

PACK RATS CHEESE BITS

VOLUME III

W3CCX

NUMBER 4

MT. AIRY V.H.F. RADIO CLUB, INC., PHILA., PA.
(50.2, 144.2 and 220.05 MC.)

(Meeting notices on last page) JULY 1960

SECOND 6 METER HIDDEN XMITTER HUNT

By W3SAO

(sub-titles)

"IS MY FACE RED" by W3CL

and

"HA, HA, HA." by "The Unholy Three"

The second 6 meter transmitter hunt was held on Saturday, June 4th, with the following comments and results.

THE HARES:-W3KKN, W3HKZ and K3HWZ (the unholy three)

THE HOUNDS:-Officially logged in;

DRIVER

CREW

W3CL
W3BVR
W3CPT
W3AJF
W3HFY*
W3TYK*
W3HAB
K3DXC*
K3IUU
W3RZU
K3BPP
K3AUH*

W2AXU & W3AYG
W3SAO
(Lonesome Money Bags)
" Horace
W2KFC* and K3ECF*
W3SMP*, K3GQJ and K3EOD
Junior Op., Jimmy
(Lonesome Mel)
K3BHK
W3NKD
K3IHA*
K3GQZ

} All with W3CL

* indicates non-members

At the starting point, Acme Parking Lot, Warminster, Pa. - - Rain, Rain, lots of Rain.

The first one to hear the signal on the parking lot was W3HFY, Hal, who was followed onto the lot by the police. (Probably thought we were nuts.)

All hunters were told to leave the parking lot as there was no penalty for not hearing the signal due to the rain.

AFTER TWO HOURS OF HUNTING:

W3HFY was trapped by reflected signals off of water towers in Glenside.
W3CL and W3AJF kept riding up and down Dreshertown Road.
W3BVR and W3SAO lost sight of the convoy.
K3DXC and W3RZU met each other at Standard Pressed Steel on Jenkintown Road.
The other crews got lost in the Boon-Docks

W3BVR and W3SAO stopped at the QTH of W3KKN and asked Bert to let us know where the "Hares" were as we had no receiver, and were told to wait two minutes until the end of the hunt. At 3:00 P.M., the "Silver Tongued Orator", W3KKN said, "Well Fellows it is now 3:00 P.M. and the hunt is over. We are located in the Crawl Space under the QTH of W3CL."

Was W3CL's face red and blood pressure up to top reading; 40 over 9.

Prizes were awarded to the following;

W3HFY- a meter for being the first to hear the signal
K3DXC- a meter for going passed QTH and asking XYL of W3CL if hidden transmitter was in the house, 2 minutes after the end of hunt,

(Cont'd page 2)

(XMITTER HUNT cont'd)

W3CL's XYL didn't lie to Mel, as the transmitter was not in the house, but under it.

We wish to thank the committee for a job well done. They spent two hours in a space only 4 feet high like the Rats they are.

Thank's to the XYL'S of W3CL and W3KKN, who are the best Rats of all and the best secret keepers of the "Pack Rats".

We "Hounds" just are not Blood Hounds, all we can find is Cheese.

We will get the unholy three some day and somewhere.

The Frustrated Hound,
W3SAD

SIDE COMMENTS HEARD BY MOTHER RAT

Since the Unholy Three are all running for office, they will be blackballed. (As you will see later; they were not.)

A report on the happenings at the QTH of W3CL before the Hunt; Sylvia, XYL of Harry, "What kind of sandwiches do you want? Do you want me to put lettuce on them? Can't I go along on the hunt, I don't need all that fancy equipment, I can smell the transmitter." (Of course Harry was going to kill her when he got home.

Harry to Ernie: "When did you case the house?" Ernie to Harry: "You caught me on the meeting night and I told you I came down to take you to the meeting."

(Mother Rat's Comments) They are all Gluttons for punishment as they can't wait for the next one and the same committee will be in charge as no one found it.

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V. President - Lloyd Sherman W3COY
Sec'y. Charles Greenwood W3GOW
Treas. Tom Donnelly W3VCE

MEETINGS: EACH THIRD WEDNESDAY
WEST OAK LANE JEWISH COMMUNITY CENTER, SEDGWICK & THOURON STREETS, MT. AIRY, PHILA., PA. 8:30 P.M.

CLUB CALL: W3CCX TRUSTEE
W3FOZ, CHARLES KOELSCH

PRESIDENT: W3CL, HARRY B. STEIN

VICE-PRES. W3HKZ, ED. KUSHNER

MONDAY NETS: 144.2 - 8:00 P.M.
50.2 - 9:00 P.M.
220.05 - 10:00 P.M.

Let's put first things first.

It seems that I am bound to get K3EGP, Ralph, mixed in with the Pack Rats; First I made him Vice-President of the Bucks County Radio Club, when he is the President; but I used his call and the right name for the Pack Rat that passed his General. The item should have read; K3EPB, Howard is now a General in the Pack Rats.

Sorry, Ralph, but at least we did promote you without your even taking the test.

I'm a B-A-D girl.

NEW OFFICERS OF OUR NEIGHBORING CLUBS

NORTH PENN

President - Melvin R. Jones W3OHJ
V. President - Robert E. Guest W3JSA
Secretary - Carolyn Currens W3GTC
Treasurer - Edward A. Skilton W3NCW

DEADLINE FOR ITEMS IN "CHEESE BITS"

THE 15th OF THE MONTH

FLASH !! FLASH !!

