID 1:11; WJBK-1500 s/off 1:14; no dice IDing TT-940 way u/CBM noted @ 1:18 but likely KVSH r/c; WSTH-830 ET-c/w mx 1:27-1:37; CKSL-1290 s/off 1:30; another report to WJCO-1510 for their r/c, ID 1:45; added two new ones to log; WINU-1510 & WNDY-1500 both with ETs around 2am. After snoozing through WVOB-1520-TEST real nice to log them RS with rough signal u/WKBW 6:43-6:45pm s/off. New call added was WTRA-1480 s/off 7pm for all four from Pa. on 1480 now heard. 4/8- WCLW-1570 heard often @ 7:15 April s/off o/CFOR; WSMA-1550 also s/off 7:15 4/9- Another log on CJGS-1240 7:30-7:40 when WJTN took over; no luck with two previous reports. WBLU-1480 s/off 7pm to return 6pm. 4/11- After Stanley Cup game caught CKWW-580 but signal inconsistent. 4/12- ID WBSC-1550 u/CBE 12:02am. MM 4/13- Oh Canada s/off 900 1:02, CHNO? TT-730 after lam, will have to try for positive ID of WPAL again. KILQ-1440 s/off 1:07 to return 6am CST; CKCY-920 s/off 1:10 GSQ; WXKW-1600 powerful around 4:30; log on WAUB-1590 from 5:03 s/on to fadeout, 5:09. 73.

Ed Satterthwaite Jr. - Belmont Hall - University of Delaware - Newark, Delaware- 19711

Those interested in logging WNRK-1260, 500w.D, here in Newark, should watch the frequency for ETs. They claim they will begin program tests soon, and possibly are on ETs already. This one might be hard to verify. Mr. W.S.Cook, GM, writes: "I doubt very much that we would be in a position to answer all of the (verification) requests." He has invited me to call him after they begin RS, so perhaps something can be worked out. Otherwise, little is new here; DX from college continues to be impossible. 73.

Ronald F. Schatz (visiting in) Nassau, Bahamas

Greetings, DXers, from ZNS-Land! Sked for ZNS-1540 is 7:00-midnight Sundays, and 6:00 -midnight weekdays. ZNS2-1240 runs 5:00pm-11:00pm weekdays and 6:00pm-11:00pm Sundays. Studios & XR are in Centreville, a suburb of Nassau, three miles to the west. More info later, chaps! 73s.

Robert C. Schmarder - 4 Pinewood Circle - Corning, New York

Greetings to all loop-makers. They sure do help. I've been using one for a number of years and have many feet of taped foreigners that would have been impossible without the benefits of a loop. A few notes to add to the fine "special" on the loop. I tune the eight turns with the capacitor and couple the one turn to the antenna and ground posts. It didn't work for me the way it specified in the drawing. Also, I found that on some sets the 300-ohm twin lead did not permit the full coverage of the BCB. In that case, I used regular duplex (appliance, lamp, extension) cord. If the loop doesn't tune the low end of the band, try adding a fixed (mica) capacitor of about 200 mmfd. Switch it in parallel with the 365 variable for the low end, and switch it out for the high end. If turns are taken off in order to lower the frequency range, it may be difficult to tune the high end of the band. A big vote of thanks should be forthcoming from the members who build and use the loop for Dan and Vic, who did a fine job writing it up. As to DX, I have added very little this season - Belize and Barbados were about all. Sleep is too necessary for me to attempt wee-hour DX. But, as they say, I DXed when it was good - WEXL was almost alone on the AN sked. Remember? I logged and verified Poste Parisien on a Majestic 90B (a TRF receiver) three sunspot cycles ago. Buffalo '64 is not impossible from here - depends on the job requirements. 73.

Joseph A. Piechuta - 115 Willow Street - Meriden, Connecticut

Although I've been a member for six months now, this is my first musing. I haven't written sooner because my sporadic efforts are confined to International DX mostly. Now that the season is on the wane I feel I won't be taking up space usually devoted to domestic DX. By way of introduction, I'm 44 years of age, World War II vet, infantry, artillery, signal corps, airforce, some RAF; have been DXing since 1930, all bands, with BCB first love. At present I use HQ-145 with two antennas; longwire & doublet. As for verifications, my life-time collection was accidentally destroyed and I'm building a new one - 51 countries heard, 31 verified. However, I feel no great loss since my views on veries are "controversial." Will not go in'o detail but just mention two: 1- Have no use for PP cards for reasons which must occur to most DXers; 2-Radio Australia claims 250,000 reception reports per annum. If only half include the equivalent of 10¢ return postage, that would make it \$12,500. They verify 100%, God Bless them, but take a comparable station like Cairo, UAR (SW & BCB) which verifies only now and then to keep up the interest, that leaves quite a bit of "bakshish" for someone in that organization. Veries by raffle? Would welcome any correspondence from members in my age group. Subject matter: DX and wide open. ~~Send it in, any way, it's better than nothing~~ 73s for now. (Welcome to NRC, Joseph, and we hope you'll report in often! -ERC)

Mike Bugaj - 197 Boston Road - Middletown, Connecticut - 06457

Time for a musing. I haven't done much DXing since daylight time began, but here's what went on in my last desperate attempt to log something new before EDT started: 4/19- KIILO-1440 @ 2am s/off. 4/20- WOLS-1230 @ 12:23am f/c, WDXY-1240 @ 12:45 f/c; KWLA-1530 @ 1:08 f/c, WJOT-1260 @ 1:32 f/c, WHSC-1450 @ 2:04 f/c, KPRC-950 @ 2:05 s/off, ZBM2-1340 @ 3am w/VOA NX, KBOX-1480 @ 3:25 w/rr, WGKA-1600 @ 3:15, WALT-1110 @ 7 pm s/off. 4/22- WBCH-1220 @ 1:30 f/c-TT, WWJ-950 @ 2:05. 4/23- WSWW-1590 @ 1:28am f/c WTCB-990 @ 3:12, KRGI-1430 @ 1:50 f/c, KEYS-1440 @ 1:55 s/off, WJFC-1480 @ 2:02, KHEY-690 @ 2:06 f/c u/CBF. 4/24- WSHF-1290 @ 3:11 f/c-M, KBGO-1580 @ 4am. 4/25- CKCK-620 @ 2:58 u/WSUN; 4/26- WEEEX-1230 @ 5:27am. Only one verie in, a v/f from KXLF-1370. Disregard anything I've previously said about them. V.s is Al Amons Buttolph. Here is something you'll be overjoyed to hear, especially if you live anywhere in this vicinity. Our local station WCNX-1150 will go to 1,000w/ day operation about 5/16. Their 500w. is bad enough, hi. I've been looking for the new one on 800, but no luck. It didn't seem to be on 5/3. I built the loop from the NRC plans, but for the life of me I can't get the capacitor to tune any frequency. Help! If anyone successfully built it, write me and tell me what you did. Okay? Now have 12 states verified on FM, with my goal set for 15 this summer. That's all from here, so see you in the next issue.

Stan Morss - Route 3 - Bradford, Massachusetts - 01832

4/7- WEEE-1300 Rensselaer, NY noted already on RS 5:15, c/w mx. 4/9- WHIE-1320 Griffin Ga. s/on 5:15am. Veries from WHUT & WRBD both 1470 & received same AM. I'm glad to see Bill Stone and Bill Hutchinson are still at it.

LET'S ALL REMEMBER THAT NOW THAT WE ARE COMING TO YOU ONLY MONTHLY INSTEAD OF WEEKLY THAT IT WARNS OF THE RAPIDLY-APPROACHING DATE FOR THE BIG 1964 BUFFALO NRC CONVENTION. WE ARE LOOKING FOR A GREAT TURNOUT, SO MAKE YOUR PLANS NOW TO GET TO THIS BIG TO-DO!

May 16, 1964

D X N E W S

8

Henry J. Wilkinson Jr. - 6620 Beeman Avenue - North Hollywood, California

No DX to speak of in this locality for the past several weeks. The past season saw reception of 38 new foreign stations with 18 veries in so far and 20 yet to be heard from. Veries very slow in the past month. Got one from "Radio Moscow" verifying reception of a Far East Service station of the USSR on 656 kc/s. and another fine Japanese verie from JOPC-1070 in Kushiro. Holdouts are: YSCB YNAG YSS JOFK JOUC "Radio Senegal" "Radio Pueblo" YVQQ YVFF HJFF "Radio Ecuatoriana" "Radio El Sol" in Cali, Colombia, KHAI "Radio Cumana" "Radio America" in Venezuela, JBC-750, TICA "Radio Granada" and "Radio Lia." Will devote some time and effort to f/ups during the next month or so in order to build up the chances of receiving additional replies from those LA stations. I hope everyone interested in Foreign DX has put the latest country lists by continents in a nice safe place for future reference. Also the notes in regards to deletions and additions. It took a lot of time to do this but it was worth the effort as you fellow members deserve it. It also took a lot of Pete Taylor's time to cut the stencils so please take care. Expect to be very busy at the plant for the next five to six months but will go to Vegas at end of May anyhow. What a nice place to "spend" your money. (Good luck, Hank - ERC)

Bob LaMotte - 1562 Silverwood Drive - Martinez, California - 94553

Last time I reported here I think was through November. I sent a report to local KWUN on 12/1, and a very short while thereafter was gloriously happy to find a verie in my mailbox from them. Since that time I haven't done any DXing until 4/7 of this year. Since that time I have reports out to KIQS-1560 Willows, KGA-1510 Spokane, KGHT-1520 Hallister, KKIS-990 Pittsburg, KOMA-1520 Oklahoma City, KPOL-1540 Los Angeles, KTHO-590 Tahoe Valley, and last but not least KYA-1260 San Francisco. Out of these so far I have veries back from KGA KGHT & KPOL. This KTHO deal - 4/26 I went up on 5 mg/s. to get a time check on WWV. I switched back to the BCB and started dial twisting. As I crossed over 590 I heard the SSB real faint-like. This was at 7:45am. I caught 15 minutes of mx till 8, real faint all the way through here. Actually to cut down on a lot of dial twisting all over the BCB I have been concentrating mainly on 1510-1590. In this section I have logged 29 and verified 14. Yesterday morning 5/3 I was doing some sunrise DXing and heard a few daytimers which I should be able to report to during summer months. On 4/11 I had the pleasure of getting in on a DX conclave at Rich Heald's house. It was interesting looking at Pete Taylor's and Rich's veries. Tuning around on Dave Prather's HQ-k80 RX was interesting also, especially at Rich's location within ten miles or so of several Bay Area XRs. Actually I thought it did a pretty good job at this location. At one time we had KAJ0-1270 Grants Pass, Ore. coming through right next to KYA-1260. One parting question to Rich. Who is the y/s for KWBA? Even though I can't hear 1600 kc/s. on my SX-100, this I would like to know, Rich. Maybe you could send it into the v/s column, OK? Looks like that is it from here so 73s and good DXing to everybody.

Greg Jones - 576 Radcliffe Avenue - Pacific Palisades, California - 90272

Hi DXers. I have a big report 'cuase I haven't mused for a long time. 2/3- KGU-760, KORL-650, KABL-960 CKWX-980 WHAS-840 KWFT-620 WLW-700 WABC-770 WJR-760 KDEO-910 KFAB-1110, WHAM-1180, KROY-1240 KEEP-1450 CBX-1010 KTRH-740 KHOS-940 KVOY-1400 KOWL-1490 KIEV-870. 3/30- KGFL-1430 KTMS-1250. 3/31- KACY-1520 KWBY-1440 at s/off; KIOT-1310 KTYM-1460 KBLA-1490 KLOK-1170 KPMC-1560 XEX-730. 4/1- KMEN-1290 KOL0-920 for second Nevada; KGB-1360 KBIF-900 KXRK-1500 KASK-1510. 4/6- CJCA-930 CHML-900 KUPD-1060. 4/7- KGA-1510. 4/8- KUTY-1470 KCKC-1350 KNGS-1220 KGW-600. 4/27- Started with KYA-1260-DX which came in well at 3:15; KRLD-1080 3:21am, KPAT-1400 3:28, KOIL-1290 3:40; KMOX-1120 s/off @ 4; WGN-720 4:05, CBU-690 4:10, KVI-570 4:16, KLAK-1600 4:30. 5/4- CKOK-800 at s/off, 2:12am. The Dodgers are off to a slow start but they started slowly last year & beat the Yanks four straight (yeah!) The Dodger Network includes: KFI-640 KWKW-1300 KVEC-920 KCOY-1440 KTMS-1250 KCEE-1230 KORK-1340 KREO-1400 KYOR-1450 KROP-1300 KTTV-11 KMJ-580 carried Giant games along with KSFO. WWL carries Houston games. Cardinals are carried by KMOX KBOA KAAV WMED. I've been tuning SW in despatation and have loggel countries most BCB DXers would consider good but SWers would consider crummy: England, N.Z., Australia, England, Germany, Japan, etc. were heard. We know who's going to win inthe N.L. don't we? I'll let the Mets come in third but guess who'll be last. (It begins with G & ends with S). I have put a suggestion into Student Counsel to have vacation in the winter (Dec-Jan-Feb) & go to school the rest of the year. This way I can DX only for about an hour MMs at the most. If anyone wants to write I'd appreciate it.

