

DEVOTED SOLELY TO

AMATEUR RADIO

THE NEWS

EDITED AND PUBLISHED BY: BILL MCNATT, W 9 N F K, FRANKLIN PARK, ILLINOIS

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TWO METERS, LAST MONTH . . .

On March 19, W7MVK packed his portable gear in the Mercury and drove into Nebraska, where he set up on 2 meters to make the first Nebraska-Wyoming contact on 2, it is claimed, by working W7OWZ in Cheyenne. W7OWZ queries, "Anybody have any objections?"

Ben, W7OWX reports increasing interest in 2 by low-frequency operators, and also improved activity. All stations are on horizontal, and will welcome DX schedules.

W7FGG reports a bubble of activity is rising in the southwest. Stations are on in Casa Grande, Phoenix and Tucson. 420 Mc. activity is stirring, also, and more information is expected to be available in the next issue.

A report out of California states a change from vertical to horizontal polarization is occurring on 2, but we'd like to hear more about this before being convinced. What say, W6?

Clint Bowman, W9GLW, who gets around the eastern area, tells us that W8VIB lost his beam in the late winter storms, but will be back on 2, soon. Marge, GLW's xyl, says the Indianapolis gang must've frozen; no signals. W5NYH surprised W4HHK with a new 250 watt, p.p. 82b final to his 16-element beam, now in the air, again. The southern gang have been plagued with high-winds troubles. W4FWX, according to W4HHK, ordered and received a p.p. 4-125A final from one of our advertisers after W4HHK sent him a copy of this lil' paper. The new final will be on the air, come DX season. W4BYR reports two openings on April



THE ANTENNAS AT WLOOP. TOP, THE "TROMBONE" (FOLDED DIPOLE). AT THE LOWER CENTER, THE 220 MCS. 4-ELEMENT YAGI. SEE PAGE 6.

2nd, the occurrence of Full Moon, again. Frank says it's infallible! W4FPC, St. Petersburg, is back on. FZR, Tampa, is about ready to fire up. QCE, Sebring, COZ, Lake Wales and CCC, Winter Haven, are new stations on 2; IMF, Plant City, is expected on, soon. Ken Erickson, W7JRG, is nearly ready to go with his new 12-element horizontal, and will welcome DX schedules.

In Minneapolis, WØJHS has been ill; WØHX is active; WØQHC is moving.

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W5MKP REPORTS FROM BATON ROUGE, LA.
W5OQW and W5EM, New Orleans, have been keeping nightly schedules with W5MKP, Baton Rouge. Although we've not evolved any theories of propagation, the schedules have really paid off as a proving ground. With 2 stations at each end, W5GIX and W5MKP (W5ODH, too, until he moved to New Orleans), one station would keep his equipment unchanged while the other made changes. This permitted a reference point for band conditions while making comparisons and conclusions regarding the changes made.

W5EM has a parasitic array, but still comes through on average nights, as does W5ODH, now in Nola, using a parasitic array until he gets time to erect the "Hoisington Bird Roost" (16-element array). W5OQW has a 16-element array, and is readable at almost any time. The boys have 522 transmitters and large plans. EM and OQW use BC639 receivers. OQW has a 6J6 preamplifier. ODH uses a VHF152A into an SX28A. MXJ has a Stacey-Wallman Cascode to a grounded grid 6J4 converter into a Collins 75A with a 16-element beam, 60 feet high. The antennas at the other stations are about 25 to 35 feet high.

The rig at W5MKP is a Cascode preamp into a VHF-152A. The 522 transmitter is souped up, using 823Bs in place of the 832s, with 90 watts input to the final. The modulator is P.P. 807s. The antenna is a 16-element array, about 41 feet to the mid point. Contacts can be made with W5JTI at about any time, although on one occasion we couldn't make it 100% without repeats. Good QSOs have been had with W5SM, DSB, QIO and others in the Beaumont area. W4HHK, Colerville, Tenn., and W5DDJ, Galveston, have also been worked. The circle is being pushed out, gradually, but it's a tough haul.

W5GIX uses a souped-up 522 receiver, a 522 transmitter and an 8-element (4 stacks of 2) antenna. He is on, nightly, and keeps MKP on his toes. W5QIA, Baton Rouge, is on, occasionally; he's awaiting a 16-element. W5JEW, Maplewood, is worked fairly

regularly. W5HNX, Opelousas, is on, occasionally.

All stations mentioned are on horizontal, as are W5ML and W5DXB. MKP has been heard by ML, but signals to MKP were not good enough to call it a contact.

One thing we have found in our work is that parasitic arrays, singly or stacked, put out very good signals, but are just NG for receiving. Last year, when the New Orleans gang was using parasitic beams, we could read signals Q5, but they could barely hear us, even though the same equipment was used at each end of the circuit. Just the other night, W5DDJ of Galveston, was putting in a signal 15 to 20 db better, with a 5-element parasitic, than the Beaumont stations with stacked arrays. But, he could read only about 1 out of 4 or 5 of our transmissions, while we were Q5, practically, in Beaumont. DDJ's antenna was about 30-35 feet higher than those in Beaumont. This should prove something. (Editor's Note: It is suggested that impedance matching between antenna transmission line and receiver may have been a source of trouble. Also, even though the same equipment was used at both terminals of the circuit, it is possible that uniform sensitivities did not prevail in the receivers. Other factors may also have entered into the situation. Generally, an antenna tuned properly for transmitting should perform equally as well for receiving.)

W5MKP would like to make schedules with anyone interested in contacts with Baton Rouge.

* * *

VHF-152-A STABILITY . . .

From Jerry Walker, W7FGG: "Here is a check for another big year on Two. I am well satisfied with the 'News' and find it right to the point. The VHF-152-A stability article was actually worth the price of several years of subscription cost! Yep, we fixed ours, too!"

* * *

Q N O CLUB

Because the last meeting of QNO was postponed, next meeting will be April 28th, at Lorraine Stanton's home.

TVI ON TWO

"My TV receiver is a National, and is about 40 feet from the shack. The two-meter beam, and TV antennas are about 75 feet apart. Using 300 watts input on phone or c.w., there is no TVI (sound or video) on any channel, although #4 is the only active channel, here. The rig is an unshielded 522 as an exciter connected through about 10 feet of coaxial line to the 829B driver to the 465A final. These units are in a rack-cabinet with the modulator and power supplies. The entire assembly is grounded thoroughly. No trouble, at all, is experienced, although the flick of a light switch, or the start of the refrigerator motor gives the picture a "flip". --- Paul Wilson, W4HHK.

(Editor's Note: The National Co., being devoted to ham radio for years, wisely chose a TV i.f. which minimized amateur radio TVI, from the very start of their production.)

"On the Two-Meter TVI situation, most of the interference, here, comes from cross-modulation on the TV receiver antenna input stage, which can be minimized with a band-reject filter, and also from harmonics of the 48Mc. tripler stage. Suitable shielding of the transmitter, filtering all leads (Filtering? How? With what? Where do you connect filters, and what are they made of? - Harry Quandt, W9JEE, Libertyville, Illinois.) and use of a band-pass filter in the 2-meter output circuit seem to clean up TVI. (Band-pass filter? How do you make it? How do you tune it? Is it in the antenna circuit, or where? --- W9JEE, Harry Quandt, Libertyville, Illinois.)

On Two Meters, the same general techniques apply as on the lower frequency bands in TVI reduction:

1. Prevent cross-modulation
2. Eliminate harmonics, or reduce them, greatly, in the transmitter output to the TV receiver.
3. Get rid of direct i.f. transmission, images and spurious responses at the receiver. - Dave Chapman, W9DPY (Ed. Note:) It occurs to us, and others, that this is the responsibility of the TV receiver manufacturer, solely!)

W5JTI REPORTS FROM JACKSON, MISS...