American Radio Relay League
38 LaSalle Road,
West Hartford, 7, Conn.

June 3, 1960

Dear "Mother Rat" (what a handle!)

Now it's official: SJRA first, Mt. Airy Second, 6-Meter Club of Chicago, third, Dayton Amateur Radio Assn. fourth. All four top clubs exceeded SJRA's winning score of 1959, and Mt. Airy gave SJRA the closest squeak (appropriate for Pack-Rats) that they have had in a long time.*

Congratulations on the fine turnout and overall club effort, and keep up the good work.

73,

Ed, W1HDQ

V.H.F. Editor, QST

*VHF Sweepstakes final, of course. Full Story in July QST.

K.U.I.

By W3HKZ, Ed.

In recent years no one has given much thought to improving AM. Most thought, time and money has gone into SSB, PSB, PM, FM, TV, etc. Now a major manufacturer has come up with a commercial transmitter for AM broadcast work with a PA efficiency of 90%! Up to now the most one could expect from a good class C stage was 70% efficiency. RCA now has a high-efficiency plate modulated power amplifier using a single tube at 90 to 92% plate power conversion. The circuit arrangement is very similar to a conventional class C amplifier except for presence of two resonators, one in plate and one in cathode of the final. In fact, the new high-efficiency stage behaves so much like conventional class C stage that with the resonator shorted or mis-tuned, the PA tube returns from the high-efficiency to the conventional class C operation.

In both systems the angle of the tube current conduction is restricted to that portion of the cycle wherein the instantaneous plate current is high and the instantaneous plate voltage low, corresponding to a low anode dissipation at a relatively high-power output. In the class C operation, however, the waveform is sinusoidal and is substantially rounded off. Therefore, a large portion of the power is lost in the anode, resulting in an average efficiency of about 70%. The new system provides corrective means for maintaining a flat waveform near the peak, resulting in 90% average plate efficiency.

The waveshaping is done by 2 LC parallel resonant circuits, one located in the plate and the other in the cathode circuit of the PA tube. Both resonators are adjusted to resonate at the third harmonic of the carrier frequency.

When the PA tube is driven, the harmonic component of the grid input power sets up and maintains circulating current within each resonator. Since the resonator should be designed to store high VA, the total voltage supply at the plate is composed of the usual D-C supply and the superimposed oscillatory potential equal to the voltage build-up across the resonator. This oscillatory voltage, being at the 3rd harmonic, vectorially adds twice to, and subtracts once from the fundamental, thus producing a flat top waveform. When the cathode resonator is adjusted to resonance at the 3rd harmonic, the instantaneous grid-to-cathode potential modifies the cathode emission to approximate a rectangular pulse.

In a transmitter, adjustment of the plate resonator improves the efficiency by 6 to 8%. Subsequent adjustment of the cathode resonator improves the

efficiency by an average total of 20% above conventional class C operation.

The energy stored within the resonator modifies the instantaneous current-voltage waveform of the conventional class C amplifier to reduce its amplitude and broaden the top. For the same power output, this means not only reduction in the plate dissipation, but also considerable reduction in peak-plate to plate-leak grid current and operation at a much lower cathode emission.

Upon mistuning the harmonic resonator, the PA returns from the high-efficiency to the conventional class C operation. Except for the loss in efficiency of the PA, the circuit neutralization, tank tuning, the stage loading remains the same for both types of operation. The initial tune up consists of the resonator adjustment to obtain the maximum power output as indicated by the line or the antenna current meter. The plate resonator chiefly contributes toward the power output, while the cathode resonator in addition to increasing power output to some extent increases the power input.

With the system properly in operation, tuning of the output tank is similar to tuning of the conventional class C amplifier, except the tuning is broader. On either side of the tuning-dip the plate current rise is more gradual, the power output slightly rising on one side and falling on the other side. This self-adjusting property would provide additional stability in the case of accidental mistuning or mistuning due to a reactive load.

It may make the average ham transmitter too complex to tune the resonators every time frequency is shifted. Possibly the best thing to do is to tune the resonators to 50.2, 144.2, 221 or 432 and leave them alone. Of course maximum efficiency will only be at the above frequencies and decreases as frequency is moved away, but the only thing that can happen is to return to conventional class C operation. What happens to the radiated 3rd harmonic is not ascertained at this time. If anyone has any comments, please send them to "Cheese Bits."

The feasibility of long-range space communications has been established by the initial success of the 150-watt VHF transmitter in the Pioneer V spacecraft, although possible deterioration of the nickel-cadmium batteries powering the unit may soon put an end to transmission.

The transmitter, which began to send data to the earth from a distance of 8 million miles, was to have battery power for about 3 minutes of operation every 8 hours. But transmissions

are now averaging less than 90 seconds.

When the weaker Pioneer V transmitter-- a 5 watt unit--began to reach its transmission limit at about 8 millioq miles from the earth, 58 days after the spacecraft was launched, the 150 watt unit was turned on,

The transmitter was commended to begin operations by a signal from the 250 foot radio telescope at Jodrell Bank, England, which started the first of a chain of events. First a limited amount of power was put on the transmitter's filaments to pre-heat them for about 1 minute. Then by ground command full filament voltage was applied. After 48 hours the transmitter was completely energized by ground command and sent its first signal to earth - a data transmission lasting 89 seconds.

Weighing 5 pounds, the transmitter is powered by 28 nickel-cadium batteries charged by 4800 solar cells carried on the space crafts' paddle wheels. It is hoped that Pioneer V would send signals up to distances of 60 million miles from earth.