Randy Seaver - 2119 30 Street - San Diego, California - 92104

DX since last time: 3/23- CKOK-800 @ 3:09, KMVI-550 @ 3:21, 4YA-780 @ 3:38, 3LO-770 @ 4:30, WKCV-1420 @ 4:01 s/on, 2CY-850 @ 4:11-4:17, 3GI-830 @ 4:19, 4RK-840 @ 4:20, KJOE-1480 @ 5, WQMB-1460 s/on @ 5am. 3/29- CKLG-730 @ 4:15. 4/5- CHEC-1090 @ 3:10. 4/6- KNEZ-960 @ 3am s/off, KUGN-590 @ 3:08, KWSO-1050 r/c @ 3:23, KHAI-1090, CKGI-980 4:12, JOIB-750 @ 4:25 w/EE lessons, WTJH-1260 s/on @ 5:03, WUUU-1260 @ 5:05 s/on. 4/13- KLBK-1340 r/c @ 4:06, KFSC ET @ 4:29, JOKD-1370 briefly @ 5-5:06, WSIZ-1380 s on 5:30, WBAL-1090 @ 5:35 for state #42. 4/20- KWG-1230 @ 3:01, KOAD-1240 s/off @ 3:05, KFH-1330 u/KFAC @ 3:40, CBE-1550 @ 4:00, WIBC-1070 @ 5:19, KSET-1340 ET @ 5:23. 4/27- KRIK-960 testing from 2:06 to 2:15, Paul B., did you know "King Richard Is King?" So they say. KKRA-1490 r/c @ 2:47-2:52, very weak, one ID. KATI-1400 on NRCI test from 3:38-3:51, KYA-1260 loud and clear on NRC DX @ 3:08 and on. 5/4- KUPI-1450 r/c @ 4:00, unk SS-1440, 1090, 750, between 4:30 and 5, WRAD-1460 s/on @ 5am the only new catch. Also heard a Mex s/off around 3am the week of 4/20 on 960 kc/s., IDed as "Radio He Koo" but I heard a definite "en Nogales, Sonora". XEIQ is located in Ciudad Obregon, a good distance to the S. Any info on this, Ernie? I presume it's Pete's department, right? (Right Randy, no other info here -ERC) Why does John Daller send holy surveys? John also says he now has 20 veries - you're getting there, JWD. Totals here are 590 heard from 43 states, 18 countries. Last year at this time it was 280 heard, 34 and 6 respectively. How about hearing from the WC contingent more often, huh? That includes yours truly, of course. 73s and watch out for wmen with dandruff on their shoes.

Ernest J. Wesolowski - 1416 Pasadena Avenue - Omaha, Nebraska - 68107

I think it's about time to send in a report, hi. For the last two months, I have been doing very little DXing. Only on MM and some SSS stuff that comes around. Static is about the only DX now, but who wants to log that, hi? Three weeks ago I drove to Wisner, Nebr. and visited two young boys interested in DXing and we drove into Norfolk and visited the studios and XR of Station WJAG-780. The studios are only two years old & the XR is located three miles W of town. There they have a self-supported half wave tower, and a small sign on the window which reads: "Help stamp out WBBM." Last weekend Skip Dabelstein and I drove the other direction, SE, to visit KMA-960 and KFNF-920. KFNF must vacate by next March, so hope by then to get FCC authority to move to Council Bluffs, across the Missouri from Omaha. This is a station of bare wires all over the place, and the tower is very inefficient, as it is grounded and a quarter-wave, self-supported. KMA is in a modern studio since last fall, and we were well accepted. The towers, two of them now, as the old ones blew down in a tornado two years ago. Center tower is half-wave and the DA-N is a four-leaf clover, with the major lobe to the N. Back in Omaha, on 5/1, local KMEO-660 changed back to the former call of KOWH; same owner, but different programming - more like rr. Boys, watch KOIL lose listeners to "An old friend back in town," since 1/1/60. Today, 5/8, winds reach 68mph and KOIL & KRCB lost power. KOIL has two XRs and was on with 250w. from downtown XR, with a long-wire. Another thing around here is that Iowa is nearly 100% on CDT. Nebraska law prevents daylight time unless the entire state has it. Council Bluffs will be an hour ahead of Omaha beginning on 5/10. Watch for KRCB-1560 s/on @ 6 EST. KOOO-1420 s/on 6:30. May s/off is 8:30pm EST. June and July, 9pm. KICS-1550 Hastings, Nebr. is on RS now. 73s.

Dave Doswell - 6420 Rolling Hills - Fort Wayne, Indiana - 46804

Hi all from WPE96UJ! I'd never seen any loops before so I got busy after seeing Dan Phillips' plans. After practically a whole Sunday afternoon and evening I built a loop on the same principal. It works great except on locals, but the capacitor only makes it look fancy. I'll have to experiment. I drilled holes around the frame and had no trouble in winding the 128' length. I am glad to have met former NRCer Don Roller, but I don't know what to think now. DX starting with April, only the goodies because the old pros have heard most. 4/3- WAMY-1580 TT, ID @ 5:15am. 4/10- WBAZ-1550, hope it's on at 7:58pm, sure sounded like WBAZ. 4/11- KVLC-1050 TT, ID @ 1:22. 4/20- Was devoted to ETs. WDIC-1430 ID @ 1:20. WJOT-1260 ID @ 1:30, report sent. WHSC-1450 ID at 2:05. WSEM-1500 ID @ 2:20. I also waited for an HJED-820 Cali ID at 2:40-2:45. KXEO-1340 ID @ 2:56 but I'm not sure about this one. 4/27- KFDA-1440 TT, ID @ 1:41, report sent and letter is back but they couldn't verify. No KYA San Francisco DX but WNDR-1260 at 3:05 which I hadn't heard before somehow. Only 24 new stations in April. WADM isn't on as of 5/9. Good DX.

AS THEY SAY IN PORTAGEVILLE, MO., "KMIS." "KKEEP EWING IN the SUMMER." (Greg Jones)



May 16, 1964

D X N E W S

10

Walt Breville - Box 86 - 655th Radar Sqdn - Watertown, New York - 13600

Here goes my first Musings. For several years I have been off and on this kick of tuning and logging DX BCB stations, never realizing what a highly developed hobby this was until I joined NRC last month! While stationed at Tule AFB in Greenland in Winter of '62-'63, I logged CFRN CBX & CJCA in Alberta often with good signals, also CKOM and CHAB, Saskatchewan, CKWX Vancouver, KFRB Fairbanks, KIRO KJR KGO KNX KFAB WLS WJR, all on an Arvin 3LR58 eight transistor. CX occurred roughly one night in ten. What gets me is that while I got some 5kw. Western Canada and WC stations, no EC stations ever came in. Wonder if North Magnetic Pole influences this? Latest loggings: 5/4- WOAI-1200 lam s/off, WMBD-1470 in good at 1:12. 5/5- CJET-630 4am s/on, WCHS-580 c/w mx @ 4:10am, WROW-590 4:30 s/on. 5/7- WKBN-570 12:15, WAVZ-1300 ee 12:47 (12:59 SSB s/off), WHAT-1340 1:35 rr. Recent v/l's: WCIN WHK WXYZ WYMR. v/cs, WROK WPOP. I now fish the medium waves with a self-built Knight R-100A. Wish I had joined NRC and sent reports out while in Greenland! Will make up for that, now that I'm in this great Club. 73. (Welcome to the NRC, Walt, and we hope to hear from you regularly here! -ERC)

Walt Snyder - 710 Stewart Avenue - Apt. 1 - Cornell University - Ithaca, N. Y. - 14850

Veries coming in slowly as usual. Arrivals include WEND-1580 WRAL-1240 WIL-1430 on f/up KVOB f/up f/c, KCBC f/up, and KXLF on PP which stuck the 5¢ stamp I sent to my 4¢ postcard, hi. MM 4/27 spent DXing. Much of night destroyed by pulsating buzzing interference which I can't figure out, especially bad on upper and lower parts of BCB. New stations noted were WLPW-1460 at 12:30am, WISM-1480 at 12:45am, no veries sent. Caught good old WRVA with f/c at 1:30am while trying in vain for KGEM, and ran into TT ID from WBT at same time. Found KFDA f/c per list until 1:46am in fairly clear. WVON-1450 Ill. noted at 2am. Another plunge for Nevada seems to be successful, as I found a station with TT and IDs from 2-2:30am, per list and thought I made out "Las Vegas" but interference prevented a clear ID. Did anyone else catch this f/c? Am very anxious to hear, PP card is out. Believe I dragged in KYA faintly u/WNDR NX @ 3am, but mx later completely covered it. No sign of KATI DX. Finally I caught CKEW in clear on DX, probably at 3:50am ahead of 4/5 sked as announced. If CX don't clear up, probably won't report again until I get out of Lake Cayuga and back to Allentown. A brief sunset DX 5/1 found 1550 loaded with s/off's. Was surprised to catch WSER s/off at 7:10pm, and then WQVA came in for s/off 7:15pm w/singing Lord's Prayer. WAAY then faintly on top briefly 7:45-7:50pm. Also WLOA s/off 7:30 on 1550. Finally caught 250w. WKID s/off 8pm. Still no luck on KFIF-1550 or KYND-1500. Also any info on whether these stations verify (no info in v/s lists): WLOF-950 CKEW-1000 WGUS-1380 WPON-1460 and WBSC-1550. And I am thinking of trading in my Lafayette HE-30 for a new RX. If anyone has any info on a real good RX, especially for BCB, I'd enjoy hearing about it. 73s and good DX.

Adolph Rattay - 1494 Beechwood Street N.E. - Warren, Ohio - 44483

It's been some time since I sent in a report. My RX was at the factory for repairs, so I missed eight good weeks of DXing, and a lot of good stations. Now I'm back in harness, but get a lot of static, but it wasn't all bad. I did get WJBO WDEL WNJH & WPGM on their DX TESTS, also WKIC WSEM WDXB WDXL-1490 WVOB on f/c and ET. Picked up WGIC in Xenia on 4/29 RS. If they verify, will have a city with a letter of the alphabet except Z. Some veries in the last three weeks were, v/c- WOKE WJBO WBRW WCPO. V/l: WBBZ WNBH WSEM WDXL WAQI WDEL WOMP WBVP WEVA WINU WPVL KBEW WSTH WKXV WFIW WRFD VPDY WYTI WFAH KBGO WPGM. On 5/9 gtom 1-1:30 WMIR-1550 was testing. So far I sent out 432 reports and received 368 veries, an 82% average with about 25 stations on the active list. Hardest to get veries from are in my case, WLIJ WSKT WBKN & KIXZ. Finally got one from WPON WSHN and KRGI, after about 6-8 months. That's it for this time. 73s.

Frank Merrill Jr. - 10693 Saline-Milan Road - Milan, Michigan - 48160

Flash! My sister and her husband (who is in the Air Force) will be leaving Mississippi on 7/29. He will be stationed up in Marquette, Mich. and we will be seeing them (may even take them up). Tom Sherman, we may be stopping in Mammoth and see you (almost sure!) Other news: Phone calls (very appreciated) from John Daller on two Friday evenings in a row! Got up 4/13 for KMED and to relog some stations. All I heard was static. George Greene may make it pp here this summer. Hope he comes. Verie from Dakar-764 yesterday, continents now 5/5. Tom Sherman, will you make it here too? 73s, all.

Peter Bengtson - 237 Merion Road - Merion Station, Pennsylvania - 19066

Still alive but no DXing since last Christmas. Never enough time this hectic year. Only verie here in HJNX-670 "Radio Tricolor" with friendly letters & postcards. See note about special program from this station on P.1. Hope to see many of you at Ron S's

Richard Cocran - Sweet's Corner, Nova Scotia

Hi all. Ralph Johans - I heard your 980 TTeB on 4/17 - I would guess WTRY. Here, it was o/CBV & CKGM, and I never heard a WTRY ID, and it was way too strong for WCAP or WSUB. Russ Edmunds, if your hockey game on 1300 was in FF, I would say CBAF. DX: 4/29 - WOND-1400 and ZBM2-1340 both on top 8:00. The DJ on ZBM2 sounded exactly like Murray the 'K' on WINS-1010, even to his pet sayings! So now we have Bermuda stations imitating WABC and WINS, and now all we need is one to imitate WMCA. Also on 1340, WNBH. 5/1- 7:30 WPOR-1490 w/ABC NX and local WX. WBBX reported 8:26-8:42 with rr. ZBM2 on top. They must be using lkw. at night. 5/3- ZBM1 AN now, no sign of ZBM2. When will they make up their minds? CHWO w/powerful signal, reported 2:3-3am. While taking log on CHWO at 2:58, a TTer came on 1250, but no ID till 4:00. Found I had wasted an hour on WRYT! WFUN-790 3:40, TT on 560 and 1480 at 3:45. In the PM, St. Pierre and Miquelon-1375 good at 5:30. At 7:20, surprised to hear WJAR-920 even w/CJCH. New station, CJSS-1220 at 7:26. Veries: v/q- WCKY-1530 CHNS-960 CKBW-1000 CFNE-550 CJCB-1270 WCOY-830 WOND-1400 (Thanks a million, Ron Schiller!) and KYW-1100 after 3 1/2 months. V/1- CJCH-920 WOSC-1300 WLAM-1470 WDAE-1250 WHAS-840 and KFI-640. In KFI v/1 CE said WOI is allowed to s/on at 6am CST w/lkw. If anyone hears FF on 1400 on Saturday evenings at 6:30 EST and later, you are listening to WLAM. Several Maine stations have programs in FF due to immigrants from N.B. and Que. How do you guys get so many CMs and SCs? In 14 veries, all I got was a program sked from WDAE and an SC from CJCH, and I asked for that! Did anyone catch CJNR-730 12/8/63 when they were AN w/benefit program? They were parallel to CKSO-790. It sounds like a regular occasion. 730 might bear watching second Sunday AM in December '64. DX doesn't dry up here in Summer - I have 52 New England graveyarders to sort out! So far, only 19 have been IDed. So, best of DX, especially graveyarders! 73.

Bill Stone - Box 543 - Stouffville, Ontario

Quite happy with April veries - WGEN-1500 WVAK-1560 WINU-1510 WJMC-1240 WACT-1420 KRCB-1560 WKJK-1580 WKCW-1420 WAAM-1600 WSAC-1470 WNDY-1500 CKWW-5580 WMIR-1550 and WRIN-1560 Repeats, WPAR-1450 WASK-1450 WGST-920 and WCLO-1230. In first six days of May, these: WKNR-1310 KYA-DX-TEST, CE says I'm best DX so far, CBZ, Roy Geldart, VELPE for G.J. Covey says in letter, "Tell NRC members we welcome their reports." Go get 'em - s/on 4:59 am EDT, in clear four morns out of five here. WEET-1320 WINF-1230 WEOL-930 (ball game) WABD-1370 WEDO-810 and KSTA repeats - YND-675. Satisfied, as I'm Dxing only when I can't sleep, as it's "off season" I figure I'm getting my share. Read in a bulletin while back one of lads needed Vermont station - tune WVMT-620 6am EDT - sounds in up here, has some QRM, but Navy rig phased that out fast. There's some bird using TT on 1490 past week, midnight to lam, not an ID yet - there's a bloke been using TT w/WKEW all this week, he's on right now, 4:15 EDT - can't get him through loud DJs. Boy, I've heard sick announcers, but that bird XERF has now - Uncle Wilf - sure wins the pearl bed pot hands down! Jim Warner, Mrs. has asked me a dozentimes this winter if you've fallen "down the hole" - even our pal Plunk says he can't reach. Can't be that bad - what is it - bowling, or have you discovered gals? Take note CKEY-590 must be off Wednesday AMs, second one in a row not on. Oh Plunk, you Canadian members, I'm going to write up a form better re CBC ANing, I'm pretty sure we can put brakes on this - time will tell. Once I feel old right arm will take typewriter pounding for a half hour, I'll get it typed up OK. Any of you guys needing CA and SA stations, sure had your choice last week in Aprkl - was so good here, I was under impression most U.S. stations closed down - Mexicans, even lkw. jobs were S-9 plus. HJED-820, YVRQ-720 and about 20 others were S-9 with only 50% RX potential. Like locals. CKSL-1290 is not AN any more. Closes down 1:30am, back 5:30, EDT. See youse in Buffalo. Hi, Ernie, your Nets are at it again - our Leafs always try for other end - yup, they're first. Oh to have Andy's problem - too much CBN on 640 - all I get is SS or KFI - phooie.