V.h.f. is still slow, down here. Interest is growing, somewhat, but I believe, truthfully, that most amateurs are either afraid of v.h.f. and the required techniques, or else they think they'll lose the lower frequencies if they use v.h.f. (I'll bet on the first proposition. - Editor)

Vicksburg, 40 miles west of Jackson, now sports two active 2-meter stations, other than CAP, which is being encouraged on 148.14 Mcs., here. W5JTL and W5MMZ are on with "souped-up" 522s. W5NNZ promises to be on, soon, also. W5JTL and NNZ are planning on 200-watts, or more, with W5MMZ trailing with an 829B.

Regarding 4-125As, mentioned recently in the 'News', W5JTI is building a new final with p.p. 4-125As. At present, VT-127As are used with 400 watts input. The new final is scheduled for service by early summer. A 32-element horizontal, 16 over 16, is in the works, too.

The 6J6 p.p.r.f. into 6J4 g.g., 6J4 g.g. to 9002 mixer really works, according to the "Tilton Noise Generator". The measured noise-figure, with that line-up, is 1db better than the 6J4-6J4, etc., without the 6J6. Using the same noise generator, an 18db increase was measured for a 522, as purchased. With a few circuit changes, including a 6AK5 r.f. stage, the 522 showed a 5db improvement. So, W5JTI believes his receiving set-up is pretty fair. The converter is crystal-controlled. In the 6J6 job, maximum L is used in the grid circuit, which is a $\frac{1}{4}$ -wave line, about 10" in length, with a hairpin-loop at the cold end. After perfect neutralization, this circuit is hard to beat, in spite of all the comment in favor of the Cascode, and it's certainly much simpler to construct and adjust. A Noise Generator, Tilton's or otherwise, is heartily recommended.

* * *

"TV set, here, causes no trouble on 6 or 2 meters. The transmitter causes no trouble on channel 5, from Phoenix. By keeping the shield on the ARC5/VHF no TVI on 6, 900W, or on 2, 700W. Channel 2 is another story!" -- W7FGG.

SIX METER NOTES

WLHDQ, Ed Tilton, reports brief exchanges with HC2OT on 50 Mc. on the morning of March 22. Ed says the band was open, but barely, from 0938 until 1030, EST. This followed a late-evening Aurora on March 21. Ed would like to hear from any two-meter operators who were on 2 on the morning of March 19; terrific Auroral effect observed on 10 and 6, but it was very early in the day for contacts - 0315 to 0830 EST.

Jack Woodruff, W9PK, was grateful to the Aurora for arriving on his predicted date, the 19th, but reports it did not bring the opening as expected. The opening of the 20th was very spotty at Downer's Grove, according to PK, who reports South America heard. On April 16 to 18th, another one is expected. Jack says, "Nothing came of the 11-day cycle, which seems to be my own invention, hi!"

Active on 6 are W9CGR, QKM, HGE (Beloit, Wisc.) and W9PK.

Reporting from Tucson, Ariz., W7FGG, Jerry Walker states that he has been watching 6 very closely since February 1st, when the new antennas for 2 and 6 went up. A 4 over 4 is used on 6, and a "screwy set of 20 elements" on 2. On 6, only ground-wave signals have been heard.

Old stand-by Ken Meyers, W8WRN, is using a new 6 meter transmitter, 6AR5 tri-tet, 8 Mcs to 24 Mcs., 6AR5 doubler; 6AD5 driving an 82ZB at 40 watts. The converter is 6AK5 r.f. to 12AT7 mixer - oscillator to an S2OR. A 3-element beam tops it off. Nothing but ground wave has been worked, up until April 4th report. W8UZ is a regular operator, but reports nothing unusual heard. Ken, W8WRN, says we've done fairly well with 6-meter column, but feels it should be handled by a 6-meter man. We agree, heartily! Hi!

* * *

"FAITHFUL FEW ON TWO"

W8WRN nominates the following for certificates, when available: W4JDN, W8ZUR, W8BFQ and W8WJC. "They have really been on, all winter!"

Chicago area nominees: W9NW, HKS, TKL, IWE, CGR, CAW, VX, KJU, EXQ, EQC, GDM, MGP. Any others? Tell us.

IN AND AROUND CHICAGO

During March, the same pattern of activity on 2 occurred, as reported for other winter months: on a given evening at any random time, one, two, or no signals are heard. Yet, during the month, these calls were active: W9NW, GDM-HKS-VX-IWE-CGR-JPZ-DEP-ZYF-BAD-BDW-UTUG-GAY-BYG-ZNJ-DRN-PNV-PMW-LIX-NOW-CGR-QJO-KJU-PEN-EDG-WIO-EXQ-WFH-FVD-NFK in Chicago and immediate suburbs. NZ, Union; JAF, Winnetka; TKL, Waukegan; HBR, Waukegan; MMG, Highwood; UMG; KFK, Deerfield; JBH, Libertyville; TGI and QKM, Glenview; DPY and CZR, Lombard; EQC and GDZ, Aurora; CEW, Elgin; YWS and AQP, Joliet; YFT, HMM and MGP, DeKalb-Maple Park; KZO, Sandwich-RHL, CAW-HDB-HKQ-and-DLI, in Indiana; W8VIB, Michigan. These total 57 stations, 30 in Chicago and immediate vicinity; 21 in outlying towns; 5 in Indiana, and 1 heard, recently (again) in Michigan.

The Midwest VHF Club has decided, apparently, not to hold the VHF picnic, this year, since the work-burden would fall on the same shoulders of a few. Have you any ideas on a VHF picnic for this summer? It doesn't have to be formal; just a get-together.

The 147.5 FM fixed-frequency mobile and fixed-station net is beginning to form. W9ZYI is on with a fixed-station. W9LLX has mobile rig going, and will have home station, soon. W9NFK has fixed station and mobile. W9CEW has mobile equipment, not installed. Many others are actively interested, but it takes time.

W9VX has been doing a fine job with his newcomer training classes, and now has a group nearly trained. They're in the process of completing converters for 2.

In response to many inquiries about Blackie, W9BBU, we're sorry to report he's off the air because of TV viewers in a fringe area, of all things! Strictly a gang-up affair. Sorry!

EQC, Aurora, will soon put up a new beam, replacing the one lost in one of the wind-storms. GDZ, Aurora, is a new home-owner, and back on. LJV, Waukesha, worked into Indiana, Illinois FB on April 2. DPY, Lombard, is on 2; where's ZHB? CZR, Lombard, has FB electronic bug. Use c.w. for DX!

THE STATION OF THE MONTH

By: Jack Woodruff, W5PK

"The VHF News" is privileged to present the story of a prominent east-coast station, WLOOP, Henry Cross, of Boston, Massachusetts.

WLOOP has equipment for all bands, including two converters for 220 Mc., three receivers for 144 Mc., and crystal mixers and associated "pipe dreams" for all higher bands. It is rumored, also, that somewhere around the shack is receiving equipment for Six meters and all the low-frequency bands.

The transmitter r.f. sections are plug-in units which can be lifted out of the rack and replaced by rigs of equal power for 220, 144, 50, 27-28 and 3.5 Mcs. Except on 3.5 Mcs., all finals are operated at about 90 watts input, and are modulated by four hard-working 6L6s, which are in the middle of the rack. FM is also on via a gimmick hanging on the left side of the rack. On the right hand side of the rack are doublers and finals for 440 and 220 Mcs. With this apparatus, WLOOP has worked 10 states on 50 Mcs.; over 500 stations in 9 states, plus VE-1, on 144 Mcs., and 13 stations in 3 states, and VE-1, on 220 Mcs.

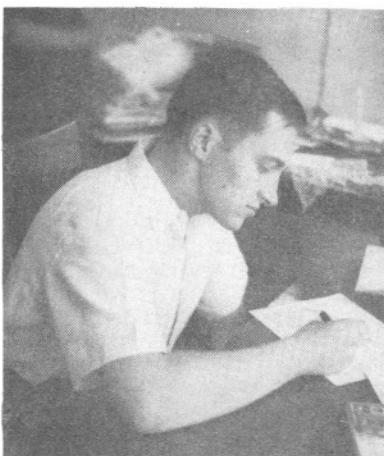
Outdoor equipment is maintained at

an efficient minimum, partly because the landlord's agent tripped over the guy-wires supporting the six-meter beam while superintending a TV-antenna installation.