Paid a visit to A G Radio to pick up a part for Frankies Rotator. While there we visited the Ham Shack and spent a while with John Lopes, W3GJF. There were about five youngsters taking code lessons. Did you know that John's class has turned out more than 500 hams since 1955? Some General and some Novice.& Technician.

Speaking of Novices, John told us the following true story.

To play it safe we won't use any calls.

A Novice visited the shack of a 45 word per-minute ham. (after much begging) Upon arriving at the QTH he asked to hear what was going on. The 45 worder, who has worked over 100 countries, flipped the rig on and sent a CQ at 35 and Yugoslavia answered and called him by his handle, "Harry" and then more countries answered his call. After quite sometime of listening to foreign countries, the Novice asked, "Can't you get 80 meters; the Novice Band?"

Being, one less Novice, I presume.

AMATEUR RADIO MISSIONARY SERVICE

On Sunday, June 5th, K3GFF, George, and other members of ARMS hooked up several Churches and gave a demonstration on the operation of Amateur Radio and how messages are handled.

As a reminder; anyone having a message to send to a missioner, can contact George, and he will see that it is sent, if at all possible. Any answer received will be forwarded to the sender.

Hi Helen & Frankie:

How is everything back home? Am still not feeling too good. Still have that lousy head cold. It seems the Docs can't stop it.

Talked with Ellis via phone patch on 20 meters the other night.

My regards to all the boys at the club,

73,
Ralph.

(Ralph, K3CIV, is in Mission Kansas for three months. Hope you shake that cold soon.)

Did you know that K3BRJ, Jack, one of the Pack Rats, is a member of the Pennsylvania Chamber of Commerce? He does quite a bit of traveling for them and is very active in Air Pollution. That is why we do not see him so often at the meetings.

Howard, K3EPB, is not the only one to move up in rank. Our Jr. OP. has been promoted to Sargeant in the vast army of the Safety Patrol.

W3CFS, Ed, had the shingles and was off from work for two weeks. He is now better and back to work.

Two of our rats have been busy knowing away at wood and came up with consoles for their rigs. Congratulations Bill, W3OZP, and Jim, W3KXH.

We paid a visit to Karl, W3ASD, on May 28th. We had a very pleasant time, despite the rain and the fact that Frankie got the directions mixed up and we had to backtrack from Dover. The visit was a very innocent one, but Grandpop, W2EIF, "The Wetback", stated that Frankie stole Karl's chickens, and Karl, "The Old Fat Boy", now known as "Bluebeard" because of all his "tomatoes", went right along with him. Alan, W3OR, whether you know it or not, you are also involved in it. Grandpop said that when we stopped to see you on the way home, you stated that our car was full of chicken feathers. (P.S. Al, we enjoyed our short stay with you.)

Just received a call from Ray, W3ZRR, and he is under the weather. Sure didn't sound like him.

Come on, Ray, take it easy and let's get that blood pressure up.

PACK RATS PICNIC, AUGUST 14th.
FORT WASHINGTON STATE PARK, FLOURTOWN, PA.

SYMPATHY

It is with regret, and deep sympathy that we announce the passing of the XYL of K3EGP, Ralph, KN3LXL, Ethel.

All we can say is; May God, in His understanding, place His hand of comfort on Ralph and his children.

REPRINTS FROM E.I., JULY 1960

"ARE YOU A LEGAL HAM?"

By Howard S. Pyle, W7DE

Without knowing it, you may be asking for an FCC "pink slip". Here's a checklist reminder for hams.

Fortunately, the FCC has had to deal with a remarkably small percentage of violators in proportion to the total ham population, now over the 200,000 mark.. Amateurs have done a fine job of self-policing through a large force of volunteer "official observer" amateur stations. But in view of the sharp rise in the FCC's "violation curve", due primarily to Citizens Banders with little technical knowledge and a vague notion of the rules and regulations, radio stations in general may come in for more careful scrutiny. Perhaps now would be a good time to run a constructively critical eye over our regular ham bands, both from the standpoint of legal equipment compliance and operating procedures.

Where can you go wrong? Here's a partial checklist:

- input power to final amplifier
- Key clicks
- Sideband splatter
- Off-frequency operation
- Log-keeping
- Crystal control (Novice only)
- overmodulation
- Harmonic radiation
- Conelrad equipment
- Independent frequency measurement

Frequency measuring: FCC requires frequency measuring gear to be independent of the transmitter crystal or VFO dial. A stable, accurately calibrated receiver may fulfill this requirement, but is your VFO dial and receiver dial calibration accurate, particularly near the edge of a ham band? Receivers do drift, and some combinations of control settings can throw the calibration off slightly, as can parallax in reading a recessed dial. Most hams would not be without a well-built, accurately calibrated grid dip meter, which may also be used as an absorption wavemeter. Proper use of this meter is insurance against receiving a "pink slip."

Off-frequency operation should be no problem for the Novice and other crystal-controlled stations, providing the crystals are of good quality and

not crowding the band edges too closely. Even the best of them will drift slightly at times. Check your crystal frequency with your grid dip meter or wavemeter. Check your receiver with WWV or WWVH, then transfer the calibration to your grid dip meter. Your handbooks will tell you how, as well instruction sheets that come with the meters. You can calibrate your VFO dial from the grid dip meter in the same manner.