Gordon Nelson - 19 Irma Avenue - Watertown, Massachusetts

V/1 and card in three weeks from Tonga-1020 re my tentative report: "Thank you for your reception report of April 3rd. Yes, on the night in question we were playing jazz piano music and previous to that Peggy Lee, so on the strength of that we are issuing a QSL card. April seems to have had the right propagation conditions for transmission to the States. So far we have received six confirmed reports from the U.S. for the second and third of April - four from the West Coast, one from Illinois, and your own. Signed M. Holmes-Libbis, Station Engineer. This is my first BGB QSL, my score is now 52/1 for countries, hi! (Wow, Gordon what a dilly to start with, hi! Congrats!\*ERC) AS THEY SAY IN HANFORD, CAL., "KNOS." "KEEP NRC GOING SERONG." Next issue, JUNE 13th.

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D X N E W S

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Ken Butterfield - 624 Arthur Avenue - Plymouth, Michigan - 48170

Hi gang. Boy, it's been a bit of a time since I've written in, due to inactivity. I've been trying to catch up on those stations that haven't verified, and, they are coming in at a rate of 2-3 a week, due to tons of f/ups being sent out. Latest DX: CKWW-580 on RS and WDEL-1150 on their DX TEST for NNRC. Latest veries: v/q- KNMT CKOY WARK & WAPE (with a picture of a DJ on the front of it, so I turned it over, hi). V/1-WHBT WSIP WERN WDEL WSOC WVOB KZYZ CJNR & KBTA. Domestic Contest totals stand at 194. Latest DX totals are at 658/535 for an 82% average. Pretty good, but a long way from 100% (look out, Hank T.!) Well, as Summer approaches, they way-out DX season leaves me, but the semi-local s/off-s/on sessions start with a lot of local states near by to take a shot at.. My subscription runs out in two months, and I am going to re-subscribe as soon as that happens. The NRC has helped me in logging many stations; otherwise I probably could never have logged, so to Pete, Ray and Ernie from myself, goes out a big "well-done", and keep up the good work. Sorry I couldn't have logged that Vermont station, set up by Hank T., but maybe next year, hi hi. I'm going to work on that loop in the April 25th issue of DX NEWS, but I have one question: Where the heck do you put it? I tried it on top of or near the RX, but that won't work. Three guesses why, hi. Boy, that's a big un. Don't know if I can make the Buffalo Convention Ernie, although I'd love to come. My mother has something to say about it, like ha-ha, hi. I'll keep trying though, so with luck, some of you other members going to the Convention might have the great honor of meeting skinny old me (hi, John Daller). Well, that's about it, so if there are any CBers in the NRC, please send me your QSL card, and I'll return one from the great station. 73s.

John Daller - 19997 Ward - Detroit, Michigan - 48235

Hi there guys, from this part of this wide, beautiful SC-land of ours. Thanks Andy R. & Ken B. for those SCs. Ken especially, because he's giving up SCing and gave me all of 'em. Thanks! My totals will be up around 250 soon, and around 425 heard. Not enough time for veries in any big number - wait'll summer! I'll bet many a new member submits his first Musing with timidity. "Gee, what great DX some of these guys do. Why would they want to read of my skimpy, not-so-hot DX? I'll bet they laugh!" New members, that's simply not true. No new guy's first Musing was EVER laughed at. It took me three months to finally send in my first. After that I sent in about every two weeks. I like very much to read a new member's first one and second, too. They're interesting and besides, it's good to see the members progressing in their DXing, SCs, etc. So at least let us have the chance of knowing a little something about yourself. I've only been in the NRC since 9/63. This is my ninth Musing. Others by issue and page number: 16-11, 18-3, 19-13, 22-10, 23-8, 26-9, 27-8, 29-10, and this one. I'm 19, a Michigan State freshman, major math (ugh, you say?) 5'10" and I go for domestic DX & like it (Dakar eludes me & Radio Americas-1165 is the only split). Late DX from the "mystery set"- 4/18- KNFT-620 DX 3:19-3:52am w/tn interference from another. It was needed WSUN-520 3:32-3:55. Two stations from the one DX! 4:58, WEZJ-1440 s/on, WTHM-1530 4:35-4:43pm. 5/2- Help wanted, please: WJFD?-1480 f/c 3:20am plus. (Don Eggert says WJFC, John -ERC) WION-1430 f/c 3:25-3:48. You guys haven't lived until you've heard an all-Beatle record non-stop f/c! WION has the distinction of having hit the height of the industry or something! An all-Beatle f/c! WHHL-1440 Va. f/c to 3:58am, WEZJ-1440 (see 4/18) 3:59 r/c. 5/3- KDNT-1440 Denton, Tex. AN-ER 1:26-1:37am. NRC Primary List confirmed this), WLEE-1480 1:50-1:58, WGKV-1490 W. Va. 1:53-2:29, and 1490 with many spots for Liberty Bell Discount. Who, please? WOPA-1490 2:30 NX, WWSO-1450 NY 3:55 (1490 ones with WJBK-1500 off for ETs in readiness for their new 50kw. day/5kw n. rig), SS-1380, don't know. 5/10- First on 1550 u/CBE, new station, WMIR-1550 Lake Geneva, Wis. Anyone else heard it? Also KUSA-690 in well & I got an airmail verie within a week! Lee Allen, WXYZ DJ, canned. SCers, SAS to me for a couple of blank lists by states to list your SCs and a few SCs to boot. 73s from just a guy. RES, 5/24

Chuck Reh - 34 Garrison Avenue - Leamington, Ontario

Hi gang. Very little DX in the last three weeks but here goes anyway. 4/20- KETX-1440 ET 3:16am; CJCJ-920 3:29. 4/23- WOBX-1270 7:15pm s/off, WRMN-1410 7:30 s/off, WCED-1420 7:31 o/PHK. 4/24- WTCH-960 7:10pm; WRSW-1480 7:31 and power decrease. 4/26- WCCN-1370 7:45pm s/off. 5/4- KRKO-1380 3:11am thanks to WBNX s/off at 3; WTR-1470 4am s/on, WBLF-1330 4:38; WWCH-1300 4:58 s/on, WCPA-900 5:07; WVSC-990 5:37; WMSG-1050 6:15; WZIP-1050 6:25. 5/5- WALM-1260 8:02pm w/Tiger BB u/ JOK. 5/7- WHZN-1300 (ex-WHTT) 4:48am s/on for #100 heard from Pa. By the way, WXYZ-TV-7 has gone AN SMS. So far no insomnia has caused whistle-stops along the dial for me. Till next month best DX & 73.

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D X N E W S

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Joe Fela - 167 Goodwin Avenue - Newark, New Jersey - 07112

Veries since the last Musing are v/l's from KGMR-1500 WSTH-830 WFIG-1290 WSTR-1230 KERN-1410 WPGM-1570 WJZ-1460 & WNBH-1340. Also v/f's from CJOY-1460 WCAR-1130 WLNQ-1600 WIRV-1550 & v/q's from Radio Americas-1165 WFEM-1260 & KBUR-1490. On 5/1, I got a call from NASWA member Bob Glenn of Morristown, N.J. and he tells me that long-awaited WRAN-1510 will begin RS on 6/1. Their sked will be 5:30am-1am EDT. He also said they might have special first day QSL cards so be on the lookout for them. And now to recent DXL 4/19- No KYOK-1590 DX here, just WYNG ET/M slightly o/WSMN-WAKR ANers. 4/21- 1:08am, WMES-1570 r/c-M; 1:20 WFIG-1290 r/c-TT. 4/22- 1am, WLLH-1400 atop channel; 1:05, Celtics-Warrior BKB game noted on 1230 (WTSV), 1340 (WNBH) and 1470 (probably WLAI). 1:49 s/off, WSTR-1230 after being on late for Detroit-Los Angeles BB game (I thought I heard two Detroit BB stations on 1230 and asked about this in my report. WSTR replies they think WJEF-1230 also carries the games). Also noted TT-1590 & 1430 during the WSWW-1590 & KRGI-1430 r/cs but as usual, IDs failed to penetrate the QRM. 4/25- 1:30am, WXYZ-1270 only station on the channel - WSPR off AN? (Yes-FRC) 1:41, BB on 1240, I think Cleveland Indians - anyone know who? 4/26- 11:02pm, WTAC-600 in pretty good; 11:07 WAMS-1380 r/c-TT (more QRM from CKPC than local WBNX); 11:19 NDR-1586 noted but weak; 11:21 TA-1594 or thereabouts, British announcer (EB) and U.S. and British reports. They seemed to give the time as plus seven hours EST and Britain is plus six hours EST and suspected "Radio Caroline" at first. Any ideas? 11:59 s/off, WIMA-1150. 4/27- 12:17am, WFEM-1260 RS o/WNDR but u/OC; 1:00 s/off KDHL-920, 1:06 WSPD/WCOA-1370 s/off. 4/30- 12-12:15am, WYTI-1570 ET; 12:22 WPGM-1570 PoP and NRC TEST. 5/4- 12:37 am CJCH-920 solid S-9 (unusual). 12:56, Radio Senegal-764 s/on, S-7 plus but static S-9 plus. 12:50pm, WJZ-1460 logged u/semi-local WVOX (first time heard here). Have a few more ndes but no room. Did get WWBR-1350 on an ET/M on 5/10 for the only other important logging to date. 73s for now.

Ron B. Schiller - Box 456 - Monmouth Beach, New Jersey

DX been slow but a few veries rolled in, and among them two of my oldest holdouts, Jamaican Broadcasting Corp. (JBC) and KENO. Former was 40th country, dandy letter after eight tries to the island; kudos to Bob Foxworth for the v/s! KENO made it 47 states, six reports over the years, a v/c. And thanks to HJW, YVLH-630 "Radio Girardot" sent an unusual v/q back in two weeks thanks to the v/s; only the second of eight Venezuelans to answer this year! WUNO-1320 was another surprise, a v/q received five months after f/up; #19 from P.R. and probably due to Dave Pope's report which netted him a verie the same week. Nurnberg-1602 made it six for six from Germany, pretty v/q and pix postal of "Nurnberg Hauptsender". Ljubljana-917 was the 41st country in the log, v/q and assorted travel data. EAJ8-1025 a gorgeous pix postal showing their two towers and a brochure of San Sebastian also showing their towers and the town. Domestic included WIBX-950 v/c, WAMW-PP WEAS-PP WTIF-1340 friendly v/l after f/up of 3/63 report. CKCY-920 v/f, WAWA v/l, KEGO v/l and CSB2-1034 round out the list. Total now 1,404. Only a couple of new additions to the log: WKBA-1550 at twilight, CKNE-950 Campbellton, N.B. with CBC Hockey game on 4/23, although they're not CBC, WIBX battling him o/WPEN 10-11 pm. 4/26- WENO-1080 to 7pm s/off and WSMA-1550 to 7:15 s/off for another report. Looking forward to 5/24 and seeing the gang again. One favor: Those of you who can make it PLEASE ADVISE by postcard or note, so we'll have an idea of how many to expect! 73.

Hal Robie - 351 South Street - Medfield, Massachusetts - 02052

Nothing doing here for the past two-three weeks. Not even one verie since the last report to Musings. Several TA reports still out, and overdue, but I expect replies will show up in due time. May send a few f/ups before long. Looks as though Cairo doesn't intend to verify their outlet on 818 for me after six reports. If anyone had a reply from them this past season I would greatly appreciate knowing. I know they were answering reports a year or more ago, but then I couldn't seem to pick them up. That's always the way! This past year has really been a good one, and many new stations were added to the log. List of countries heard stands at 56 with 52 verified. Holdouts are Egypt Martinique, Senegal and Andorra. The latter did verify, but typed the SW frequency on card in error so I'm waiting for another to replace this. I still need a few of the central European countries that seem to be heard frequently enough by others, but I don't have any luck whatever around the 11pm period which seems to be one of the best times to pick them up. Maybe next year. States heard and verified are 48 plus D.C. Nothing yet on Hawaii or Alaska. Among the reports out are one to Rome-845. I feel certain this one was picked up on three occasions between January and March, but it's real tough here due to WHDH-850 with towers in Meedhan, only a few miles away. (P14

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(Hal Robie) The program content seems to tie in with what generally was being heard, and it is unlikely that any other station on this frequency would be heard here. If they verify this will be country #57. The old Hallicrafters is getting there slow but sure. Wish I'd been active every year! Here's hoping there will be something of interest to report by next issue.

Ben Dangerfield - 202 Governor's Drive - Chester, Pennsylvania - 19013

I don't have much to write about as foreign DX seems to be suffering from HNL, DST and a general drop-off that always comes at this point of the season. A scarcity of veries continues. This must be the case with others, too, as very few foreign contest entries have been received here recently. I certainly hope many more NRCers will enter next season's contest, as this sort of competition, and building up a score, makes DX so much more interesting. The only real exciting DX here within the past few weeks was some reception from South Africa on 4/27. Signals were picked up on 1286 and 845 kc/s. between 10-11pm, with some details for reporting. Also hets noted on 728 and 908 kc/s. which are also South African frequencies, Radio Springbok. Domestically, I note that several area daytime stations are signing off Sundays long before sunset, thus enabling reception of other stations not often heard. For example, WTUX-1290, and WDMV-540. The latter situation leaves WARO practically alone atop 540 around 7pm Sundays. Back to foreign, I picked up an SS LA on about 743 kc/s. around 8:30pm on 5/9 which frequently mentioned "Guatemala" but whose ID sounded like "Radio Progreso" for which I have no listing in Guatemala. Veries in from ZNA-1510 (card & letter) for my second Aussie; Radio Senegal-764; ZBM2-1340 and Busharest-854, #4 from Rumania. I fear that DX activities will be greatly curtailed for May and June by my local "Little League" baseball activities, and in July by my vacation, but I will DX when possible. (What position do you play, Ben, hi -ERC) I still intend to be at Ron's on Sunday 5/24, and I am bringing Peter Bengtson with me. Any other area DXers who might be interested in riding along should contact me right away.