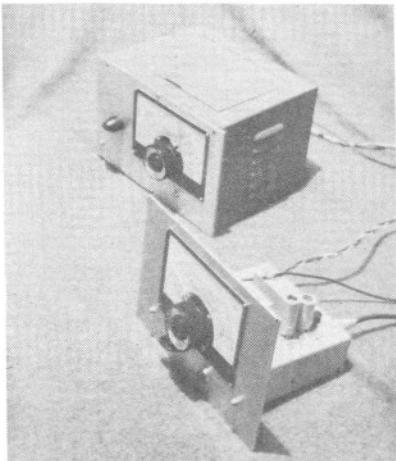
Quoting WLOOP, "The situation is a ticklish one. Said TV set has a tendency to hop off of the table when my carrier comes on!" He still uses his "trombone" antenna on 144 and 220 Mcs.

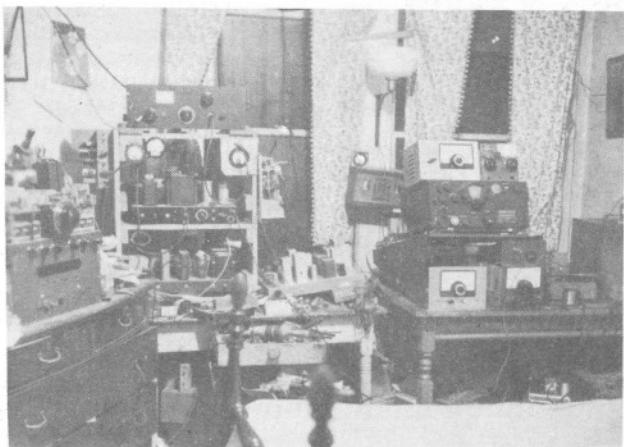
It is interesting to note some of Hank's commercial background. From July, 1949, to September, 1949, he was employed by Pickard and Burns, Inc., on l.f. loran. From September, 1949, until January, 1950, Henry was against M.I.T. to complete the first half of his senior year, working in his spare time in the M.I.T. dynamic analysis and control lab. Returning to employment for further funds for college, Hank has been working for the National Company since February 1st as "development engineer and 9th assistant kibitzer, j.g." As were his last places of employment, the National Co. is a veritable hot-bed of 144 Mc. hams for Hank.

Projects on WLOOP's list: no further work on the 144 Mcs. receiver is contemplated; a noise figure of 5 is good enough for his location. As for 220 Mcs., Hank says, "Still haven't



HENRY CROSS, WLOOP, WORKS ON CIRCUITS. 220 AND 144 MCS. CONVERTERS AT WLOOP





"MESSY, BUT COMPACT!" SAYS WLOOP

get a 220 Mcs. job which makes me happy, although I have three receivers: a punk one, with 7G8 r.f. stage; a hot one that 'pulls', using 2C40s as r.f. and mixer stages; and a fairly-hot one that doesn't 'pull', but drifts somewhat and draws too much current. Someday, I'll build a really good one!"

Next in line at WLOOP is a mobile station for 144, 220, 420, 50, 28 and 3.9 Mcs., to be all-110 v.a.c. operated from a 350-watt motor-generator. Henry drives a Crosley, and hasn't yet been able to find room for all of the gear!

WLOOP's writings have appeared in past issues of "QST" and "The VHF News". His DX and experimental efforts on v.h.f. and u.h.f. are well-known to hundreds of amateurs on those bands. You'll hear more of WLOOP.

* * *

CONGRATULATIONS TO THE W9GUAs . . .

On March 19, W9GUA became the proud father of a 7 pound, 13 ounce boy, Leonard Vincent Yates, born at The Little Company of Mary Hospital, Evergreen Park, Ill. Leonard and mother, Irene, are both doing very well. Elder son, Leo Thomas, celebrated his first birthday on March 5. It's no wonder that W9GUA hasn't had time to be active on Two! However, Howard now thinks he'll be on, again.

W9CAW REPORTS FROM PORTER, INDIANA.

Thanks to W9NW for the nice article in the last issue, "Ten Points on The Two-Meter Final at W9NW". How about the circuit, too, Ken?

The old, faithful signals of W9s VXE, HKQ, IWE, CEW, CGR, NW, EXQ, and TKL still pound in, here. W9EDW/9 is a student at Valparaiso Tech, and will soon be on 2 with a 522. W9NZ, Union, Ill., says he is almost ready to try his new pre-amplifier.

W9JDQ is now located in Joliet, so what say, W9ACP, YMF, GYZ, etc., get him on 2, now! HKQ still threatens to straighten up his bent antenna. HDB has a 16-element array, all ready to put up. RHL, DLI and DEJ are all active, consistently, but not for a very long time in any evening. (Visited W9RHL and W9DLI, recently, and was impressed by Bob's projects and Elmer's new shack, and the very nice spirit of understanding between them even tho' they're separated only by an alley! - Editor).

W9NHA, Chesterton, and the fellows in Michigan City are yet to be heard from. Just think, two or three years ago, they showed such good signs of promise!

W9CAW continues active on 2 and in YL matters. An improved final and a better receiver are in the works, and will be in service before too long.

BADGER MILK RUN

By: Victor Tresidder, W9TQ

Another 28 days gone, and not much done. Colds kept us out of the shack as they did others, too. Hope everyone is better, now.

We hope to get to Wausau, April 15, for the annual meeting and dinner. Then we can prime and pump for 144 Mc. W9s CGR TKL EQC NFK heard briefly during March, but no contacts. KQM reports QSOs with CGR and NZ.

WLZ, Green Bay, has a new receiver but no one to work. FWO will finish a new beam, shortly. VOS just looks at his ARC-4.

EVL, Appleton, is putting his beam backup. Helped KPG, New London, line up an ARB unit; says no word on GYQ or IVE, as yet.

Dropped in on HWX, and surprised him, looking over his version of the Stacey-Wallman cascode converter. He says EZA is working on one, also, and that CYL, Menasha, should be on 144, soon. Two other stations in Oshkosh have ARC-4s, and may be working on them, soon, for Two.

Butch, ENC, Hilbert, has hopes that he can get something on 144, soon. He has quite an antenna farm and open spaces!

LBC, Manitowoc, had to lend his coaxial line to keep one of his customer stations working! He says EZU off of 2 until warmer weather.

MMG, Highwood, Ill., on again with a Wallman converter, and says EBR is working on one, also. This was our only Illinois contact in 45 days!

Our schedules with GJE, Racine, continue. Schedules with DDG are off, somewhat. He is anxious to finish his rebuilding, and digs us about teletype. We received some of our units, and are now locating other items necessary to complete the system and get it working. It's interesting, trying to refresh our memory on multiplex tape; operator 27, years ago. HMX has said, on 28 Mc., that he is going to get on 144, and that NVJ also has hopes.

YYY is back in town, with all that he could carry from the west coast. WTL has troubles with connections to the beam. KQM put a Cascode stages

ahead of his crystal-controlled converter and says he hears Chicago often, but they aren't listening for him. BTI hears more, and thinks more about increasing power. We tried ARC 5/T23, but not satisfied, yet. HTJ was on, briefly. UJM dreaming up a way to get the beam mounted and working, outside. SYT has been working on 220 and 1250 Mc. 2 miles range has been covered on 220 mobile; $\frac{1}{2}$ block on 1250. Tests made with low power.

FES does surprise one. AJL, Racine, is a newcomer, but doesn't receive so well, yet. Haven't heard his brother, RMY (Pete), lately. GJE has a grounded-grid converter almost finished. He says WWH should be on, soon, as Bill has moved the rigs to the basement. LJV is busy with CAP and bread and butter items.

(Editor's Inquiry: Isn't it about that time of year when the Milwaukee gang has its party?)