Input power: You have a milliammeter in your final tube plate supply circuit, but how are you going to figure your input in watts without an accurate voltmeter? A voltmeter is rarely an integral part of a ham transmitter. A good portable volt-ohm-milliammeter should most certainly be part of your shop equipment as you will use it many times for all sorts of measurements. There is little likelihood you will have to measure the plate voltage more than once because it remains relatively constant while you vary plate current.

Key clicks: Perhaps you've been told that they are "very slight". That's not good enough. They don't belong there at all. Good quality factory-built transmitters generally have adequate built-in key click filters, but many "home brews" are without them. A key click filter can be built in a few minutes by wiring a resistor and capacitor across the key leads. If there are still clicks, a choke or two may be added.

Overmodulation: The limit is 100 percent. For voice frequencies you can go down to 80 percent and still retain excellent voice quality; at 95 percent you'll still be legal. But 101% won't be! Overmodulation will cause harmonic distortion and increase the channel width. This latter may cause interference with neighboring channels. The best method of seeking out and checking overmodulation is with an oscilloscope, although less expensive indicators may be built from circuits shown in the handbooks. Sideband splatter goes hand-in-hand with overmodulation. If you cure one, you'll probably lick the other.

Harmonics and parasitic radiation: Both are equally bad. Get after them with your grid dip meter.

Those are the most frequent violations which can and do draw FCC citations for equipment malfunctions. Probably the most neglected requirement, however, is Conelrad monitoring. This is understandable, perhaps, since Conelrad contributes nothing to your transmission or reception. But it is a legal requirement and that means you must have some indication in your ham shack which will inform you when a broadcast station goes off the air for a Conelrad alert. There are a number of very satisfactory Conelrad alarm

receivers on the market at nominal cost. An old broadcast receiver will legally serve if you don't mind the music and voice background. You can, if you prefer, keep the volume w-a-y down if you'll remember to turn it up at least every ten minutes to make sure that the station is still on the air. Also, there are commercially available electric clock-timers which sound an alarm every ten minutes to remind you to identify your station. These can serve a dual purpose as both an identifier reminder as well as Conelrad check. Perhaps you'd rather have a silent visual indicator? It's a simple matter to install an S-meter in an old broadcast receiver for a visual indication. This satisfies the requirement if you watch it! Add a relay and alarm buzzer if you like and have that much more protection.

That just about catches the major equipment angles. Recently we visited 30 ham shacks in several states. Seven or eight were Novice stations, the others General. We discussed violations and made a number of informal checks. We did not find a single station that was not violating one or more of the rules outlined above! And about 95% of these were doing so unknowingly!

Now how about your operating violations. Do you keep an accurate, up-to-date log with all of the required entries? Is it legible? You need only follow the simple instructions printed in almost every published log book. If you make your own log forms, the handbooks will specify what must be entered. Since the log book comprises a station 'record', you are required by law to preserve it intact for one year from the date of the last entry. The same goes for any messages you may handle. In reviewing station logs we found that two hams had scrawled entries that they themselves could not read!

Every ham should take close, critical and frequent looks at his own shack. This form of self-criticism should become a habit. Inspections definitely should be made whenever we change transmitters, increase power, add a modulator, or so anything which might affect the legality of our emission.

SPOTLIGHT ON:

2 - METERS and UP

By C. M. Stanbury II

A band where all hams can get together, some TV experimentations in the upper reaches, and a future in space.

Two meters is called the "real" VHF band because conditions found here closely approximate those found generally on VHF. The band (144-148 mc) lies almost in the center of the 30-

300 mc range and like sox meter, it is most useful for short range communication, with one notable exception which we'll cover later. Antennas are even smaller than those for six meters and almost any directional array may be chosen, even by the mobile operator. This is a happy situation familiar to other commercial and public service VHF users.

Reflection of two meter band signals via the F2 layer is extremely rare. Sporadic-E layer propagation is uncommon, but certainly not rare. At least a couple such openings occur every summer. Normal atmospheric bending, a relatively important factor on the six meter band, is less effective here, but during the summer this is more than compensated for by "ducting," VHF's number one DX medium.

Ducting differs considerably from ionospheric propagation. In ionospheric propagation, the radio waves are literally reflected. This is also true of the Sporadic-E layer. But ducting occurs so near the earth that it may be considered a "waveguide" effect. As you may know, a waveguide (generally a hollow piece of "plumbing" which roughly resembles a ventilation system duct), can carry wavelengths no greater than twice its width. In ducting, the earth itself usually forms the lower boundry and an abrupt change in atmospheric conditions the upper limit. This upper limit is formed during an "inversion," when the temperature increases with height (the opposite is normal), and/or when there is an unusually sharp drop in the water vapor content of the air. The two meteorological phenomena usually go together. An inversion will often appear on a clear, calm summer night, a night without turbulence to break up the desired duct formation. It can also occur when warm and cold air masses meet to form a front. Ducting is so common in the summer and early autumn as to almost approach the reliable. Communications beyond the horizon is even possible during the daytime at this period of the year.

Again comparing the two meter band with six meters, there is very little long range DX during winter and spring and reliable working distances are somewhat shorter. But for medium-range DX and fairly reliable summer-time coverage, 144-148 mc is somewhat superior to 50mc. Just how much superior depends upon climate and terrain. Diffraction might carry a 50 mc signal around a mountain. It probably wouldn't do the same on this band.

Every kind of frequency modulation for CW or phone transmissions, any type of amplitude modulation, including facsimile (A4), but not television (A5) is permitted between

2 METERS and UP (cont'd)

144-148 mc and in the 220-225 mc bands. While the dividing line between facsimile and TV is not very clear cut, a moving (and therefore live) picture may not be transmitted via A4.