Ralph M. Johanns - 11 East Chippewa Street - Buffalo, New York - 14203

5/10, heard CFAC-960 AN strong and no WKRC was on air on 550, but CFNB nice alone with AST AN program till 3:45am EST; an SS got in & QRMed. UX noisy & didn't ID him (WPAB?) My pal WGR now does to bed nightly 11:05pm EST and wakes up 5am EST daily. 1290 had WIRL/KOIL fighting. 5/9- WOMP-1290 s/on 3:59 and on 1350, WHWH Princeton, N.J. @ 5:01 through WORK/CKLB. Here, Capital Cities Broadcasting (WKEW is theirs now) spent 21 million and now get WJR Detroit, AM, TV, and WSAZ AM, TV. Next, construction is expected early this summer, Seaport Broadcasting Corp., 1300 kc/s. 1kw.D, by WWOL-1120 owner Stan Jasinski who's FCC OK is awaited. He also has a CP for UHF Ch. 29 Buffalo pending. On 1235 kc/s. I often hear, 4:15am, "This is Bermuda Calling", with Zett-B-M on 1235 and Zett-b-M on 1340 kc/s., they're AN and I got a pix v/c of Ft. St. Catherine with Radio Bermuda on front and other side, ZBM1-1235 and ZBM2-1340 printed & dates, ZBM1, and sings it (mailed, Hamilton). V/1, CM and the CBC Times program, also the new CBK v/q CBK-540 Saskatchewan and is a copy of the CW (front) and other side, date/signed. V/1, KSOC-1140, also WZYX-1440 and a paper mimeo from KLMS-1480, then a  $\frac{3}{4}$  piece of paper WCLS printed only and CE writes "Thanks for report" and he was sick a while (envelope tells PO Box 887, Columbus, Ga., WCLS. It's on 1580, in case you also want a f/up reply). A pix-folder of the works and four DJs from WOWO-1190 (f/up), a written note/letter of WHOT by a former Britain. He told the CE he's delinquent (he still is). V/1, CM by WVOP-970, Box 391, Vidalia, Ga. by GM (my oldie was WRQN-1450 then). The KL-Radio v/1 by CKLB-1350 Big Centre, Oshawa, Ont. Lakeland Broadcasting Co. Ltd., with AM/FM CMs (my oldie was 1240 kc/s., CKLB, 10Cw.) V/1, WPAY-1400 (affiliated WPFB-910) 100 Gallia St., Portsmouth, O., their FM is across the Ohio River in Kentucky. So long for now.

Roy H. Millar - Box 91 - Marysville, Washington - 98270

Hello. DX Limited since last report, but here 'tis: 4/18- KWFT-620 DX real rough to log u/AN CKCK, but did manage a few spots after KGW s/off at 4am. 4/20- WRMA-950 Montgomery, Ala. s/on 5:30am, KSEL-950 Lubbock, Tex. ID @ 6:32. 4/27- Odd one; when KTOK-1000 s/on 6am, also gave call of KKA79?? Veries: WAKY-790 WESC-660 KNOX-1310 KQEO-920 KANN-1250 WK-880 KLOC-920 KBUY-1010. Say, the loop plans in DX NEWS look just like Hal Williams' of a few years back; my experiment with same was a complete flop. Seem to find it hard to taper off the DX trail this Spring, although it's not due to CX, I assure you. Still trying for some of those elusive foreign that have escaped me so far; things like VTW-844 every Thursday AM and ZKIZA-820 same morning, not to mention VQC-1030! Am thinking of converting antenna systems from solid copper to stranded (PL



(Roy Millar) to try and get away from breaking and stretching problems. Have been darting SW bands on the HQ180, trying, I guess to justify outlay for same, but seems like I've been bit by the BCB DX bug for too many years to find much enthusiasm for SWLing! A couple of May DX items: 5/5- 4YZ-720 Invercargill, N.Z. ID @ 6am; one I've been after for years! 5/7 - KELL-1430 Tulsa, Okla. ID @ 5:30am, momentarily atop WIL. Not quite up to the 100 mark in foreign reports yet, but here are five more to add to the 90 listed in past two issues of DX NEWS: JOPG-340 (new frequency, but never verified on old), VRH2-840 (tentative report only), Radio Senegal-764 (obviously a new one!), 9PA-1250 (tentative report only, as only ID was that of "First Northern Network"), XEWK-1190 (not new, but unverified). Will try and round out this 100 next report! Re communications from some of you pertaining to reception on 764 kc/s. around 11:30pm 3/2, appreciate your comments, and with it definitely stated that Dakar was ON at this time, testing with mx and a lady announcer, I'll admit that I'm less than 100% sure that my ID as SABC, Pietermaritzburg, South Africa is correct. Reception was indeed rough with WJR on 760, but I'm quite sure 'twas a man announcer I heard, and still think it was EE so---. Still say that without a doubt 'twas SABC- East London and SABC Johannesburg that I had at above time and date on 1025 and 1034 kc/s. respectively! wonder if SABC will agree, and when? 73.

Don Eggert - 1925 East Bowman - South Bend, Indiana - 46613

Hi, everybody from the Northernmost NRC member in Indiana. The WX has been great this last couple of weeks and of course CX have been terrible. 4/19- Local WNDU-1490 off with XR trouble but nothing new logged. 10am, WNOP-740, #2 daytime from Kentucky. 4/20- No WQWC TDST as CX were very poor. 4/21- Radio Morocco het tentatively behind WMBD slopover most of the PM. SS behind WLW most of PM also. I read where ABC will carry Notre Dame FB again this year. Where can I get a list of Carrier Current stations? KIXL-1040 Dallas was sold for almost \$1 million! 4/25- Unn WPTR-1540 logged u/ KXEL at 12:29am. 4/26- SS u/WCFL this PM. 4/28- 5:01am, WFRX-1300 s/on SSB ~~EXX2~~. WFAVI-1210 s/on 5:30. This is first AM I've listened in a long time. WJVA-1580 South Bend has had three citations from the FCC concerning XR trouble. Report out to KCMO. 5/1- WLS celebrating its fourth year of "death" today, since ABC took over. 5/2- 1:26 am, WSHN-1550 with TT. 2:00, HJED with requests for reports in EE. Report out in EE/SS. 3:21, WJFC-1480 TT. 3:24, KWOC-930 in jumble. 3:32, WILS-1320 also in sop. 4:13 WEZJ-1440 with TT. 5/4- No HOXO DX. SS on 1140 playing Beatles in SS, whi is this, at 2:30? 2:50, WCPO-1230 in clear. Thanks to everyone for SCs. I still have about 200 WSBT-TV SCs. Veries are v/q, WIND (8 1/2 x 5") KDKA (remark on card stated KDKA has been heard in every country in the world), v/1, KCMO. I have the BB nets for Baltimore (36 stations in three states) Boston (43-7) Chicago (90-11) Detroit (49-3) Los Angeles (19-3) Kansas City (16-3) Minnesota (46-6) and Cincinnati (40-4). I find these are a great help, as most of these stations are on graveyard channels and every little bit helps getting IDs on graveyards. Please enclose a 5¢ stamp with your request for a BB network. Totals are: Logged 458, 34 out of 37 states veried. Verie percentage, 68%. 73, and good DX from the home of the Fighting Irish of Notre Dame.

Ernest R. Cooper - 438 East 21 Street - Brooklyn, New York - 11226

First off, hats off to Dan Phillips and Vic Patton for a splendid article on loops! Thanks so much lads, for this Special NRC feature! Little doing, but a little, hi. Veries: WKNR-1310, KWVY-1470, WOKW-1410, "Radio Horizonte"-540 WSTH-860. If I ever get to it, there's a load of f/pping to do, hi. I'm looking forward to 5/24, with the big gang gathering at Ron's in Monmouth Beach (36 Borden Avenue), including Ray Edge and Dick Cooper, Ben Dangerfield and Pete Bengtson, plus our "regulars." If you're coming please drop Ron a line! DX: 4/23, SSS, looking for WJJZ-1460 I noted an oddity, WBET (Brockton, Mass.) way on top, so tried for same-cited WOKW-1410 and bagged 'em with difficulty. Veries says they're beamed away from me, so no wonder they were rugged! WPOP often IDs as W-Pop! 4/27- Regular MM ANs WMCA-570 & WAKR-1590 missing (no reward) ETer on 1590 did not seem to be the usual WNMP, as no IDs, 1:45-2:02 and on. WOKY-920 ET/M, 2:04. SS on 830, unIDed, in PM. 5/4- GSQ s/off @ midnight, ZNS? (1540 u/KXEL). WCKV-1490 AN on top @ 12:21. WMIR-1550 Lake Geneva, Wis. u/CBE on ET/M; new. WERX-1530 brief TT-ET 2:14-2:19 s/off. 5/11- Looking for new WNRK-1260; all WNDR, though. WERX-1530 another short TT/ET, 2:03-2:10 s/off. XEJP-1150 all alone there, 2:20, with what sounded like the Beatles - Beatle fans, did these chaps record in SS perhaps for record sales in LA lands? SS-1560 at 3:05, probably WRSJ. Since last report I've had an "S-9" cold, the German Measles, and a tooth extraction, & all at the same time! Wow!

Send all "TIPS." To Ev. Johnson-504-16th Street Mendota, Ill. 61342.

FREQ. CALL.

"REMARKS."

550 WGR Buffalo N.Y. Now off A.N. - S/on at 5- Off 11:05 P.M. (Johanns.)  
 580 CKWW Windsor Ont. - not on A.N. - 5/3 may be off A.N. (B. Stone)  
 590 CKEY Toronto, Ont. - Off air 4/24 S/on at 5- May be Silent Fri-  
 610 CKTB St Catherines, Ont. Wk Dy S/on 05:00- Johans. Bf 11 a.m. B. Ston  
 660 KOWH Omaha, Nebr. returned to these calls May 1st from KMMB  
 740 CBXA Edmonton Alta. - S. Period is FRI-2:06-till 9 a.m. (L. Kruse  
 790 CHIC Brampton, Ont. - S/off 1:07 to return at 5:55 (B. Stone.  
 860 WSTH Taylorsville, N.C. - Says more ET's to come wants reports.  
 860 KSEFA Nacogdoches, Tex. ET/C/V 4/20-2:15-2:30. --- (E.R. Cooper-  
 910 KLSI Salinas, Kans. - began R/S on 4/20 (L. Kruse. 1a.  
 910 CBO Ottawa, Ont also A.N. C.B.C. Programming. B. Stone  
 920 CJCJ Woodstock N.B. - is A.N. With CBC Programs. - (E.R. Cooper-  
 940 WCPC Houston, Miss. - S/off 7:45 p.m. - 50 Kws Days. Ev. (R.J.  
 970 WOP Vidalia, Ga. - R/S for May- Wk Dys 05:00-SUN 6-till 7:15-  
 990 CBW Manitoba. Off WED. 1:15-till 7:30 a.m. Only S.P. (R.J.  
 1050 CJIC Saulte Ste Marie, Ont. Also C.B.C A.N. Programs. - E.R. Cooper  
 1070 WFLI Lookout Mtn. Tenn. - R/S is May-5:45-7 p.m. - June 5:30-8.  
 July same as June. Aug. -6-7:30- Sept-6:45-F/C Ev. WED. -1:30-1:45  
 V/S Edwin G. Aslinger C.E. (B. Stone.  
 1140 KSOO Sioux Falls, S.D. - R/S 06:00-SUN. 07:00-till 2 a.m. - Johann  
 1150 WHUN Huntington, Pa. - Wk Dy S/on 3:58- (Johanns. -  
 1190 WOWO Ft Wayne, Ind. - 24 hrs. exc. 12:05-5:15 MM (Johanns. N.Y.  
 1230 WINF Manchester, Conn. - S/on 05:30 (B. Stone-Ont. -  
 1250 CHSM Steinbach, Man. - Newest Canadian to take air 10 Kws. U (L.K  
 1250 GHWO Oakville, Ont. - Good on Sat. a.m. till 2 a.m. - (B. Stone.  
 1270 WCMR Elkhart, Ind. - S/on 5:53- (Don Eggert- Ind. -  
 1290 WOMP Bellaire, O. - Wk Dy S/on 3:59- (R. Johans-Bf 10  
 1300 WEEE Glenmont, N.Y. Wk Dy S/on is 4:45 a.m. (E.R. Cooper-N.Y.  
 1320 WEET Richmond Va. - F/CTT 4/27th- at 4:02- (B. Stone.  
 1350 WEWH Princeton, N.J. - S/on 05:00- R. Johans. -  
 1350 WMBR Windber-Pa. - had ET'/M- 4/24- at 2 a.m. - (J. Brauner-Pa.  
 1350 CKLB Oshawa, Ont. - said 24 hrs. - N.S.P. - per veri letter-R.J.  
 1370 WABD Ft Campbell- Ky. - F/CTT- 4/25- 1:44-2:00- Id ev. 3 mins. -  
 1380 WBNX New York, N.Y. now Silent MM 3-4 a.m. - during B. Stn (B.S.  
 1400 WPAY Portsmouth, O. - Wkly S/on 05:00- to 12 M. - SUN 7-12- (R.J.  
 1450 WMOC Chattanooga, Tenn. - F/C It- 4/28- 3:45-4:00- B. Stone-  
 1480 WHOM New York, N.Y. - tests often MM. - E.R.C- S/on 3:58- (Johanns.  
 1480 WSAR Fall River Mass. S/on 3:59 (Johanns. -  
 1480 CBZ Fredericton, N.B. - S/on 3:58 W/Oh. Canada. - B. Stone  
 1480 KLMS Lincoln Nebr. - R/S is 6:30- Sun 7- till 2- Johans.  
 1480 WYZE Atlanta Ga. and WCIN-Cincinatti-0 S/on 05:00- B. Stone  
 1500 WGEN Geneseo, Ill. had ET 4/21 2:32- 2:45- B. Stone. Ont  
 1510 WINU Highland, Ill. next test should be June 1st- 2:20-2:35-  
 May R/S- 5:45-8 p.m. - June R/S- 5:30-8:30 P.M. - Mr Kenneth L-  
 Quilan, C.E. will verify all correct reports. R. Johans. - Bfla.  
 1530 WERX Wyoming, Mich. - had TT 5/2 1:06-1:31- B. Stone. -  
 1550 WYVN Tryon, N.C. - F/C TT Mx. - 4/20- 2:35-3:00- B. Stone.  
 1550 WMAD Madison, Wisc. had ET's Daytime. - 5/10- 5 Kws. - L. Kruse  
 1570 WMLO Beverly Mass. - Wk Dy S/on is X 4:15- (E.R. Cooper-N.Y.  
 1580 WSKT So Knoxville, Tenn. ET-TT- 4/21- 3:17-3:37- B Stone/  
 1590 WAKR Akron has been off A.N. last 2 MM 4/20-4/27- E.R. Cooper-  
 1600 WNGA Nashville, Ga. - back to 3rd MM F/C TT 3:32-3:40, Herb C, -

Latest Call changes via L. Kruse. Dubuque, Ia. -

WMRT to WITL Lansing, Mich. 1010- 250 B.