W8WRN REPORTS FROM COLUMBUS, OHIO..

W8CPA and W8WRN have been busy with rebuilding and other items. The band has been quite quiet. Heard, during March: W8CPA PDW UZ WAB ABO and WRN. W8WXM and W8WJC still work the teletype circuit between Columbus and Everett. From up-state, WJC and BFQ are heard, verywell, on their schedules with W4JDN, who also comes thru in fair to good shape. On some nights, W8WSE YEG and WM came thru very well. On the 4th of April, W3KWL was heard, but not too strongly, but the first W3 heard for some time. Old standby, W8WXV, Al Burson, still does a good job. More local boys show promise, but no rash promises will be made until they are heard on 2. WRN plans to rebuild within the next month.

CPA will add that other W3GV section before long, now. My extra state has his goat; his 100-mile advantage to the west has my goat. W8ABO is inactive, by Doctor's orders, but hopes to be back on 2, soon. W8ZUR, Dayton, off to the east on another business trip; Ed still pounds in, here, when active on the band.

The Faithful Few on Two, here, are: W4JDN W8ZUR W8EFQ and W8WJC. They have really been on, all winter!!!!

NOTES ON THE DESIGN OF
THE NOISE GENERATOR

By: G. G. Roberts, WSWJC

(Part III, the last of a series;
Parts I and II appeared in "The
VHF News", January and February,
1950, respectively.)

Figure 3 shows a basic circuit of the Noise Generator, and one of the most practical for use with unbalanced inputs. For v.h.f. the leads shown in heavy lines should be treated according to v.h.f. practice. The filament bypass condensers should be of low impedance — small receiving-type ceramicons, 500 mmfd., are satisfactory. Resistor, R, must be a pure resistance in the desired frequency range. Allen-Bradley, General Electric and Continental Carbon one-watt, carbon fixed resistors are suitable, and are available in values closely approximating the usual line and receiver input impedances. Allen-Bradley type J potentiometers are usable, if a variable resistance is desired. (It has been found convenient to mount a variable resistance in the generator case, using shortest possible leads to the output cable connector. When working on lines or receivers of standard impedance, the variable is disconnected and a fixed resistor of the proper value is soldered directly across the cable connector in the interest of greater accuracy.)

The filament supply may be a.c., and, if desired, the plate supply may be an a.c. source, rectified and filtered. In this case, precaution must be taken to prevent noise from the power line being introduced into the output of the generator. R.F. filtering of

the power line, where it enters the case of the generator, is usually sufficient.

The filament current must be controllable, smoothly, from almost zero to almost full rated current. A filament rheostat with slide-wire vernier is satisfactory; or, for a.c. supply, a variac or other variable transformer in the primary is most convenient.

The plate supply voltage must be adequate to keep the diode in a temperature-limited condition over the range of plate current to be used. 150 v.d.c. should be sufficient for currents up to 50 ma. in tubes suitable for use in the V.H.F. Noise Generator. (Ed. Note: Line-voltage stability, during measurement, is particularly important for accuracy.)

The Sylvania 5722 noise diode is, so far as is known, the only tube designed especially for this use, and is so recommended. The WE-316A door-knob has been used by the writer with complete satisfaction, giving results comparable (within limit of error in interpretation) to the 5722. Other users have reported wide variations in results, using the WE-316A. In one of the cases, investigation revealed the WE-316A at fault, apparently, as the output of the generator varied, and no other reason for the variation could be determined. Several tubes purchased in the same lot (surplus) and bearing the same manufacturer's name showed similar variation. In one generator, brought in for comparison, a "Micropup" diode was used, and gave results similar to that observed with the WE-316A, to which it was compared. It has the advantage of large power-dissipation capacity while retaining the desirable characteristics for v.h.f. operation.

The 15R and 15E have been suggested as have the HK-24 and the 708-A, but no comparisons have been made, here, of generators using these tube types. Any tube having a pure tungsten filament, low internal capacity and short, heavy (low-inductance) leads should be suitable. Thoriated-filament tubes may be usable if the coating remains uniform. The tube which

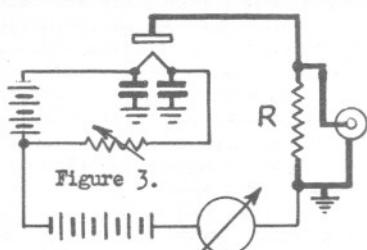
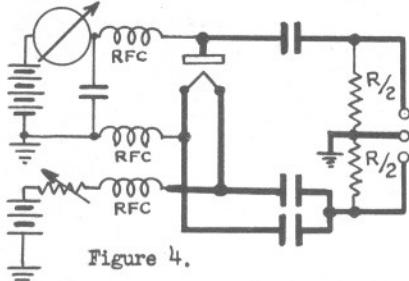


Figure 3.



is designed for the job is probably the wisest choice. (Ed. Note: In the use of any tube, the filament current meter should be observed after making any adjustments, to assure that stability of output has been obtained. Many tubes have filaments which have a relatively high "thermal inertia" characteristic.)

Measurement of a noise factor of 15, with an input resistance of 50 ohms, requires a current of 30 mA. If receivers having higher noise factor, or lower input resistance are to be measured, higher currents must be supplied. It is important to not exceed the power dissipation capacity of the tube used, and larger currents require the use of higher plate voltages to ensure plate current limiting by filament temperature, only. Temperature limiting can be checked by increasing plate voltage, while maintaining filament temperature at a constant value. An increase of plate current is an indication that temperature limiting does not exist. If Noise Factors of 1.5 are to be measured at input resistances of 500 ohms, it is necessary to read, accurately, a current of 0.15 mA. If a meter having a linear scale is used, a 1 mA. movement, equipped with shunts for full-scale readings of 2, 5 and 25 mA., or, 3, 10 and 30 mA., is convenient. A logarithmic scale, 5 and 30 mA., maximum, permits readings to a sufficiently-accurate degree.

Figure 4 shows a possible circuit variation for use with balanced input circuits. The same general considerations apply here as for unbalanced input circuits. The chokes,

RFC, must be effective in the frequency range under consideration, and the filament chokes must be capable of carrying the maximum filament current. This requirement presents no problem in the v.h.f. range. The plate blocking condenser, C_p , may be a 500-volt, 250 mmfd. ceramicon, of the small receiving type. Particular attention must be given to the reduction of stray capacitances as the output impedance is increased.

Small stray inductances reduce the accuracy of the generator, but do not destroy its usefulness as an indicator of progress. The obtaining of decreasing values of Noise Factor during work on a receiver indicates that progress is being made for the particular value of source impedance presented by the input terminals of the receiver. If the strays are large, the impedance "seen" by the receiver may not be equal to the pure resistance placed across the cable terminal of the noise generator. Maintain all stray capacitances in the generator at the lowest possible level. As a precautionary measure, use a cable of the same characteristic impedance as R and one-half wavelength long, considering the velocity of propagation of the cable, between the generator and the input of the receiver. (The v.p. constant for coaxial cables having polyethylene dielectric is about 66%. RG-8/U, RG-9/U, RG-29/U, etc., are typical types.)

The term, "uniform within the limits of error in interpretation" has been used, and probably requires explanation. The noise output of a receiver is seldom absolutely uniform, but is subject, rather, to small fluctuations. Unless conditions are ideal, a small amount of high-variable, stray (external) noise may be introduced, frequently through the power-line connection. (The power-line connections to the receiver should be filtered, both for tests, and under normal operating conditions, if noise is so introduced.) The Noise Generator, if powered by batteries inside the case, should not introduce stray noise. Observation of the character of the fluctuations of noise output, combined



"Audi alteram partem"
(Hear the other party; hear both sides.)

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All editorial contributions will be appreciated, and should be mailed on or before the 25th day of the month for publication in the next issue.

CORNER REFLECTIONS . . .

For over a year, FCC Docket 9295, a proposal by the FCC for new regulations for the Amateur Radio Service, has been the subject of considerable discussion and even downright furor.