The Novice is permitted to operate on 145-147 mc, smack in the middle of the band. What's more, he may use any of the above emissions except facsimile. This is the only ham band on which the Novice may get away from pounding the key, but along with the many advantages, there is one major disadvantage for him.

Construction experience is, of course, one of the plus features. The beginner may build for himself anything from a single-sideband exciter to the most complicated F2 radioteletype setup. But there probably won't be many Novice RTTY calls.

Next, FM operations. No extra power for modulation is needed and therefore FM phone almost approaches the economy of a CW transmitter. If he's going to use phone, FM is the most economical method, from a power standpoint.

However, phone operations sidestep the Novice's number one problem—the 13 wpm code test when his Novice call expires. This inescapable challenge can be met in just one way—practice and more practice. Obviously, if too much time is spent on voice work, the General Class Exam will be flunked.

Last month we outlined a way out—the Technician license. This requires General Class technical know-how, but only 5 wpm. On two meters, Technician hams are allocated the same frequencies as the Novice, 145-147 mc, but with full power, in other words anything up to a kilowatt. As we mentioned before, the Technician Class was created for no such purpose, but rather for those interested in the technical side of radio, particularly VHF and UHF propagation. The two meter allocation had an additional motivation. This is the only band on which all amateurs may operate, have contact, exchange ideas and understand each other's varying viewpoints.

Chances are pretty good the average Novice has not yet made up his mind which phase of ham radio most interests him. Through two meter QSO's, he will get to know a little more about message handling, discuss sunspots, tropospheric inversions, etc. Perhaps a bit of the propagation-conscious pioneer will rub off.

AND UP

This represents the last article in this current series, but before signing off we want to outline those bands above two meters. The first of these is also within the VHF spectrum, just 4 mc above TV channel 13 between

220 and 225 mc. Although not as active as two and six meters, it is nevertheless used extensively for communications purposes. Sporadic-E layer reflection this high in the radio spectrum is rare, but not impossible and ducting conditions are approximately the same as found on two meters. There are three UHF ham bands, four in the SHF range and anything above 30,000 mc is open to amateurs (except the Novice). Primarily these are experimental frequencies for the ham and is where the Technician really comes into his own.

In the propagation of UHF and SHF wavelengths, the "scatter" principle, which is somewhat similar to diffraction along the irregular surface of the earth, becomes a factor in addition to ducting. Unfortunately, scatter communication equipment is costly. The signal strengths are very low and can be utilized only because noise levels are negligible on these frequencies. Incidentally, the same atmospheric conditions which make scatterwave reception possible also create absorption problems, and absorption is a serious obstacle to communications, especially above 30,000 mc.

Today VHF and UHF DX is a very limited proposition, but for some it is just as fascinating as high frequency work—even though in actual miles it is still limited. That's today. Tomorrow these bands, free from the ionospheric curtain, will be the DX bands. We are, of course, referring to the time when amateurs extend their activities into space. Sounds like science fiction? Well, what you might call a Buck Rogers day dream has already become reality. A few hams have succeeded in bouncing two meter signals off the moon and their work has been verified by the U.S. Government. As reported in the June issue, two hams communicated via the ionized trails of Sputnik III and Explorer VII. Who can say what's next?

WANTED !!

Any information leading to the apprehension of the person who transmitted on 195.6 mc on the evening of Monday June 13, 1960 will be appreciated.

?

(Note) We do not know who wants this information, but if anyone has the answer they can pass it along to the editor and she will see that it is announced on the nets.

This is the first unsigned article we have received. From now on no unsigned articles will be printed. If anyone wants such information, and does not want his call mentioned, we will not mention it, but please include your call, and any answer received

Unsigned articles (Cont'd)
will be passed on to the requestee privately.

Thank you,
Helen

ANOTHER K.U.I.

By W3HKZ, Ed.

A new crystal mounting device has been developed by the Army by a Dr. Eduard Gerber, one of this country's foremost authorities on frequency control.

The new device uses temperature-sensitive bi-metal strips, or fingers, pressing against certain spots on the edge of the crystal. Each of the strips is made of two metals with different rates of expansion and contraction. Acting much like a thermostat used in home heating systems, these metal fingers apply the right amount of pressure to keep the crystal operating on frequency as the temperature fluctuates. The fingers may number one, two, three or more, depending on application.

In spite of the high degree of stability in crystals, temperature variations do tend to cause a change in the crystal vibration frequency-- or frequency drift. While crystal ovens have proved satisfactory for reducing drift in many applications, the typical oven may occupy two cubic inches or more of critical space and also consume a considerable amount of power in maintaining constant crystal temperature.

By contrast the new device can be made one tenth the size of the crystal oven, being entirely mechanical in operation, and cuts power requirements. In battery powered equipment space and weight reductions are significant, especially considering the possibility of reducing battery size and weight due to decreased power requirements.

Another benefit which may be gained from use of the bi-metal strips is extended useful life of crystals.

The heat of the ovens causes accelerated aging of crystals.

COMMENTS ON SIX AND TWO

By Smel A. Rhat

It is now official, by FCC ruling, that the first 100 Kc of the 50 Mc band is set aside for the exclusive use of the CW boys only.

The D.O. has stated that he would let a week elapse before writing out "Greetings" to sphone stations in the CW band. It sure looks like he made a mistake, because there has been a flagrant disregard of the FCC ruling as heard at this QTH. It would be well to look to our individual operation and keep a few facts in mind.