WQMN to WAXK Superior, Wisc. - 1320- 1000 D

WRGM to WGOE Richmond, Va. - 1590- 5 Kws.

WLOK to WMQM Memphis, Tenn 1480 5 Kws D

WHHM to WLOK Mamphis Tenn. 1340 250- 1 Kws. D

Edited by Peter V. Taylor, c/o KFOG, 420 Taylor St., San Francisco, Calif. 94102 USA.

AROUND THE WORLD

ANGOLA---Radio Angola(Emissora Oficial)in Luanda sked is now on following sked: 0100-0400, 0600-0830 on 872-1295-1350kcs plus 1230-1800 on 872 & 1295. On Sundays, 0300-1300 on 872-1295-1350 plus 1300-1800 on 872 & 1295. Powers: 872-10kw; 1295 & 1350 are both 1kw. Also, Radio Clube de Angola radiates two programs "Voz de Luanda" on 857 and "Ondas Populares de Angola" on SW. Sked 1245-0345, 0545-0845 and 1100-1800. Sunday, 0300-1600. (WRTVH)

BRITISH HONDURAS Belize-834 sked 1700-1030, 1300-1400, 1730-2300. Sundays 0700-1400, 1730-2300 (WRTVH)

COLOMBIA---HJED-820-Cali address is Box 1941 (WRTVH)

DOMINICAN REPUBLIC---Radio Santo Domingo, common call HISD, 620-10kw, 860(5kw)WRTVH)

GREENLAND---Godthaab is now 560 ex-570 (MWN)

INDIA EE news on frequencies as follows: 2010-2015 on 810/1070; 2130-2145 on SW; 0300-0305 on 1070; 0730-0735 on 1070; 1030-1045 on 1070; 1200-1205(Sat.1230-35) on 810/1070(WRTVH)

INTERNATIONAL WATERS--- Address of Radio Carolina is 54-62 Regent St., London W1. Another Ship, the "Mi Amigo" also slated for BC activity off shore as "Radio Atlanta. HOWEVER "Broadcasting" says Panama has requested their "flag" be returned so it is questioned if either will operate for any length of time (RSDXB)

MOZAMBIQUE---Portuguese Program now on 737kc 2330(Sun.0015)-1600, 10kw (WRTVH)

U.A.R.(EGYPT)---From 4/11/64 "Shark El Swsat" Radio is on 818kcs 1000-1600 daily. This is the projected "Middle East Radio" beaming commercial pgmg to entire Arab world. Using old 350kw El-Mansurah(Batra) XR, now boosted to 5kw, or rather 500kw. Probably still carries main Arabic service at other times. Also, new megawatt XR inaugurated in Abeis. Used to relay Cairo Radio and "Radio Sawet El Arab"(Voice of the Arabs) and inaugurated 3/29. Is on MW on 32 languages (RSDXB)(No freq given-pt)

VENEZUELA---New slogan for YVOZ-1200 Caracas seems to be "La voz de Avila" which, Bill Stone is close to your "Bahia."(pt/MWN). Radio "Tovar" operates on 1480, 1kw, 0525(Sun.1325)-2130. Carrera 4 No.5-46, Tovar (WRTVH)

- 580 .... Point Galina, JAMAICA s/on 4/20 0445, good, completely in clear (BD)
- 764 .... Dakar, SENEGAL v/c in for 3/24 report, 1304kc still out(BD)(1st Ben-pt)
- 780 4YA Dunedin, N.Z. sent v/c & ltr for 2/10 log. HQ-180 verie here (BD)
- 836 .... RNE Huelva, SPAIN in at 1900 4/13, did not report (BD)
- 1088 .... BBC Droitwich, ENGLAND quite good 4/15 til after 2340 (BD)
- 1133 .... Zagreb, YUGOSLAVIA fair 4/14 2300 (BD)
- 1295 --UNID LA--MM's til at least 0300? (ERC)(HOS23 Panama Ernie - pt)
- 1170 --UNID JJ?--Japanese often loud here 0000 nightly, who?(DN)(KLOK just increased to 5kw nights and they do have at least Chinese Dick - pt) (KLOK that is)
- 1510 2NA Newcastle, AUSTRALIA sent v/c for 4/6 reception (2 wks) and nice letter from E.T.Colhoun, specifically confirming my reception (BD)

SOURCES: BD-Ben Dangerfield, 202 Governors Drive, Chester, Pa. 19013; DN-Dick Nelson, 181110 Halsted St., Northridge, Cal.; MWN-Medium Wave News; RSDXB-Radio Sweden DX Bulletin; WRTVH-World Radio TV Handbook Bulletin; ERC-Ernest R.(certainly the Mets will win this year with Mets-oh balls)Cooper, 438 E 21 St., Bklyn NY 11226.

CONTEST

- EAST 1. SCHILLER adds Tirana; RNE La Coruna; Prague-1286; XELO; DDR-782;(29 ctries) Horby; Mainflingen; HJED ZBM2; Bordeaux-1205; Crowborough-1295.....342
- 2. DANGERFIELD adds WBNB-dx RNE-LaCoruna; BBC-11484; Ljubljana; 2YC YVLO ELBC DDR-1052 4YA Senegal-764 2NA (24 countries)(six continents).....295
- 3. POPE adds KHVH Prague-953. 19 ctries, 5 continents.....235
- 4. RUGG adds WLEO YVKL Vienna-1475 Nurnburg-1602 HIDL YVOD AFN-Munich Sottens Crowborough-1295. 10 countries.....136

- CENT.1. HATHAWAY adds XEAZ. 7 countries . . . . . 71
- 2. WESOLOWSKI no additions . . . . . 48

WEST 1. no changes from last week (1-MILLAR-224; 2-FREEMAN-189; 3-WILKINSON-254; 4-BENNETT-32.)//Thanks Ben. You easterners are running away with it. Ben incidentally did not get some new add'ns for Hank W. I sent last week. Sorry-next! WELL hardly a swinging way to end the weekly season. Glad to see Senegal is sending out veries, a welcome addition I am sure for all your collections. Next deadline here 5/11. Keep Ben D. & Hank W. apprised of additions and me of new loggings,huh?/pt



Don't panic if page 1 is dated erroneously—thought I'd be out of town for a week or so and wouldn't get a 2nd page out. Here's more:

- 647 --UNID-- FF signing off 2200 with French anthem. Heard only once on 4/26. Loop beamed to West Indies (RNH) (Guadeloupe drifting probably-pt)
- 660 2YC Wellington, NEW ZEALAND verie came in for combined report to LYC-880 & 2YC. V/s Hertstonge-Manager (TS)
- 675 YNDS Managua, NICARAGUA verie letter in. Miss Martha Cansim or ~~844/44~~ Cansiu, Secretary. Picture of ancient church. Apartado 11-45, Managua (BS)
- 720 HJAN Barranquilla, COLOMBIA "Pilot Radio" 4/21 0545 QSA5 (REH)  
YVQR Cumana, VENEZUELA "R.Cumana" covered WGN til after 2300 4/29 (BS)  
4YZ Invercargill, NEW ZEALAND ID 0600 5/5. I've been after this one for years; 17th N.Z. logging, completes Invercargill (RHM)
- 730 CMCA Havana, CUBA verie in (GSC)
- 764 .... Dakar, SENEGAL heard here, too (GA); (BD has only verie so far - pt)  
.... Sottens, SWITZERLAND verie in after f/up (GSC)
- 770 YVQQ Puerta la Cruz, VENEZUELA over WABC 2145 4/26 (RNH)
- 782 CSB9 Miramar, PORTUGAL verie came in for report a month or so earlier. Regular Radio Clube Portugual card, no signer (TS); now signing off 2000(BD)
- 795 .... Black Rock, BARBADOS verie in, air, form letter (Ctry 37-AR)(also GA)
- 820 JOUC Yamaguchi, JAPAN, 5kw, air verie in, v/s T.Ohara, Manager. Verie #73 from Asia from this location (HJW)
- 845 .... Pietermaritzburg, SOUTH AFRICA logged in and out 4/27 2200-2300. EE, some Afrikaans, and mx sounded like "little German band." Other freq, too(BD)
- 854 .... Bucharest, RUMANIA v/c & letter in for 3/19 report. #4 from Rumania and most distant from that country (BD)
- 880 4WK Warwick, AUSTRALIA. Letter at hand verifying reception of this lk@ on 4/3/64. W.O.Kinane, SM is v/s (RHM)
- 910 YVPF Caracas(Maiquetia) VENEZUELA usually good around 2200(RNH)
- 1000 WBNB Charlotte Amalie, VI answered #3 f/up to 1963 DX with a QSL. It's nice to finally get an answer (AR)
- 1005 --UNID--FF, probably Haiti, still no ID heard on & off around 2000. Anyone know? (RNH)(See last month's IDXD Bob-pt)
- 1065 --UNID--LA, heard two or three times around 2230. Wild guess at slogan would be Radio Galena & heard Guatemala mentioned. Another blank from seashore(RNH)
- 1200 --UNID, AFRS--. Positively ID'd as AFRS outlet but no dope yet from AFRS to whom I wrote. It is heard when WVOZ isn't strong, around dusk or a bit later. Someone said P.R. in bulletin but I'm not sure. Announces AST. Help!(RH)
- 1210 KZOO Honolulu, HAWAII PP verie, Bob Peason, CE v/s, 4th Hawaiian (TS)
- 1286 .... Johannesburg, S.AFRICA in between 2200-2300 on 4/27, parallel to 845, readability very difficult. Noted hets also on 728 & 908 kcs //. In trying again for them found SS station on around 2130. Anncts sounded like Radio Granada, not sure (BD)
- 1340 ZBM2 Hamilton, BERMUDA. Prompt v/c from ZBM2. Bermuda now 100% (BD)
- 1350 HJ.. ...COLOMBIA apparently one of several listed was heard at s/on 4/26 at 0600, then broadcasting a mass (RHM)
- 1445 --UNID--LA, weak, around 2200. Heard 5/1, 5/3, 5/6 (RNH)
- 1475 YNAG Chinandega, NICARAGUA verie for reports of 2/14 & 2/21/64. Card says YNAG-1475, specific. v/s Eddie Delgado C., same v/s for "Tic Tac"-555kcs also Chinandega, 2/10/64 report. "La Emisora Insignia del Departamento." (HJW)

AROUND THE WORLD:: ALASKA KCAM-790-5kw now in operation, Glenallen (FCC); ECUADOR-- HCJB "La voz de Los Andes" is working on a BCB DX info show on 19-25-31-49 meters on Mondays, 30kw, 2130; tape is played again 0430 Wednesdays for Oceania. Show will contain DX information from around the world from many DX clubs and needs your written support, either to Clayton Howard, HCJB, Quito, or Dave Gleason(mikeside), Colegio Americano, Toledo 100, Quito. Give a listen!; FIJI- VRH2(840)will shift to 1320/2kw and VRH(930) to 710/3kw. Letter from FBC(RHM); PHILIPPINES DYSR-840 to go to 10kw(CHF); PUERTO RICO. WUPR-1530 1-D/.25-N now in operation, and new CP for Vega Baja, 1460kc, 500w DA-D. WUPR is in Utuado(FCC); U.S.S.R.--Radio Kiev now has EE 1740-1800(RSDXB); S.VIETNAM---VOA is planning 50kw BCB outlet, probably near Da Nang to beam to N.Vietnam(CHF)./CONTRIBUTORS: CHF-Clarence H. Freeman, Box 12, Hughson, Cal.; RSDXB-Radio Sweden DX B'n; HJW-Henry J.Wilkinson Jr., 6620 Beeman Ave., N.Hwd., Cal.; GA-Gene Allen, 134 Bret Harte Way, Vallejo, Cal.; REH-Ross E.Hansch, 302 E. Dean, Madison, Wis.; RHM-Roy Millar; GSC-Gary Collins; BS-Bill Stone; AR-Andy Rugg. 73s-

## SUPREMACY RATINGS - APRIL 1964

Compiled by Henry J. Wilkinson Jr., 6620 Beeman Avenue, N. Hollywood, California U.S.A.