"The VHF News", as a medium of reporting to the radio amateur, has been urged, since the release of Docket 92-95, to (1) decry, defile and declaim it; (2) to applaud, uphold and acclaim it. Because the major purpose of the Docket affects low-frequency amateur radio, we have withheld these pages from any participation in debate, awaiting developments to point to a finalizing of the issue.

Docket 9295 appears to be ready for settlement, according to an FCC Order, FCC-50-364, March 21, 1950. The ARRL request for formal hearing was denied; a request for the Commission to poll its amateur licensees regarding the matter of the Extra Class License was denied on the basis of the task being greater than the possible benefits to be derived from such a poll.

The FCC Order states, ". . . in view of a previous request by the American Radio Relay League, designated "the matter of the proposal (therein) made for general oral argument unless . . . it was clearly apparent from the comments filed . . . that general oral argument is not desired by any inter-
(Continued on Next Page, Col. 1.)

with experience in use of the method permits readings of reasonable accuracy to be made, but does permit a slight difference in interpretation.

A d.c. component appears in the output of the generator of Figure 3. If this is undesirable, as it would be if the output were applied directly to a tube grid, a condenser may be inserted between R and the output terminal. The d.c. does no harm if connected to the input coil of a receiver.

An hour of work on the front end of a v.h.f. receiver, using the Noise Generator, usually leaves a solid feeling that the performance is accurately known--a feeling that seldom arrives after even a full day of work with a signal generator, unless it is a highly precise, low-leakage laboratory type instrument.

(Editor's Note: The following references are offered to those interested in further study:

H.T. Friis, Noise Figures of Radio Receivers, Proc. IRE, p 419 July '44.

J. B. Johnson and F. B. Llewellyn, Limits to Amplification, Electrical Engineering, p 1449, November 1934.

L. R. Koller, "Physics of Electron Tubes", 2nd Edition, McGraw-Hill Book Co., N.Y., 1937.

J.M. Miller and B. Salzberg, Measurement of Admittances at Ultra-High Frequencies, RCA Review, p 486, April 1939.

A. vander Ziel, Measurement of Noise Ratios and Noise Factors, Phillips Res. Rep., p. 321, 1947.

Peter G. Sulzer, Noise Generator for Receiver Measurements, Electronics, p 96, July, 1948.

Harold Goldberg, Some Notes on Noise Figures, Proc. IRE, p 1205, Oct. 1948. (See also p. 40, Jan., 1949, Correction, "Some Notes on Noise Figures" by Harold Goldberg.)

Henry Wallman, A. B. MacNee and C.P. Gadsden, "A Low Noise Amplifier" Proc. IRE, p 700, June, 1948.

Edward P. Tilton, Noise Generator Technique for the V.H.F. Man, QST, p 20, August, 1949.)

* * *

PLEASE TELL YOUR FRIENDS AND YOUR ADVERTISERS ABOUT "THE VHF NEWS"!!! WE NEED SUPPORT FROM BOTH SOURCES!!

CORNER REFLECTIONS . . . (Continued) ested party . . ." The Order continues with a final paragraph to the effect that the matter of Docket 9295 is designated for general oral argument, to be held in Washington, D.C., on May 19, 1950. All interested parties, who intend to participate, should notify the Commission no later than May 10, 1950, stating the specific items to be argued, and the approximate time required. The notification should consist of one original and three copies.

Now, just what does all this mean to you, or me? To me, it seems that each of us, as a good citizen and a good amateur radio operator, should sit down and write a letter to his A.R.R.L. Director, if you are a member, or to the representative of your views, who will be in Washington on May 19. Three large amateur groups are interested in Docket 9295: ARRL, NARC and SARA.

Before you write your letter, however, take time to study the issue. Read "CQ" and "QST" issues of 1949 which dealt with the proposals. It would be very wise to read the FCC releases concerning the matter, as released by FCC, itself, or as published in the Federal Register and in "CQ". Especially, study carefully the "Basis and Purpose" section, and then read it again and again.

Remember that any effort can do only two things: go forward and improve or go backward and decay. There is no point of stand-still. Amateur radio seems to be at a very significant cross-roads, and it's up to you and me and the other fellow to review the whole Docket 9295 matter and make up our minds which course we choose to follow. Write to your ARRL Director or your NARC or SARA representative, whichever you favor, and tell him your wishes. No matter of such importance should be overlooked. (See "QST", April, 1950, p 9.) Our next comment on the matter will consist of the FCC statement on Docket 9295, after the May hearings.

In the meantime, remember that 2-meters is becoming more active!

VE3BOW REPORTS FROM HAMILTON, ONTARIO

We have some new stations to report on 2, in Brantford. VE3LU, 144.540, uses an English surplus transmitter with 25 watts input, a BC-1068 receiver, with a lot of conversion on it, and it's really hot, now.

VE3DBN, 144.205, uses an SCR-522 transmitter and receiver. VE3AOT is also using an English surplus transmitter on 144.2, and a converter in to a BC-348 receiver.

VE3ABZ, Galt, Ontario, runs 40 watts to a pair of 826s. Receiving equipment not known. VE3BOW had the first contact with ABZ, the first day he got going, but ABZ didn't report his equipment for receiving. The frequency, about 144.135 Mcs.

VE3LU, Brantford, is the only one, so far, with a beam up. His 5-element Yagi really puts out a nice signal.

VE3DBN is working on a "City Slicer".

During March, there was only one band opening, that I know of, and it happened on March 20. W3QKI was worked, and put in a very good signal. It seemed that the W3s and W8 boys were not too active. Am sure we could have worked them, had they been on. The W2s were coming through very nicely but we didn't work any, since we were running tests with VE3LU in order to line up his receiver.

During April, another 3 stations are expected to come on the band in Brantford, judging by VE3LU's remarks.

A report from VE3KM on the Hamilton 2-Meter Emergency Net states that 6 meters was open slightly on Sunday, March 19, when a W9 and a WØ were heard, but the calls not identified.

* * *

"SQUAWK-BOX" (Your name or call will not be mentioned, here, but must be given to the Editor.) "Bill, without stepping on any toes, tell prospective newcomers to the VHF bands not to expect miracles with 522s and dipole antennas! Several fellows, here, have gotten on 2 with such equipment and have immediately become discouraged and, worse, upon returning to the low-frequency bands, they've loudly denounced Two, in ignorance!"

FURTHER NOTES ON THE WØWGZ 420 MC. AMPLIFIER

By: Arnold M. Bucksbaum, WØWGZ

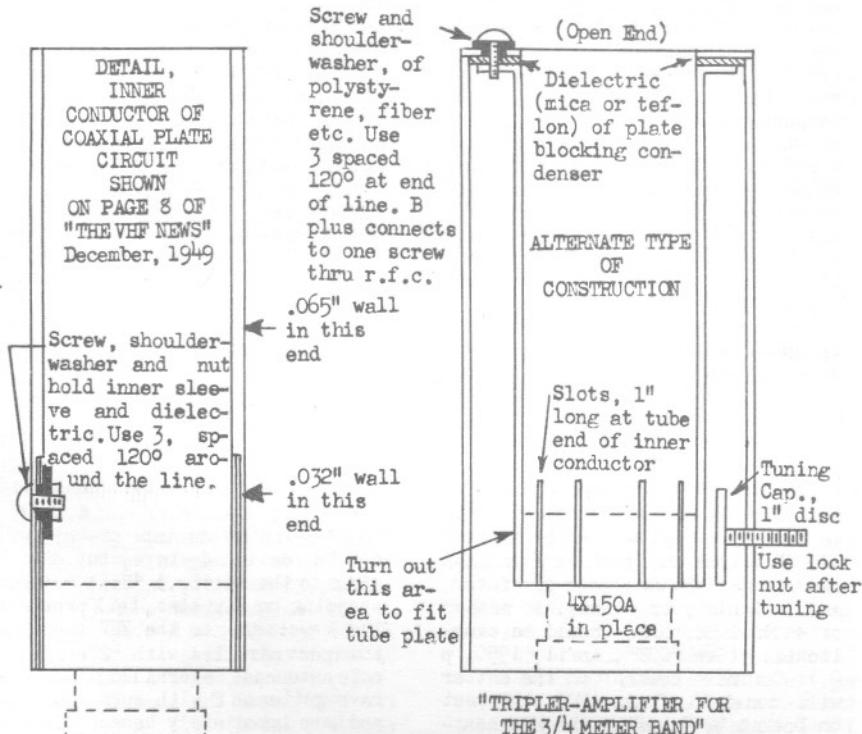
In general, my drawing in the December issue of "The VHF News" (p.8) presented the "how" of doing the job with only the critical electrical dimensions indicated.