Item; 50.00 Mc is the upper frequency limit of the CW band. This should

tell you that you should allow sufficient leeway, such that the lower sideband of your transmitter will not appear below 51.00 Mc. In order to avoid this, DO NOT set your carrier lower than 50.00 Mc. or about 10 kc above 51.00 Mc.

Item: Foreign phones; Canadians, South Americans, Cubans etc., do not have to restrict operation in the first 100Kc. of the six meter band. Therefore "look before you leap"-- don't zero beat a phone signal at the low frequency end of six meters because you assume that he is in the U.S. phone band. Put a stop or a mark on your VFO to make sure that your phone signal is in the correct portion of the band.

Item: If you work a station which is operating illegally, then you put yourself in the same class as the original offender. The FCC gives a pink ticket to both;--one for illegal operation and the other for working an illegally operated station.--Don't zero beat a phone station in the 1st 100 kc to warn him, (i.e. by phone) because then you are operating illegally also. Don't contact an out of band station to warn him, unless you warn him at the same time, not to come back until in the proper band.-- It works the other way too--don't go back and thank anyone for a warning while operating out of the band, because you are then knowingly operating illegally.

Item: Remember that all contest points or sections, states etc, do not count if either station is out of the band. This can subtract from multiplier figures in any contest.

Item: Don't take crystal frequencies for granted--crystal frequency markings are not always correct. Manufacturing tolerances are ± 0.002 percent. For the best units and ± 0.005 to ± 0.01 percent for the cheaper units. This means that if you pick out a 50.01 mc rock, the actual frequency can vary between 50.005 and 50.015 mc depending on the tolerance and PROVIDED THAT YOU USE THE SAME OSCILLATOR CIRCUIT THAT WAS USED BY THE MANUFACTURER. If you are not, the frequency can vary a few more kc either way, depending on the circuit that you choose.

Item: Operating Habits--Observations on six lately have revealed that some of our operators should be taken to task.--It is common practice on six meters, to zero beat the DX stations during normal band openings. It is assumed that the other operator is in a region of six meter activity, and has picked a clear spot in the band at his location. Therefore if you are on his frequency, you are less likely to be covered up by locals in his area. "Locals" on six can be 25 or more miles away and be very strong as compared with the LF bands.--I

SMEL A RHAT (cont'd)

hasten to point out however that one should use his head for something besides a hat rack in this regard--and I am referring to the affair on six the other night when W01AE was in. It was obvious within a few minutes that he was DX on the band and a rare one at that, and that he was not working stations on his frequency. Stations from Mass. to Va. were calling him and it was possible to hear some of the stations working the fellow. It should be obvious in this case, that the smart thing to do would be to zero beat the station working the DX--after all he will be listening on that frequency--but for heaven's sake don't get on his channel and above all don't enter into any argument on the air on his frequency--you only earn the ill will and disrespect of your fellow hams and certainly earn the title of "LID" operator.

SMEL

Dear Smel:

All I've got to say is that you certainly did a lot of research to come up with the preceding article, and I am sure that all who read it, will agree with me, that the same also applies to the two meter frequencies; 147.9 to 148.

Correct me, if I am wrong, but I do believe that Teletype was used in that portion of the Two Meter band.

What has happened to "Cleo W. Hamm"? These portions of the six and two meter bands must surely open a wide source of advice for CW.

From the seriousness of your article, all I can say is that I was correct in my first assumption that "Smel A. Rhat" is our "wet back".

Also; What has happened to "ZEEK"? Surely that new handle for Frankie, "Chicken Thief" has opened up a new path of pursuance for him.

88,
Mother Rat

"WHAT ANOTHER GENERAL? WHAT IS HAPPENING TO THE PRIVATES IN OUR ARMY?"

K3BGT, Harvey, has been promoted to a General in the Army of Pack Rats.

Two in two months, K3EPB and K3BGT.

Here we have a challenge to the "Privates" in our Army. Who is next?

88

We are sorry to hear that our friend from York Road Radio Club, W3S0B, Bob was in the hospital. Glad he is now at home and coming along OK.

Did you know that W3IBH, Charlie, runs a two meter net each morning? Most of the participants are from North Jersey.

Charlie also has a new station wagon, in which he does not at present have his equipment mounted, but look for him soon on two mobile.

Through his net he has received two or three requests for flyers for our picnic.

We are sorry that W3TYX, Bud, is in ill health. Come on, Bud, let's shake it and be in the pink of health.

(Note) If you are laid up with ill health, or you are unemployed, please have someone notify the secretary or treasurer so that you will not jeopardize your membership status.

88

We have heard so many comments on the following article that was printed in the March 1960 issue, that we are doing it again for our new readers.

PLURESY

We'll begin with a box and the plural is boxes.

But the plural of ox should be oxen, not oxes.

Then one fowl is a goose but two are called geese,

Yet the plural of moose should never be meese.

You may find a lone mouse or a whole set of mice,

Yet the plural of house is houses, not hices.

If the plural of man is always called men,

Why shouldn't the plural of pan be called pen?

If I speak of a foot and you show me your feet;

And I give you a boot, would a pair be called beet?

If one is a tooth and a whole set are teeth,

Why shouldn't the plural of booth be called beeth?

Then one would be that, and three would be those,

Yet hat in the plural wouldn't be hose, And the plural of cat is cats and not cose.