DXer	T.Vrs.	F.Vers.	Ctrs.	Oceania	Best
1. Hank Tyndall, Vermont	6300	1189	151	114	R.Noumea
2. Ken Mackey, New Zealand	2230	2179	122	220	WVUI
3. Art Cushen, New Zealand	1764	1701	104	247	WVTC-50 watts
4. C.M.Stanbury, Canada	1312	426	90	46	WVTV-1250kcs
5. K.Geary, Pa. (1933)	4506	753	81	59	2CK, 300w
6. H.Holbrook, Md.	2081	463	81	47	2LT, 500w
7. B.Dangerfield, Pa.	258	205	79	4	4YA-780
8. B.Botzum, Penna.	4338	481	69	40	7HT 500w
9. S.Morss, Mass.	3444	324	69	15	KHBC
10.S.Johnson, Md.	1158	185	63	20	2DU 2kw
11.H.Gustafson, Illinois	739	195	60	59	2BE, 100w
12.E.Cooper, N.Y.	3337	271	56	7	KHBC, 250w
13.P.Taylor, various areas	1064	192	53	74	KUAM
14.D.Pope, South Carolina	562	98	53	1	- - - -
15.N.Maguire, New Mexico	2813	242	48	57	7ZR 500w
16.H.J.Wilkinson (Calif. only)	275	239	48	38	KMTH 250w
17.J.Gangler, Maryland	212	95	46	2	KNDI
18.R.Millar, Washington	1475	250	45	70	2AD, 500w
19.Gene Allen, (Calif. only)	2437	324	43	71	7NT 7kw
20.F.Van Voorhees, Penna.	1417	142	42	9	2WL
21.C.Freeman (Calif. only)	773	157	40	44	2MV 500w
22.R.Schiller, New Jersey	1355	76	37	0	Hawaii Calls????
23.C.P.Atherton, Mass.	1803	250	35	7	2UE 3kw
24.A.Rugg, Canada	1166	112	35	0	Next season????
25.F.Meyer, East & West	517	35	33	3	Pick out one...
26.R.Sperry, Conn.	1465	79	30	2	KHON
27.G.Collins, New Jersey	258	37	30	1	KORL
28.R.Duggan, Georgia-	951	69	29	2	KSAI
29.R.Biss, Calif. & Minn.	2398	143	28	19	3AR
30.W.W.Willis, Cal.	727	73	27	11	4QN
31.B.Stone, Canada	2692	159	26	1	What is it, Bill?
32.E.Johnson, Illinois	2492	110	25	8	KIKI
33.G.Kippel (Tex., Colo., Cal.)	50	35	24	10	Which one?
34.S.Steele, Illinois	2635	103	21	3	2BL
35.R.Edge, N.Y.	2116	64	19	7	KHBC 250w
36.F.Wheeler, Pa.	1470	69	18	2	1YA
37.L.Schwartz, Calif.	603	54	18	17	2NA "
38.L.Dunokowski, New Jersey	107	17	18	0	Not even Hawaii?
39.W.Goldy, Illinois	2591	119	17	3	KHON
40.A.Merriman, Virginia	327	16	17	0	You gotta try...
41.S.McLauchlan, Canada	413	22	16	0	Maybe next season..
42.J.Conrad, Kentucky	355	21	16	4	KIVI
43.L.Kruse, Iowa	3762	77	15	13	LYZ
44.R.Karchevski, Mass.	437	11	9	0	Someday...
45.P.Hoffman, Va. & Ohio	169	11	7	0	Can't have every-
46.R.Musco, Conn.	208	5	6	0	" " thing!
47.B.Woodfield, Virginia	99	3	5	0	Next season!
48.R.Edmunds, New Jersey	87	3	5	0	" "
49.P.Rizzo, Penna.	143	2	4	0	Hang in there, Pete!

## NOTES

(A) Here's your TOP 50! Looks fine. Keep up the good work. (B) Ben Dangerfield added Liberia....H.Gustafson added St.Pierre...Gary Collins added Poland...R.Biss added Barbados & Chine...W.W.Willis added W.Samoa & El Salvador. L.Dunokowski added Italy All very nice! (C) Welcome to JERRY CONRAD, PAUL HOFFMAN, RON MUSCO & RUSS EDMUNDS... A BIG HAND to HANK TYNDALL, K.GEARY, B.BOTZUM, S.MORSS, E.COOPER, N.MAGUIRE, G.ALLEN, R.BISS, B.STONE, E.JOHNSON, S.STEELE, R.EDGE, W.GOLDY & LEN KRUSE for your fine group of veries. Next listing for NORTH AMERICA - get yours in! - HANK WILKINSON.

Thanks Hank for the above. We'll have a complete rundown on contest activity next time--keep up the DX & let me know what's new around the dials - 73s - pt

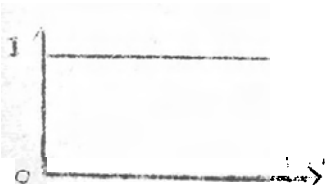


by E. Satterthwaite, Jr. An NRC Special.

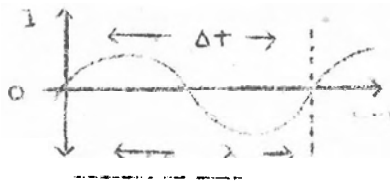
**Introduction:** This paper begins a series on radio theory that will appear from time to time in DX News. Interested members are urged to collect these in one place as they appear; it is hoped that eventually a practical reference for the BCE DXer will result. These papers are presented to (1) make the receiver something more than a black box for the DXer; (2) help in the choice of a suitable receiver; (3) make the DXer aware of the capabilities and limitations of his receiver; and (4) suggest practical methods of eliminating receiving problems when possible. Other members are urged to contribute to this series also, but it is requested that the writer not describe equipment, modifications, etc., that he has not actually made work as claimed.

**Basic Concepts:** To provide a vocabulary for the rest of this paper, some electrical terms must be introduced. Treatment is of necessity brief and inadequate for a complete understanding; however, only a qualitative grasp of the concepts involved is required for what follows.

Current (I) is the rate of flow of charge (electrons). There are two basic types of current: direct (DC) and alternating (AC). A direct current is constant in direction, while an AC current periodically reverses its direction of flow. They might be graphed as follows:



1a. Direct Current



1b. Alternating Current



1c. AC Imposed on DC

AC is of primary interest in radio work. Figure 1b. shows what is called a sine wave. It should be noted that the graph repeats itself after a time  $\Delta t$  and can be considered to be built of basic units (labelled  $\lambda$ ) which repeat themselves in a continuous chain. A useful analogy to an alternating current is the flow of ripples across a smooth water surface. If we station ourselves at a given point, we can count the number of ripple crests passing that point in one second. This is called the frequency. Common units are;

1 Megacycle/sec. (Mc.) = 1000 kilocycles/sec. (kc/s) = 1000000 cycles/se  
 The same terminology can be applied to alternating currents. Those from approximately 20 to 20,000 cycles/sec. can be coupled to loudspeakers to produce audible sounds; they are therefore called audio frequencies (AF). Frequencies from 15 kc. up to several thousand Mc. are classified as radio frequencies (RF). They are of great importance because current in wires (antennas) at these frequencies produce electromagnetic radiation of the same frequency. (Other familiar examples of such radiation are light, heat radiation, X-rays, etc.) This radiation is able to travel from one place to another by various means of propagation and to cause currents in distant antennas corresponding to those in the original transmitting antenna. Sometimes the wavelength of electromagnetic radiation is given. This corresponds to measuring the distance between two consecutive crests of the water wave ripples. It can be calculated from the formula: wavelength(meters) = 300,000/frequency(kc.).

Also worth mentioning here is the fact that mathematical analysis

(Fourier synthesis) shows that almost any complex wave, such as human speech and music, can be considered to be formed from the addition of a large number of sine waves of various frequencies.

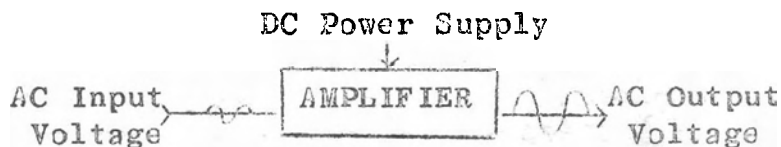
Voltage can be considered the force tending to produce a flow of electrons in a charge carrier; resistance is the opposition of the carrier to such flow. In linear circuits, voltage (V), current (I), and resistance (R) are related by Ohm's law:  $V = IR$  (or  $V = IZ$  for AC circuits where Z, called the impedance, is roughly an "equivalent resistance" that varies with frequency.) Finally, power (P) measures the rate at which electrical energy flows in a circuit; it is given by  $P = IV$ .

Next we need to mention three basic electronic circuits. Whole technologies are built around the exact design of such circuits; we shall only point out that they exist and can perform certain functions. The first of these will be called a mixing circuit (this is descriptive although technically not entirely correct). One finds that when voltages of two different frequencies are imposed on "non-linear" circuits (such as vacuum tubes or transistors operating under certain conditions) new frequencies equal to their sum and difference are found in the output. For example, if the input frequencies are denoted by A and B, we would expect A-B and A+B in the output:

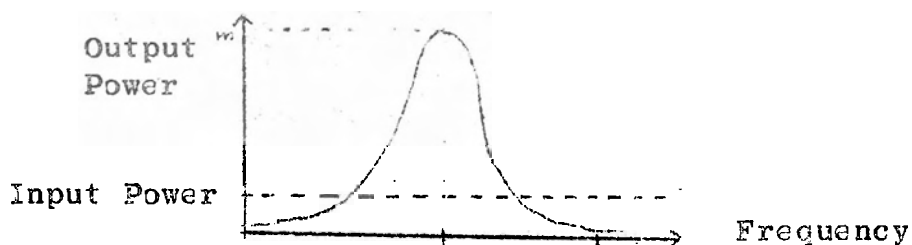


There are many types of mixers, and different types are most effective under different conditions. In some, many other frequencies are created from such combinations as A+A, A+B+B, etc.

Another essential circuit is the tuned amplifier. Its action can be represented schematically in the following way:



A small input voltage is used to control a relatively large & DC current; this DC current is used to produce an AC voltage in the output much greater than the original. Such amplifiers can be designed to amplify a relatively restricted band of adjacent frequencies. Within certain limits, the extent ("width") of this band and the center frequency can be chosen as desired. For example, if we impose a voltage of constant amplitude but varying frequency upon the input circuit, measure the output power at that frequency, and plot the results, we might obtain a curve similar to the following:

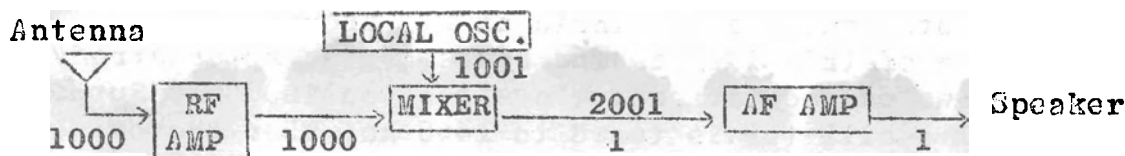


We notice that an input at frequency A is greatly amplified, but one at B is actually attenuated (rejected). In this case, the circuit is said to have selectivity. The bandwidth of an amplifier can be defined in several ways, but usually it is given as the number of kilocycles between two points on the output curve at which the output power is some specified fraction of the maximum output power. For similar circuits, it is found that the selectivity is approximately a constant fraction of the center frequency. Thus an amplifier with a selectivity of 4.5 kc. would have one of 0.5 kc. if retuned to 50 kc.

The final circuit of interest is the oscillator. We note only that it is a circuit capable of producing electrical energy at some desired frequency.

The TRF Receiver. Now suppose that we want to receive some information being transmitted at a distant point on, say, 1000 kc. We know that by erecting an antenna of the proper length, we can produce a 1000 kc. current and hence voltage at our location. Such a voltage would be extremely small, however, if we are any distance from the transmitter. Also signals of all other radio frequencies would be present to some extent. Our first impulse might be to apply this voltage to an amplifier tuned to 1000 kc. This would provide some selectivity by rejecting signals on other frequencies and would also provide enough power to drive a speaker. If we needed more selectivity or power, we could add more amplifiers tuned to 1000 kc. The only difficulty is that our speaker would be driven at 1000 kc. Even assuming that the speaker could vibrate this fast, we could not hear the desired signal, since the upper frequency limit of human hearing is 15 to 20 kc.

We are now ready to use our other two basic circuits. Suppose that we operated an oscillator on 1001 kc. and applied the output of this as well as that of the 1000 kc. tuned amplifiers to a mixer. We would expect the output of the mixer to include 2001 (1001+1000) and 1 (1001-1000) kc. The latter is in the audio range; we could feed it to an audio frequency (AF) amplifier, which would reject the 2001 (and original 1000 and 1001) kc. signals and provide further amplification of the 1 kc. signal. Our receiver can now be diagrammed as follows:



Note that if the 1000 kc. input signal disappears, the 1 kc. output disappears also. With a suitable code, e.g., Morse, we could transmit and receive information by turning the receiver on and off.

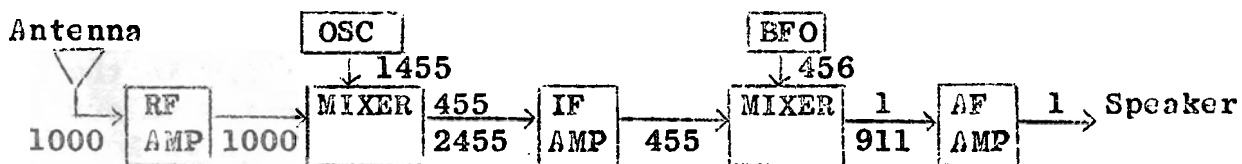
Suppose now we want to receive signals from other stations. It is not difficult to make an amplifier tunable, i.e., with a center frequency that can be changed at will. Thus if we wanted to hear a signal on 1500 kc., we could retune the RF amplifier to 1500 and the local oscillator to 1501 kc. If there are many stations operating in the desired frequency range, however, problems arise. Returning to our first example, suppose another station were operating on 1010 kc. This would combine with the local oscillator to produce an output of 9 kc. (1010-1001). This also falls in the audible range, and we would

experience interference. Moreover, even with the local oscillator turned off, the 1010 and 1000 kc. signals would combine in the mixer to produce an audible (10 kc.) signal. We could eliminate much of this interference by designing the audio system to accept only very low frequencies. This is impractical for speech transmission, as we shall see later. Another approach is to retain the basic circuit and add more and/or better tuned RF amplifiers until the 1010 kc. signal is eliminated before reaching the mixer. The result is called a tuned radio frequency (TRF) receiver.