The plate structure of the tube is such that its maximum diameter is 1-5/8" diameter. This means that the 1-3/4" tubing, with .065" wall, has to be bored out, or otherwise enlarged so that the wall thickness is approximately 1/32" in that area in which the tube, the inner sleeve and the teflon all fit.

These problems, if not readily surmounted, may be avoided by the arrangement shown in the drawings, below. Micadielectric, instead of teflon, may be used. This places the in-

ner conductor at the plate h.v. potential, but shoulder-washers will provide good insulation. Best results will be had if they are made from high-Q material, such as mica, teflon or polystyrene, although the latter is affected by heat. The tuning condenser face, closest to the inner conductor, may be insulated by a heavy coat of Q-max, or by a piece of mica, teflon or polystyrene cemented to its surface.

I believe the circuit could be made to work even if built from fruit or vegetable cans, of the proper diameter, if they were silver-plated for minimum r.f. resistance. This would simplify mechanical problems involved by working with brass tubing.



"TRIPLER-AMPLIFIER FOR THE 3/4 METER BAND"
By: Arnold M. Bucksbaum, WØWGZ
("The VHF News", December, 1949)

COWTOWN REPORTS

By: Bill Bonnell, W5CVW

For the first time in months, we can truthfully say that Two Meter activity is on the increase for the Kowtown Kids, and will soon be something to brag about.

The 400-watt rig at W5CVW passed initial tests with flying colors. The rig, built from the article in September "QST", uses a pair of 4-65As and silver-plated $\frac{1}{2}$ -wave lines in the final, driven by the old 522. The complete rig is housed in a new cabinet. The low-frequency rig cabinet now perches atop the Two-Meter job, giving a 7 foot height to the whole rig. The XYL says it looks good, too, and believe me, that's somethin', since the whole station is in the bedroom! Come the first warm day, the old 16-element beam goes up, and ol' CW will be heard on 144.1 and 144.35.

I'm happy to report that Sid Stout (See "The VHF News", p 5, March, '50) passed his exam with flying colors and is awaiting the new call! (Congratulations! - Ed.) When last seen, Sid was busily engaged in building his first rig, a 2-meter job! A beautiful thing it is, too. This is his first attempt at building any radio equipment, and judging from what I saw, I cheer, lustily.

The old controversy of vertical vs. horizontal still plays the devil with us. I know that more of the gang would hit two-meters in a hurry if any sort of standard could be made. I preach until my soapbox crumbles beneath me, horizontal, of course! But, I still find it hard to convince the verticalites. So, try it, and see for yourself. Despite there being more stations on two on the east than in the middle-western states, horizontally-polarized stations made new records for over 2½ years!

Our old friend, that champion of GP and 144 Mcs. DX, (GP - Grand Prize - is to us what Atlas Prager is to you) was in town recently to ferret out the secrets of the new rig at W5CVW. I've got him by a couple hundred watts, so he comes to see me! Thanks, anyway, Warren for the fine suggestions on the new final. Lo' and behold, she

neutralized, perfectly! Thanks, too, for the help in assembling the new beam.

Russ Sewell, W5NLZ, Oklahoma City, tells me that there are a lot of new rigs hitting the air up Oklahoma way. That's sweet music! Russ will have high-power going, soon, also. Looks like the Ft. Worth-Oklahoma City-Tulsa Two-Meter Net is about to come off the boards and begin to function!

By the time you read this, Cowtown should be well-represented on two! Have a look for us; we're loaded!

* * *

YOUR WESTERN DX FOR 1950 ON TWO!

On the next page are pictures of a few of the western two-meter operators who are active on 2, and who will be choice DX for any two-meter operator. We label them "Western DX" because they are just that for the large majority of 2-meter stations.

Ben Stryker, W7OWZ, was kind enough to forward notes on the fellows in his area: W7MVK, Wally, is a senior electrical engineering student at Wyoming University. He operates 3 stations: W7MVK, W7MCK/7 and W7OBE, the University station, Laramie, Wyo.

WØFRQ, Cece, Ft. Collins, Colo., is a plasterer, by trade, and operates 2 and 6 meters. He's heard some DX on 2, but has worked only the gang in the Wyoming-Colorado area.

WØACA, Leo, Denver, runs 100 watts on 2 to a 10-element beam.

W7OWZ, Ben, Cheyenne, Wyoming, is a bridge designer, and operates both fixed and portable. Has heard unidentifiable signals on occasion. "Tell them, for God's sake, 'Use CW!', Bill".

W7JRG, Ken Erickson, Sheridan, Wyo., is both an enthusiastic 2-meter ham as well as a commercial man at KWYO. Altho' inactive during the winter, Ken will be on, again, soon.

WØELL, Ed Gessert, Denver, Colorado, is an old-timer on 6 (formerly W5ELL) and is now active on 2 when he's not travelling on the road.

Well, fellows, here's your DX on 2 for 1950! Note the plea for the use of c.w., not m.c.w.! A postal card to any of the fellows should be sufficient to establish schedules and, eventually, the new record!

Your Western DX for 1950 On "Two"



W7MVK, Wally Willhard, Laramie, Wyoming.

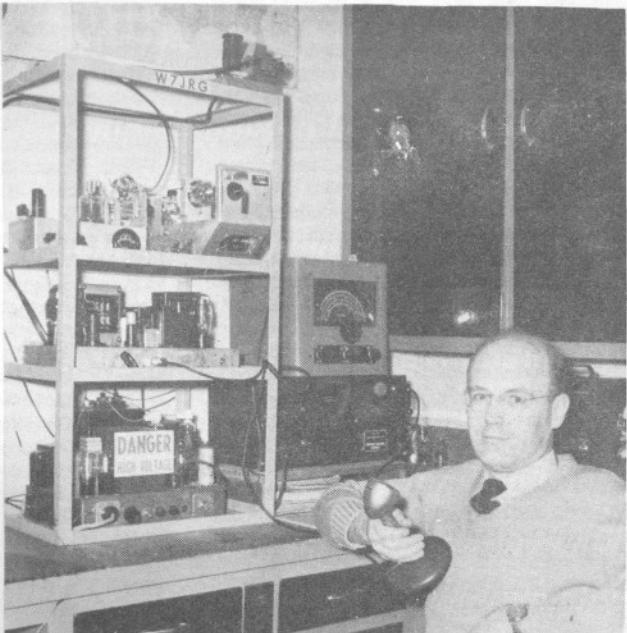
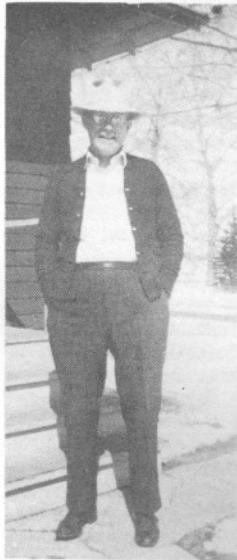
WØELL
Ed Gessert, Denver, Colo.



(See preceding page, column 2, for further information.)

W7JRG, Ken Erickson, Sheridan, Wyoming.

W7OWZ
Ben Stryker,
Cheyenne, Wyoming



FURTHER NOTES ON V.H.F. PROPAGATION

By: Morris Schulkin

In connection with the comment by Switzer on page 5, "The VHF News", January, 1950, the following additional comment is offered.