We speak of a brother and also of brethern,

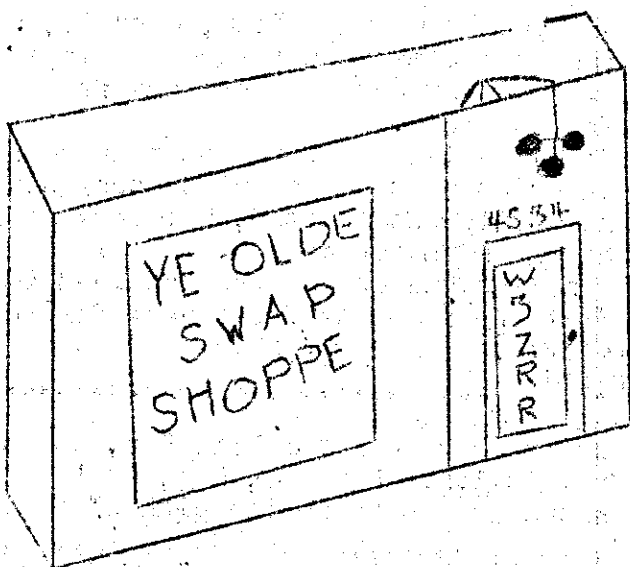
But though we say mother we never say methren.

Then the masculine pronouns are he, his and him,

But imagine the feminine she, shis, and shim.

So English, I fancy, you all will agree,

Is the funiest language you ever did see.



Send all items for Swap and Shop to
 W3ZRR, Raymond Whitehead
 4534 N. Smedley Street,
 Phila., 40, Pa.
 DA. 4-5910

BARGAINS GALORE AT "YE OLDE SWAP

SHOPPE" STORE !!!

PERUSE THE FOLLOWING ITEMS !!!

ITEM #1

FOR SALE-- 1 SR 34 AC Halicrafters, With National 2 and 6 meter VFO.
 Will accept best offer.

CONTACT -- W3OJ, Raymond Glemser
 (Since he is away for the summer, contact him at his
 place in Neshaminy, Pa.)

ITEM #2

HERE WE HAVE A LARGE SELECTION

FOR SALE -- 1 Heathkit audio generator No. AG-9A (Kit)	\$28.50
1 Heathkit RF Signal generator No. SG-8 (Kit)	15.00
1 Mobile bumper mount (Chrome plated spring)	5.00
1 6 meter converter w/power supply and IF amp. 7 - 11 meg. (out of handbook)	18.50
1 Heathkit Antenna impedance meter (factory wired)	9.00
1 Globe Hy-Bander (6 and 2 meter xmter) with speech booster (factory wired)	110.00
4 Greenly punches	each 1.00
1 Heathkit Grid Dip Meter	16.00
Heathkit Balun coils (set)	5.50
1 Vibroplex bug (deluxe) with case	9.00
1 Dow Key relay 117v input	7.50
1 Element Hy-Gain 6 meter antenna in original carton	20.00
1 Meter DX 40 0 - 150 mills, or 0 - 5 mills	6.00

CONTACT -- Fred Kempf
 1201 Stanwood Street,
 Phila., Pa.
 RA. 5-1519

ITEM #3

WANTED -- 1 power transformer, 1780 Volts C.T. @ 310 mills or
 1455 Volts C.T. @ 310 mills.

CONTACT -- K3EOD, Allen Boblitt
 8389 Langdon Street,
 Phila., 15, Pa.
 PI. 2-3312

ITEM #4

FOR SALE -- 1 Gonset #3 Communicator, purchased February 1960.
 as good as new. \$200.00

CONTACT -- K3HRD, Ed Groh
 Willet & Ashton Roads,
 Phila., Pa.
 DR. 3-8007

ITEM #5

(Will be found on next page)

"YE OLDE SWAP SHOPPE" cont'd

ITEM #5

FOR SALE -- 1 Collins 6W1 Transmitter 500 Watts input cost \$1460.00
 new. will accept \$490.00
 1 Gonset VFO 55.00
 1 Gonset Linear 50.00
 CONTACT -- W3GBD, Paul Burnie
 Oakford, Pa.

ITEM #6

FOR SALE -- Complete 6 meter mobile station. 7 mc Rcvr BC - 455
 with internation FCV-2 6 metr converter;
 Transmitter. 10 watts, crystal controlled. Final 6417.
 Antenna - Saturon 6
 4 element 10 mtr beam
 2 element 20 mtr beam
 CONTACT -- W3JFH, Larry Stillman
 403 E. Wadsworth Avenue,
 CH. 7-2883

ITEM #7

FOR SALE -- Model 2B Gonset, 6 meters, 12 volts, like new \$175.00
 CONTACT -- K3LBT, Al Obenland
 99 W. Roselyn Street,
 Phila., 20, Pa.
 HA. 4-7986

ITEM #8

FOR SALE -- Heathkit Seneca, wired and working \$150.00
 CONTACT -- W3MAT, Howard Harding
 Trevoese Heights, Pa.

(note) As you have noticed on the preceding page we finally did get the whole store. True, it is narrow, like the UN Building, but our turnover is so great that we don't need too much space.

For awhile ther, we thought that we might lose the store front, as we only had one item, but as you can see, business really picked up.

CALENDAR OF COMING EVENTS

- JULY Transmitter Hunt (no date yet)
- 13-Board Of Directors Meeting
- 20-Regular Meeting-WCAU
- 23-24- Scout Camporee Participation
- AUGUST- 14- Pack Rats Picnic, Flourtown, Pa.
- 10- Board of Directors meeting
- 17- Regular meeting - W3KKN
- 28- Bucks County Radio Club's Corn Roast, Washington's Pavilion, Washington Crossing Park, Penna.