With very selective RF and audio amplifiers, the TRF design has been the basis of some fine receivers for the very low radio frequencies (15-500 kc.), but it leaves a great deal to be desired on the BCB. Its main fault is the need for tuning the selective RF amplifiers. Recall that the bandwidth is roughly a constant fraction of the center frequency of the amplifier. Let us assume that all stations of interest in the BCB are separated by 10 kc. Further suppose that we designed our tuned circuits for a selectivity of 10 kc. at 540 kc. When we retune to 1600 kc., the bandwidth will increase to almost 30 kc. and we will be unable to separate adjacent stations. One might be tempted to work for a 10 kc. bandwidth at 1600 kc. instead; this, however, has other disadvantages. It would, for example, be difficult to achieve with ordinary tuned amplifiers without stability problems and difficulties in retuning all circuits to exactly the same frequency each time one wants to hear a different station. In addition, the amplification of each stage changes with frequency, and it is difficult to make more sophisticated devices for increasing selectivity operate over a wide frequency range. Many of these problems can be overcome by further refinements, but another basic design is so well suited to our requirements that we shall abandon the TRF.

The Superhetrodyne Receiver. As early experimenters added more and more stages to their TRF receivers, they found that the sets became unwieldy to tune, and the next development was to "gang" all the amplifier tuning controls, that is, to connect all of them to one shaft, which could be used to set all the RF stages at one frequency. The next logical development would be to tie in the local oscillator so that a 1 kc. beat note would be available at all frequencies.

A slight extension of this idea is the basis of the superhetrodyne. Suppose again that we wanted to receive a signal on 1000 kc. Suppose also that the local oscillator is tuned to 1455 kc. Then the output of the mixer would include 2455 kc. and 455 kc. Now we can follow the mixer with amplifiers tuned to 455 kc. (which we shall call "intermediate frequency" or IF amplifiers) to add further gain and selectivity. Finally we can follow the 455 kc. amplifier with another mixer and another oscillator (called the "beat frequency oscillator" or BFO) operating on 456 kc. to obtain the desired 1 kc. output. Schematically,



So far it appears we have gained only complexity. There are several

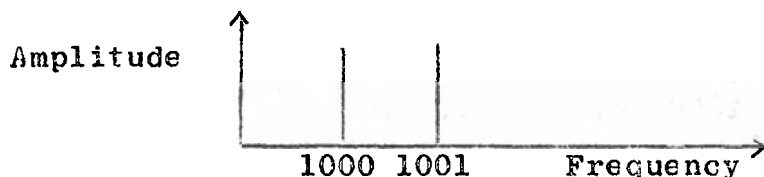
important advantages in conversion to a lower radio frequency, however. For one thing, more amplification per stage is available at the lower frequency. More important is the increased selectivity. Recall again that the bandwidth is roughly a constant percentage of the center frequency for similar circuits. Let us consider 1010 kc. interference. At the original frequency, the difference between this and the desired signal is 10 kc. or 1%. Ordinary RF amplifiers would pass this nearly as well as the 1000 kc. signal, and both would reach the mixer. The 1010 kc. signal would produce an output of 445 (1455-1010) kc. instead of 455 kc. The frequency difference is still 10 kc., but the percentage difference  $\alpha$  is slightly over 2%. This perhaps sounds like a small difference, but it is, in fact, a significant one. Finally, suppose we ganged the first oscillator with the RF stage tuning so that it always operates 455 kc. above the incoming signal (e.g., for 540 kc., at 955; for 1600, at 2055, etc.). Analysis shows that one output of the mixer is always 455 kc. This points out the final and biggest advantage of the superhetrodyne: the IF circuits can remain tuned to one intermediate frequency (455 kc.) for all incoming signals. Since the IF stages determine to a large degree the selectivity and overall gain, these characteristics remain essentially constant over the entire band. We might also note that, as a practical matter, very selective tuned amplifiers are most easily constructed for a single frequency and that it will be extremely helpful to convert all signals to one frequency if we later add crystal or mechanical filters in more sophisticated design.

Nearly all receivers made today, from 4 tube AC-DC sets to the most advanced communications receivers are basically superhetrodynes. (Of course, not all use an IF of 455 kc.; this was chosen only because it is the most common. Selection of an IF frequency will be discussed in a later article.) On some less expensive sets, the RF amplifier is eliminated and the signal fed directly to the mixer. Fair performance is possible with this design, but the RF stage performs three important functions and is therefore quite desirable. These are: (1) Image rejection. Suppose that we are tuned to 1000 kc. again; then the local oscillator would be tuned to 1455 kc. Now further suppose a signal on 1910 kc. reached the mixer also. One output would be on 1900-1455 = 455 kc., exactly the IF frequency, and this undesired signal would be heard in the output. The solution to this problem is, of course, to prevent the 1910 kc. signal's reaching the mixer. In a good receiver, the selectivity to do this is provided by one or more tuned RF stages. (2) Increased sensitivity. It can be shown that an  $\alpha$  amplifier introduces much less  $\alpha$  thermal noise (the hiss one hears when the antenna is disconnected and all the gain controls advanced) than a mixer. Since such noise tends to mask signals, the first stage of the receiver (when signals are weakest) should be an amplifier. (3) Prevent local oscillator radiation. Recall that in the receiver we now have a (10w-power) oscillator operating on the BCB band. If its output reaches the receiver's antenna, a signal will be radiated and cause local interference to other listeners. An RF stage provides the isolation necessary to prevent this.

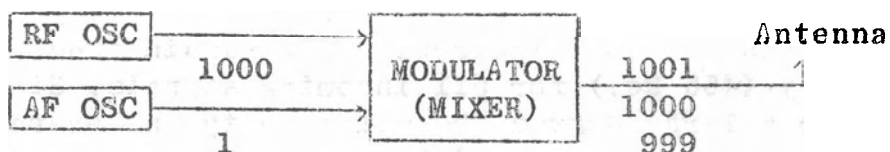
Voice Transmission. In the previous discussion, we could have simplified our receiver somewhat by transmitting two signals, say one  $\alpha$  on 1000 kc. and one on 1001 kc. With the local oscillator on 1455 kc.,



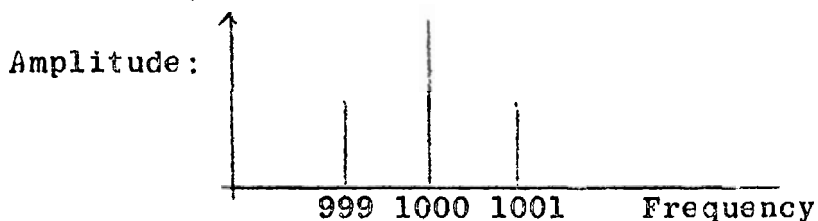
output will result on 455, 454, 1, 2455, and 2456 kc. Provided our IF selectivity is not too great, both the 455 kc. and 454 kc. signals will be amplified by the IF stages and reach the second mixer. Here the output will include 1 kc., an audio frequency tone, and it is obtained without the use of a BFO. We might represent the transmitted signal as follows:



It is, of course, inconvenient and expensive to operate two separate transmitters to convey the same information. Suppose, however, that one includes a mixer stage in his transmitter and supplies it with 1000 kc. and 1 kc. energy. This is diagrammed below:



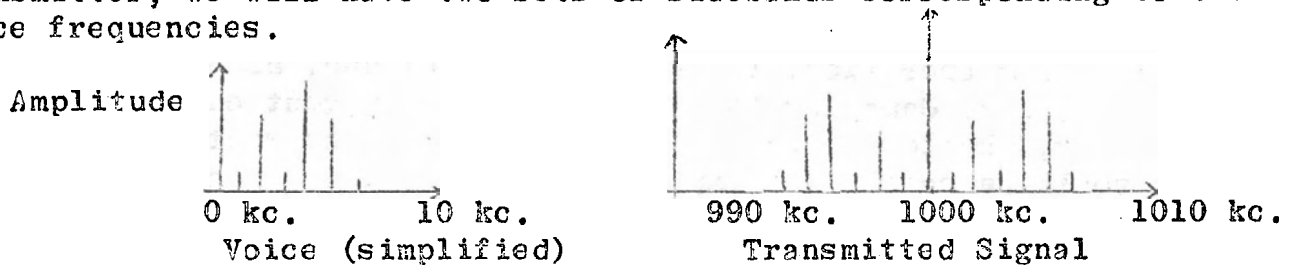
Output is obtained on  $1000+1 = 1001$  and  $1000-1 = 999$  kc. We intentionally design the mixing circuit (called a modulator in this case) to be quite "leaky" so that a substantial 1000 kc. output is obtained also. This process is called modulation. Using the analysis above, we find that the 1000-1001 pair produces a 1 kc. output after passing through the receiver, as does the 1000-999 pair. (The 2 kc. output from the 999-1001 pair expected is not normally obtained; this points out the fact that our picture is very simplified.) We may represent our signal by the following convention:



The 1000 kc. signal is called the carrier, and those on 999 and 1001 are known as sidebands. Note that two sidebands, upper and lower, are always produced in this process. The tuned circuits following the modulator in the transmitter are seldom selective enough to attenuate either. It is reasonable to expect that for the best results, the sideband and carrier producing an audio frequency should be of equal amplitude. This is true; however, there are two sidebands and only one carrier, so even in the ideal case one-half power appears in the carrier and each sideband carries only one-quarter power. This ratio is, in fact, rather critical. If the carrier is attenuated in our receiver, distortion results, while if the sidebands are attenuated, the audio output is very weak. Note that this now implies there is a limit to the amount of selectivity we can use in the receiver; for maximum effectiveness, the passband can be no less than 2 kc.

Clearly we must still key one or both of the oscillators in the transmitter in a code to transmit information.

mitter in a code to transmit information. Such a signal is referred to as modulated c.w. (MCW). There is, however, no reason why we could not have fed a 2 kc. signal to our modulator also and produced outputs on 998 and 1002 kc. as well as 999, 1000, and 1001. As mentioned, the voice can be considered to consist of a large number of simple frequencies rapidly changing in emphasis and amplitude. If we convert such speech to electrical signals using a microphone and use these to modulate the transmitter, we will have two sets of sidebands corresponding to the voice frequencies.



An analysis of the output resulting from the carrier and each separate sideband frequency, similar to the above, shows that the original audio frequency signal is exactly reproduced at the output of the second mixer. (To convince yourself of this, consider voice made up of two arbitrary frequencies, then three, etc.). Note that again the receiving selectivity we can use is limited. Since speech frequencies range up to at least 15 kc., this suggests that we need a passband of 30 kc. This is true for exact reproduction of the original signal (high fidelity); however, experiments have shown that for intelligibility, frequencies between .5 and 3 kc. are sufficient. This allows us to narrow our passband to 6 kc. for communications work with much better adjacent channel separation. (For the purposes of the DXer, it is often advantageous to restrict the passband to half this; ideal selectivity and ~~xxxx~~ means of obtaining it rate an article in themselves, however.)

Automatic Volume Control. We have now discussed all the essential elements of an AM receiver. Many refinements are possible. Future articles will consider these more sophisticated circuits and review the basic ones more critically. One non-essential circuit is used so universally that it merits mention at this point, however. This is automatic volume control (AVC), also called (more accurately) automatic gain control (AGC). Usually we are interested in receiving many stations on our receiver, and these vary greatly in strength. If we set the gain of the various amplifiers for comfortable audio output on a strong signal, we are likely to miss weak signals in tuning across the band. On the other hand, if we advance the gain enough to hear the weakest signal, strong ones will blast through in a rather unnerving fashion. It is possible, however, to take part of the voltage produced at, for example, the second mixer and connect this to the preceding amplifiers in such a manner that increased voltage causes decreased amplification. When a strong signal reaches this mixer, amplification in these stages will be reduced correspondingly and blasting eliminated. (Of course, the voltage fed back to the amplifiers will then also decrease, but with proper design a steady state is reached almost immediately.) Very weak signals receive full amplification; as a result, receiver output remains relatively constant in tuning across the band.

Ed Satterthwaite, Jr.

A major power drain and heat producer in receivers is the audio power output stage. This is necessary if one requires a large audio output, but for those usually listening at low volume levels or with headphones, it represents a waste of power. In addition, the heat tends to produce oscillator drift and to shorten component life. The latter is especially objectionable when the receiver is in continuous or semi-continuous operation. (This is convenient and, according to some authorities, less damaging to the tubes than frequent on-off cycling. In "stand-by," heater current is drawn, and this current should be kept as small as possible.) Experiment has indicated that, at least with single-ended output, medium- $\mu$  triodes perform ~~xx~~ well at low power levels when substituted for the usual power pentodes and beam power tubes. In the octal series, base wiring is the same for a wide range of output powers, and tube substitutions can tailor the output to individual requirements. A list of these tubes is included below. A few notes:

(1) Connect pin #1 of the socket to the chassis if it is not already so connected. No other wiring changes are required. (2) Substitution has not been tried with push-pull (two-tube) outputs, but this should work as long as both tubes are kept identical. (3) The listing is in order of decreasing power (and heat) output. Always substitute down, never up. If plate voltage exceeds 300 volts, do not substitute. (3) Do not make substitutions in AC-DC sets or others with any series connected heaters. It is possible to ruin all tubes in the set by doing so. Nearly all sets with power transformers are not series connected; consult a schematic if any doubt exists.

Tube Type(s)	Type	Heater Current (amp)
<u>Group I. 6 Volt Octal Tubes.</u>		
6L6, 6L6G	beam power	0.9
6F6	power pentode	0.7
6V6, 6V6GT, 6V6GTA	beam power	0.45
6K6G, 6K6GT	power pentode	0.4
6J5	triode	0.3
6C5	triode	0.3
<u>Group II. 12 Volt Octal Tubes. - do not cross groups</u>		
12A6	beam power	0.15
12J5GT	triode	0.15

In the miniature series, the 6C4 should replace the popular 6AQ5, but wiring changes are required, and this should be attempted only by those with the necessary background. The other major heat source in a receiver is the vacuum tube rectifier. This heat can be eliminated by substitution of silicon rectifiers, but again proper conversion requires more technical background. With such rectifiers and the 6F6 replaced by a 6J5, the author's receiver has been operated up to 300 hours continuously with no excessive component heating.