(1) The radio frequency refractive index of the atmosphere at any point is a function of pressure, temperature and humidity. In comparing refractive index values at high and low elevations, the pressure term becomes quite important, and should not be omitted.

(2) In radio wave propagation, sharp atmospheric refractive index changes are those which occur in a distance interval of the order of a wavelength or smaller. This means that we are interested in measuring changes which occur in at least six to ten feet at two meters wavelength. The Weather Bureau radiosonde reports temperature, humidity and reference data in successive intervals of 18 millibars, each. At the surface, an 18 mb interval corresponds to about 450 feet; at 10,000 ft. elevation, it corresponds to about 685 feet; and, at 20,000 ft., to about 990 ft. This means that, at 10,000 ft. elevation, temperature is reported continuously during an interval of 685 ft., and not again until an interval of about 1370 feet has been covered. The same is true for relative humidity readings. Thus any changes which occur in the interval not recorded are completely omitted, and an interpolated value is reported. Sharp moisture and temperature changes, i.e.-within 10 ft. - which occur simultaneously, are not recorded. Furthermore, the lag of the instrument is such that it takes the apparatus on the order of 5 seconds or more to record 63% of a sudden change in temperature or humidity. In 5 seconds, the radiosonde balloon travels about 50 feet. Thus, even the measurements which are reported are values integrated over distance intervals of 50 feet, or larger. It should appear, then, that refractive index changes which occur

Physicist, Tropospheric Propagation Research Section, Central Radio Propagation Laboratory, Washington, D.C.

within 10-foot intervals are quite unresolvable with the present radiosonde equipment. It is true that some change could well be indicated on the radiosonde record, but it would be hard to say what its radio propagation significance would be, other than using it for descriptive purposes and qualitative predictions.

* * *

TENNESSEE EMERGENCY AND TWO METERS

By: Paul M. Wilson, W4HHK

On the afternoon of March 21st, a 12,000 volt high-line fell across the telephone and telegraph lines between Memphis and Somerville, Tennessee. The latter town is a county seat, about 40 miles, airline, east-northeast of Memphis. The result: no telephone or telegraph service out of Somerville. Two meters came through, again.

W4FWX fired up on 144 and made contact with W4DI, Memphis. For the remainder of the day, and most of the following day, March 22, W4FWX, assisted by W4PXW, maintained solid contact with W4DI and W4BAQ, of Memphis, and W4HHK, of Collierville.

Traffic was handled for Western Union, the railroad and others. A few messages were handled on 75 and 160 meters by W4BAQ and W4PXW, but the bulk of the traffic was taken care of on Two. Signals over the 40-mile path were always solid and strong. W4FWX, DI and BAQ used 522 transmitters. W4DI's 16-element beam performed nicely, as did W4FWX's twin 5-element parasitic array. W4BAQ used a 2-element beam. All stations were on horizontal. Fortunately, W4FWX had commercial a.c. power, as did the other stations.

The "little emergency" proved, again, that the two meter band is hard to beat for reliable, consistent communication over distances up to 40 miles or so.

* * *

THE WEATHER AND V.H.F. PROPAGATION

If you are an avid devotee of Two-Meter DX, you must of course be interested in the effects of weather on propagation. W4MNQ recommends "Introduction to Meteorology", by Peterson, because it is written in understandable language.

IN THE MAIL . . .

From Chuck LeMasters, W8QVK: "Thanks for the reminder to renew . . . enjoy "The News" very much. Haven't been on 2, much; listen, often, but have good old TVI (my own TV, that is). I interfere with it, and it interferes with me! Eaven't had the low-frequency rigon the air for over a year. It is 2 Meters, exclusive, for me!"

From Ross Bateman, W4AO: "Enjoy reading 'The VHF News', and here's two bucks to prove it, hi! Am now on with 2-125As in final with 400 to 900 watts input, on Two Meters only!"

From Glade Wilcox, W9UHF/5: "Don't have the February, 1950, issue, yet, because of moving. May I have a copy, since I have all issues back to Vol. 1, No. 2? First subscribed to your 'News' back in '46 or '47, in Freeport, Ill. Hope to get on 6 and 2, before long." (Can anyone help out Wilcox with a copy of the August, 1947, issue of "The VHF News"? If so, send it to me and I'll forward it to him. - Editor.)

From Ken Neifert, KH6ZG, Lihue, Kauai, Hawaii: "I was recently introduced to your very interesting magazine by Bob Hill of Honolulu, and was impressed to the point of applying for a subscription, enclosed. (Thankee! - Ed.)

"VHF activity in the Islands, above 6 meters, is O.O. There is, however, a lot of talk going on about 2-meter work, and several of us are collecting gear. So, it may not be too long before something is under way. KH6CL, myself and others are working on 3-cm. gear, and we are going to attempt the 95 mile hop from Oahu to Kauai from mountain-top station at each end, affording us a line-of-sight path over water. This project will be attempted before too many months pass by. If successful, it will be interesting news for you." (FBI-Ed.)

From Ross Liming, W4JDN: "W8WJC and W2EFQ send copies of 'The VHF News' to me. I like it very much; I enclose a check for a year's subscription!" (Thank you, all! - Editor)

From Dave Chapman, W9DPY: "Enclosed is my \$2 for the next year. I am sending this in spite of the snide

remarks about my not getting on 2, prompted by a certain broken-down employee of the U.S. Post Office in Zearing, Illinois, whose initials are Ed Grabill.

"The article in the February issue of the 'News' on Noise Generators is very interesting. I would take exception to some of the statements regarding signal generators, as I do not have the troubles some of the other fellows do in standardizing different generators."

From Alice Bourke, W9DXX: "Enclosed check is for my renewal to 'The News'. I'm afraid it's long overdue. (Overdue, she says! Her subscription is OK until November, 1954! - Editor)

"Old Mother Nature surely has given W9DXX a workout, so far this year! Early in January, ice storms played havoc with my 10 and 20-meter beams, but - thank goodness - they did not come down.

"About 2AM, January 21st, I was awakened by a terrible crash, and concluded that another of my lovely old trees had fallen onto the roof. I went back to sleep, because I planned to sit up all the next night, running up the highest DX score in the 2-meter sweepstakes.

"When I ran the shades up, next morning, there was no fallen tree, but my peachy 16-element 2-meter beam was sprawled out on the turf!

"Since then, I haven't been able to listen in on two, and I'll have to wait until the weather moderates before I can get back on the band. I'm sorry, because I miss the gang!"

"Then, during another storm, I slipped on the icy driveway and broke 3 ribs. I'm thinking of toting a half dozen of rabbits feet and a couple of horseshoes as regular equipment, from now on! However, my slats are OK again, and I really believe I never felt so well in my life!"

"My present ambition is to get back to where I used-to-was. So, the instant that 2-meter beam goes up, you will hear me! Needless to say, Two is still my favorite band. Best wishes to the gang!"

* * *

TELL YOUR FRIENDS ABOUT "THE VHF NEWS"

THE HILVERSUM, HOLLAND, REPORT

By: Rene' Voltman

The only surplus v.h.f. gear that is available in Holland is the SCR-522. Any information that you fellows in the U.S. can pass along to us Dutch v.h.f. men will be appreciated. Especially, we want circuit information. The parts situation is much better, now, than 2 years ago, when the Midwest VHF Club package of radio tubes and parts was very welcome.

For 420 Mc., tubes are hard to get, although with an 832 tripler, we can reach the band. The main things that are hard to get are silicon crystals, LN21/LN23, for mixers in the 420 Mc. converters. Good ceramic condensers, like Hi-Kaps, and small variable condensers are also needed. (Ed. Note: If you can send some of this material to Holland, address it to Rene Voltman, Hazenstraat 44, Hilversum, Holland. Mark the package "Used Radio Parts" and insure it for only \$2.)

420 Mc. activity in Holland is limited to a few enthusiasts such as PAØZQ, PAØLU, PAØVHF, PAØUHF, PAØPN, PAØAD, PAØPAX, PAØIK, PAØJW and PAØUW, of which group PAØZQ and PAØLU are ready with home-built converters and 832 triplers. The antenna polarization is horizontal, as it is in England, on 420 Mcs. The receiver for 420 Mcs. presents the greatest problem.

PAØPN plans 420 Mcs. operation, and he would like to cross the Channel to G6DH. Uncle Piet is the ham who first crossed this path on 58.5 Mcs., before World War II, and on 144 Mcs. in September, 1948.

The big v.h.f. men in Europe are: F8OL, France; ON4FG, Belgium; SM5AV, Sweden; OH2OK, Finland.

* * *

"THANKS TO W5JTI" . . .

For your information, we picked up the information about "The VHF News" from Tim Quinn, W5JTI, Jackson, Miss., who is a real promoter of your magazine. Our friend, Crofts, for whom a subscription is enclosed, is W8EMH. The writer hopes to have a W8- call, soon. — W. S. Karr, Lansing, Mich.

* * *

MOVING? PLEASE SEND YOUR NEW QTH! TXN.

TWO-METER TOPICS IN TEXAS

By: John N. Naff

On Saturday night, February 25, we had a good opening into Baton Rouge and New Orleans. W5DSB QIO and QME, Beaumont, worked W5MKP and W5GIX, of Baton Rouge, and W5MXJ and W5EM, of New Orleans.

W5MKP came through like a local. W5JBW, also worked, came in very well. The band seemed dead to the west, however. The next morning, February 26, W5DSB worked W5IRP, Houston, and signed off for church. W5QIO worked W5FBT in Baytown, took time out for breakfast, and came back to work W5DVV and BDT, Austin, W5ONS, Victoria, and W5JLY, San Antonio. This is a sample of some of that early morning DX, between 8 and 9 AM.

W5DDJ is heard very regularly, generally with good signal strength. He finally worked W5MKP, Baton Rouge, but lost him. DDJ has been heard quite often in Baton Rouge, but — because of receiver troubles — DDJ has not been able to read W5MKP except on unusual occasions. He plans to improve his receiving set-up.

W5QIO has a new 16-element beam up, as does W5SM, who is now putting more time in on Two. Worden says there is just no comparing the 5 element against the new 16-element job.

W5OIP/mobile was worked while he was in Beaumont.

On March 6th, the band was open to the west.

W5QE has been getting good results with his 6-in-line horizontal. W5ENH, Port Arthur, has his beam horizontal. ENH and PJK are the most active Port Arthur stations. W5BCF and FCD get on, on Tuesday nights.

W5KWA has his 829B final on 2, using a Collins modulator. It works fine. W5BHO and FSC, Houston, have been on with horizontal beams.

Six meter activity has been very low. There have been no band openings in this area that I know of. On March 18, W5JBW DSB IYG and QIO worked each other on ground wave.

* * *

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Quad

HOURS—DAILY 9 A. M. TO 5 P. M.
ELECTRICAL SUPPLY, INC.

AMATEUR AND AIRCRAFT RADIO EQUIPMENT—X-RAY—MEDICAL, INDUSTRIAL AND SHOE FITTER SERVICE

TELEPHONE
A R MITAGE 6-8809
T-85/APT-5, RADAR JAMMING TRANSMITTER.



BRAND NEW, in wood box, ea..... \$55.00

RT-7/APN-1 RADAR ALTIMETER



418 to 462 MC
FM, continuously
variable, receiver-
transmitter. Has 4
12SH7, 3 12SJ7,
2 6H6, 1 VR-150,
2 955 and 2 9004
tubes; 24v dynamotor; precision resistors; tech man-
ual, etc. BRAND NEW, each \$10.00

BC-605, INTERPHONE AMPLIFIER



Includes 2 1619 tubes, input and output
transformers, on-off switch, volume control, jacks, schematic, less
dynamotor. In metal case 6½" x 12½"
x 11". BRAND NEW, each \$4.00

T-109, BRITISH RECEIVER AND TRANSMITTER.

Includes Transmitter T-1083, with all tubes, coil sets
to cover 136 to 500 KC, 3 to 6, 6 to 10 and 10 to 15
MC; MOPA for CW emission only; receiver with all
tubes, coil sets to cover 136 KC to 18 MC; spare
tubes; carrying case; dynamotor; battery (not guar-
anteed because of age); wet cell; tuning meters on
transmitter; etc. Too late for pictures.

BRAND NEW, 230 lbs. \$55.00

SW-225, ANTENNA SWITCH



3PDT, heavy duty, knife switch.
Large ceramic stand-offs, on
black bakelite base. Use to
switch or ground antennas.

BRAND NEW, each \$1.50

BC-366, INTERPHONE JACK BOX



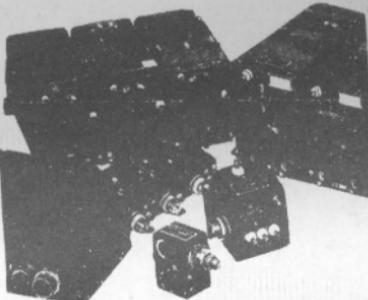
Has volume control, 5 position
switch, knobs, jacks, etc. Metal
case 4½" x 3½" x 2½".

BRAND NEW, ea. 39c, 10 - \$3.50

BC-709, INTERPHONE AMPLIFIER.

Light weight, portable, for use with 2 flash-light
cells, and 67½ battery. With 3S4, input and out-
put transformers, jacks, etc. Uses T-17 mike, and
HS-23 headphones. In metal case 8" x 5" x 2½",
shock mounted. Less batteries, BRAND NEW \$2.25

1650 N. DAMEN AVE.
CHICAGO 47, ILL.



274-N COMMAND EQUIPMENT.

Complete set. USED, EXCELLENT \$45.00
Consists of BC-453, 454, 455, 456, 457, 458, 442A,
450A, 451A, 3 DM-32A, DM-33A, FT-220A, and
FT-226, and all necessary plugs. While USED, this
equipment is in beautiful condition, can hardly be
told from NEW, and includes all tubes. Description
of each unit follows:

BC-453, 190 to 550 KC Receiver. The famous
"Q-Ser". With all tubes, less dynamotor. USED,
excellent \$12.50

BC-454, 3 to 6 MC Receiver. NEW \$7.50
USED, \$5.95, USED, less dial \$4.50

BC-455, 6 to 9 MC. Receiver, USED \$7.95

BC-456, Modulator, with tubes, less dynamotor.
NEW \$3.00 USED \$2.00

BC-457, 4 to 5.3 MC Transmitter. USED, with
crystal and tubes, USED \$5.95

BC-458, 5.3 to MC transmitter, NEW \$7.95
USED with crystal and tubes \$5.95

BC-442, Antenna relay, with meter, vacuum con-
denser. NEW \$2.50 USED \$1.75

BC-450A, control box for 3 receivers. Has 3 each
volume controls; CW-OFF MCW switches; A-B
switches; dials; jacks; etc. USED, excellent \$1.10

BC-496, as above for 2 receivers. BRAND NEW \$1.00

BC-451, control box for transmitters. Has TONE-
CW-MCW switch; ON-OFF switch; 4 position, selector
switch; jacks and test key. USED, excellent ea. 50c

DM-32A, 24v DC receiver dynamotor. 250v 60 MA
DC output, USED each 59c

FT-220, rack for 3 receivers, USED 79c

FT-221, mount for FT-221, USED 50c

FT-226, rack for 2 transmitter, NEW 98c

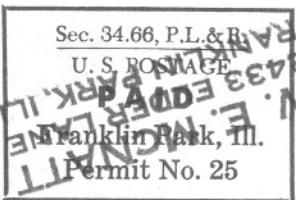
FT-234, rack for 1 transmitter, USED 98c

FT-222, mount for BC-450, USED 25c

PL-154A, plug, NEW 35c each, all other 274-N
plugs, US\$5, choice each 25c

THE VHF NEWS

Bill McNatt, W9NFK
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