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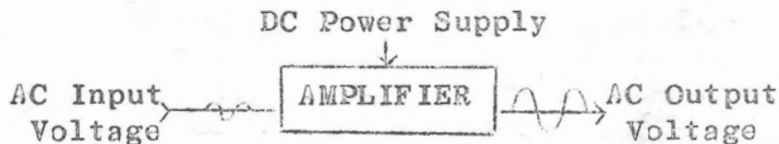
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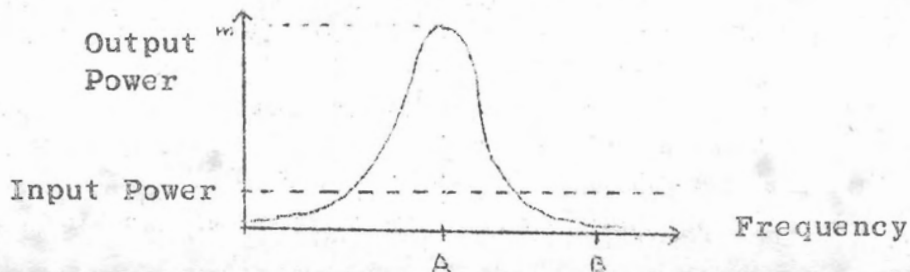


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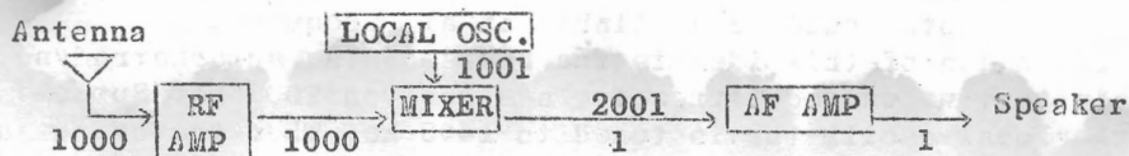


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Note that if the 1000 kc. input signal disappears, the 1 kc. output disappears also. With a suitable code, e.g., Morse, we could transmit and receive information by turning the receiver on and off.

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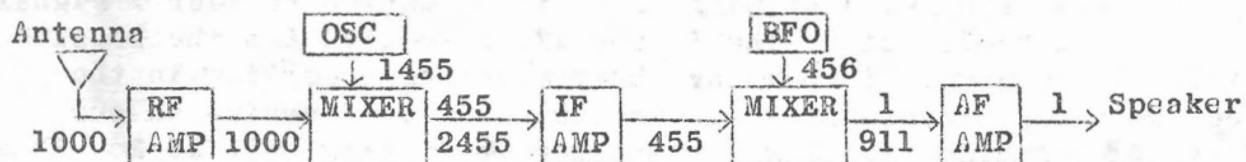


experience interference. Moreover, even with the local oscillator turned off, the 1010 and 1000 kc. signals would combine in the mixer to produce an audible (10 kc.) signal. We could eliminate much of this interference by designing the audio system to accept only very low frequencies. This is impractical for speech transmission, as we shall see later. Another approach is to retain the basic circuit and add more and/or better tuned RF amplifiers until the 1010 kc. signal is eliminated before reaching the mixer. The result is called a tuned radio frequency (TRF) receiver.

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So far it appears we have gained only complexity. There are several

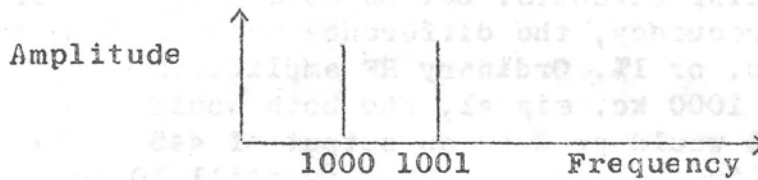


important advantages in conversion to a lower radio frequency, however. For one thing, more amplification per stage is available at the lower frequency. More important is the increased selectivity. Recall again that the bandwidth is roughly a constant percentage of the center frequency for similar circuits. Let us consider 1010 kc. interference. At the original frequency, the difference between this and the desired signal is 10 kc. or 1%. Ordinary RF amplifiers would pass this nearly as well as the 1000 kc. signal, and both would reach the mixer. The 1010 kc. signal would produce an output of 445 (1455-1010) kc. instead of 455 kc. The frequency difference is still 10 kc., but the percentage difference  $\alpha$  is slightly over 2%. This perhaps sounds like a small difference, but it is, in fact, a significant one. Finally, suppose we ganged the first oscillator with the RF stage tuning so that it always operates 455 kc. above the incoming signal (e.g., for 540 kc., at 955; for 1600, at 2055, etc.). Analysis shows that one output of the mixer is always 455 kc. This points out the final and biggest advantage of the superhetrodyne: the IF circuits can remain tuned to one intermediate frequency (455 kc.) for all incoming signals. Since the IF stages determine to a large degree the selectivity and overall gain, these characteristics remain essentially constant over the entire band. We might also note that, as a practical matter, very selective tuned amplifiers are most easily constructed for a single frequency and that it will be extremely helpful to convert all signals to one frequency if we later add crystal or mechanical filters in more sophisticated design.

Nearly all receivers made today, from 4 tube AC-DC sets to the most advanced communications receivers are basically superhetrodynes. (Of course, not all use an IF of 455 kc.; this was chosen only because it is the most common. Selection of an IF frequency will be discussed in a later article.) On some less expensive sets, the RF amplifier is eliminated and the signal fed directly to the mixer. Fair performance is possible with this design, but the RF stage performs three important functions and is therefore quite desirable. These are: (1) Image rejection. Suppose that we are tuned to 1000 kc. again; then the local oscillator would be tuned to 1455 kc. Now further suppose a signal on 1910 kc. reached the mixer also. One output would be on 1900-1455 = 455 kc., exactly the IF frequency, and this undesired signal would be heard in the output. The solution to this problem is, of course, to prevent the 1910 kc. signal's reaching the mixer. In a good receiver, the selectivity to do this is provided by one or more tuned RF stages. (2) Increased sensitivity. It can be shown that an  $\alpha$  amplifier introduces much less  $\alpha$  thermal noise (the hiss one hears when the antenna is disconnected and all the gain controls advanced) than a mixer. Since such noise tends to mask signals, the first stage of the receiver (when signals are weakest) should be an amplifier. (3) Prevent local oscillator radiation. Recall that in the receiver we now have a (10w-power) oscillator operating on the BCB band. If its output reaches the receiver's antenna, a signal will be radiated and cause local interference to other listeners. An RF stage provides the isolation necessary to prevent this.

Voice Transmission. In the previous discussion, we could have simplified our receiver somewhat by transmitting two signals, say one  $\alpha$  on 1000 kc. and one on 1001 kc. With the local oscillator on 1455 kc.,

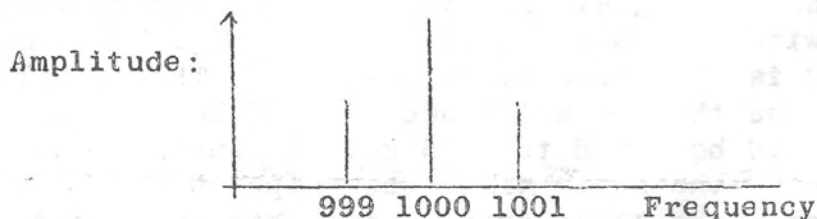
output will result on 455, 454, 1, 2455, and 2456 kc. Provided our IF selectivity is not too great, both the 455 kc. and 454 kc. signals will be amplified by the IF stages and reach the second mixer. Here the output will include 1 kc., an audio frequency tone, and it is obtained without the use of a BFO. We might represent the transmitted signal as follows:



It is, of course, inconvenient and expensive to operate two separate transmitters to convey the same information. Suppose, however, that one includes a mixer stage in his transmitter and supplies it with 1000 kc. and 1 kc. energy. This is diagrammed below:



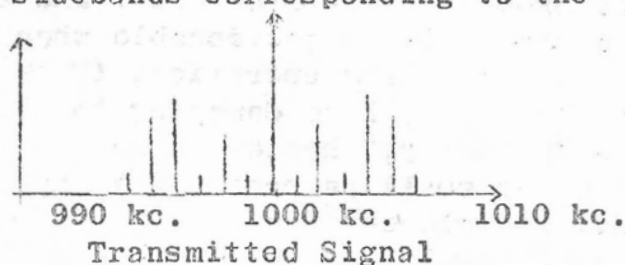
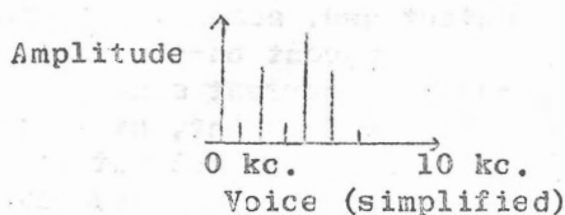
Output is obtained on  $1000+1 = 1001$  and  $1000-1 = 999$  kc. We intentionally design the mixing circuit (called a modulator in this case) to be quite "leaky" so that a substantial 1000 kc. output is obtained also. This process is called modulation. Using the analysis above, we find that the 1000-1001 pair produces a 1 kc. output after passing through the receiver, as does the 1000-999 pair. (The 2 kc. output from the 999-1001 pair expected is not normally obtained; this points out the fact that our picture is very simplified.) We may represent our signal by the following convention:



The 1000 kc. signal is called the carrier, and those on 999 and 1001 are known as sidebands. Note that two sidebands, upper and lower, are always produced in this process. The tuned circuits following the modulator in the transmitter are seldom selective enough to attenuate either. It is reasonable to expect that for the best results, the sideband and carrier producing an audio frequency should be of equal amplitude. This is true; however, there are two sidebands and only one carrier, so even in the ideal case one-half power appears in the carrier and each sideband carries only one-quarter power. This ratio is, in fact, rather critical. If the carrier is attenuated in our receiver, distortion results, while if the sidebands are attenuated, the audio output is very weak. Note that this now implies there is a limit to the amount of selectivity we can use in the receiver; for maximum effectiveness, the passband can be no less than 2 kc.

Clearly we must still key one or both of the oscillators in the transmitter in a code to transmit information.

mitter in a code to transmit information. Such a signal is referred to as modulated c.w. (MCW). There is, however, no reason why we could not have fed a 2 kc. signal to our modulator also and produced outputs on 998 and 1002 kc. as well as 999, 1000, and 1001. As mentioned, the voice can be considered to consist of a large number of simple frequencies rapidly changing in emphasis and amplitude. If we convert such speech to electrical signals using a microphone and use these to modulate the transmitter, we will have two sets of sidebands corresponding to the voice frequencies.



An analysis of the output resulting from the carrier and each separate sideband frequency, similar to the above, shows that the original audio frequency signal is exactly reproduced at the output of the second mixer. (To convince yourself of this, consider voice made up of two arbitrary frequencies, then three, etc.). Note that again the receiving selectivity we can use is limited. Since speech frequencies range up to at least 15 kc., this suggests that we need a passband of 30 kc. This is true for exact reproduction of the original signal (high fidelity); however, experiments have shown that for intelligibility, frequencies between .5 and 3 kc. are sufficient. This allows us to narrow our passband to 6 kc. for communications work with much better adjacent channel separation. (For the purposes of the DXer, it is often advantageous to restrict the passband to half this; ideal selectivity and ~~many~~ means of obtaining it rate an article in themselves, however.)

Automatic Volume Control. We have now discussed all the essential elements of an AM receiver. Many refinements are possible. Future articles will consider these more sophisticated circuits and review the basic ones more critically. One non-essential circuit is used so universally that it merits mention at this point, however. This is automatic volume control (AVC), also called (more accurately) automatic gain control (AGC). Usually we are interested in receiving many stations on our receiver, and these vary greatly in strength. If we set the gain of the various amplifiers for comfortable audio output on a strong signal, we are likely to miss weak signals in tuning across the band. On the other hand, if we advance the gain enough to hear the weakest signal, strong ones will blast through in a rather unnerving fashion. It is possible, however, to take part of the voltage produced at, for example, the second mixer and connect this to the preceding amplifiers in such a manner that increased voltage causes decreased amplification. When a strong signal reaches this mixer, amplification in these stages will be reduced correspondingly and blasting eliminated. (Of course, the voltage fed back to the amplifiers will then also decrease, but with proper design a steady state is reached almost immediately.) Very weak signals receive full amplification; as a result, receiver output remains relatively constant in tuning across the band.



Ed Satterthwaite, Jr.

A major power drain and heat producer in receivers is the audio power output stage. This is necessary if one requires a large audio output, but for those usually listening at low volume levels or with headphones, it represents a waste of power. In addition, the heat tends to produce oscillator drift and to shorten component life. The latter is especially objectionable when the receiver is in continuous or semi-continuous operation. (This is convenient and, according to some authorities, less damaging to the tubes than frequent on-off cycling. In "stand-by," heater current is drawn, and this current should be kept as small as possible.) Experiment has indicated that, at least with single-ended output, medium- $\mu$  triodes perform ~~xx~~ well at low power levels when substituted for the usual power pentodes and beam power tubes. In the octal series, base wiring is the same for a wide range of output powers, and tube substitutions can tailor the output to individual requirements. A list of those tubes is included below. A few notes:

(1) Connect pin #1 of the socket to the chassis if it is not already so connected. No other wiring changes are required. (2) Substitution has not been tried with push-pull (two-tube) outputs, but this should work as long as both tubes are kept identical. (3) The listing is in order of decreasing power (and heat) output. Always substitute down, never up. If plate voltage exceeds 300 volts, do not substitute. (3) Do not make substitutions in AC-DC sets or others with any series connected heaters. It is possible to ruin all tubes in the set by doing so. Nearly all sets with power transformers are not series connected; consult a schematic if any doubt exists.

Tube Type(s)	Type	Heater Current (amp)
<u>Group I. 6 Volt Octal Tubes.</u>		
6L6, 6L6G	beam power	0.9
6F6	power pentode	0.7
6V6, 6V6GT, 6V6GTA	beam power	0.45
6K6G, 6K6GT	power pentode	0.4
6J5	triode	0.3
6C5	triode	0.3
<u>Group II. 12 Volt Octal Tubes. - do not cross groups</u>		
12A6	beam power	0.15
12J5GT	triode	0.15

In the miniature series, the 6C4 should replace the popular 6AQ5, but wiring changes are required, and this should be attempted only by those with the necessary background. The other major heat source in a receiver is the vacuum tube rectifier. This heat can be eliminated by substitution of silicon rectifiers, but again proper conversion requires more technical background. With such rectifiers and the 6F6 replaced by a 6J5, the author's receiver has been operated up to 300 hours continuously with no excessive component heating.