We are also sorry to hear that K3HAF, Walt, has a torn cartledge in his knee. Hope everything clears up so that he doesn't need the operation.

Hey, Kingfish, What's the big idea?

88

We were certainly very sorry to hear that W3TYX, Bud, has been ill for over two months, recovered for a few weeks and then had a relapse.

Come on, Bud, let's shake it and get back on our feet real soon, but make sure that you are fully recovered before trying to get back in the groove.

88

Sorry to hear of the passing of the XYL of Brad Martin. Our sympathy to Brad and his family.

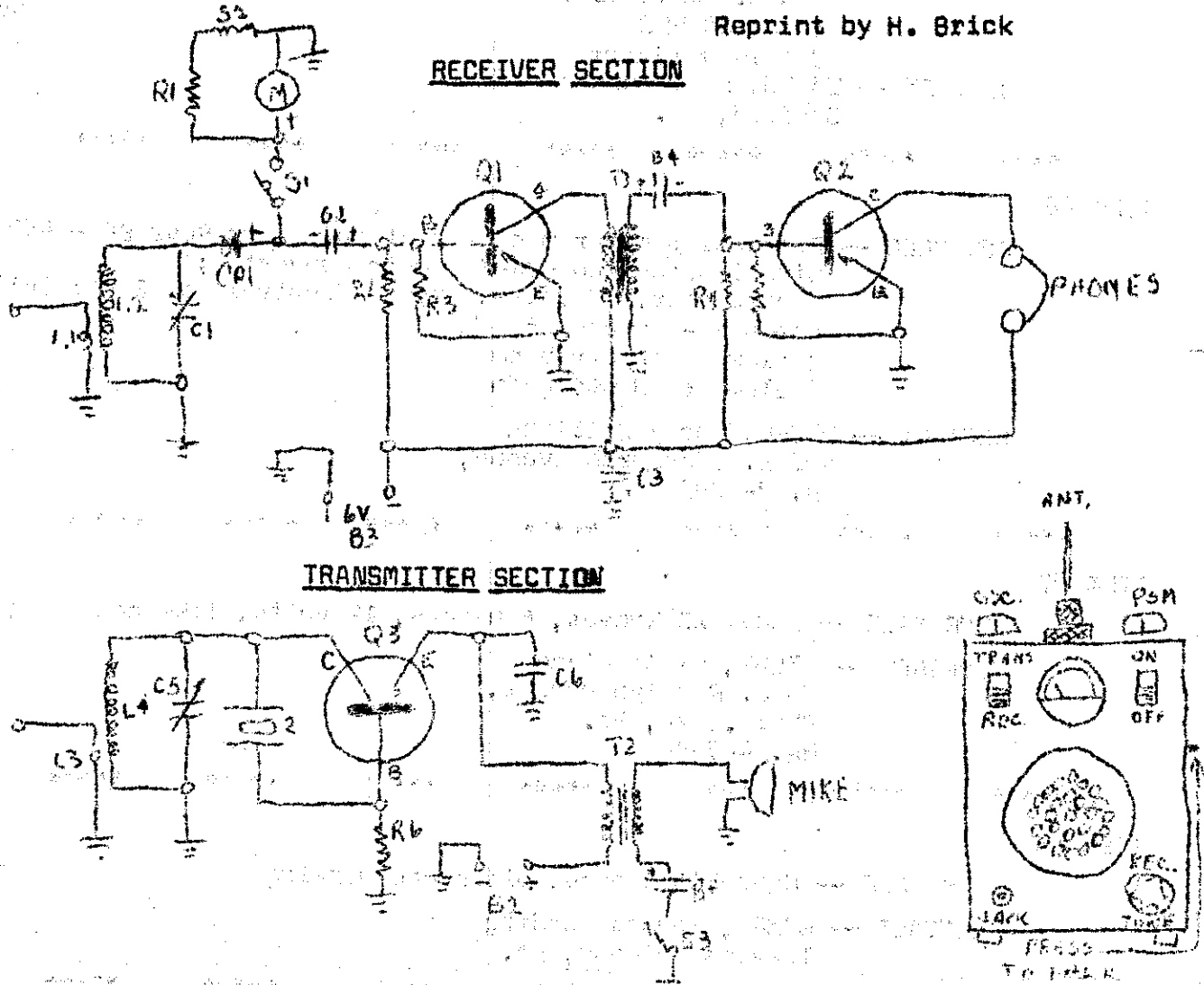
TO ALL CHICKEN FARMERS IN PERKASIE: No need to lock up the hen house as Frankie has enough hens from Del. We left Karl the roosters so that they can call, "Mr. Vincent."

Six Meter Transmitter-Receiver

Drawing by S. Weissman

Prototype by L. Rowland

Reprint by H. Brick



- | | |
|---------------------------------|----------------------------|
| Q1-2N207 Transistor | R1- Shunt on meter to X 10 |
| Q2- 2N226 Transistor | R2- 68 K |
| Q3- 2N384 Transistor | R3- 1 K |
| CR1- 1N34 Diode or equal | R4- 82 K |
| X- 50 MC crystal | R5- 22 K |
| L1- 2 turn link | R6- 270 K |
| L2- 8 turns #3003 B&W | C1- 25 MFD var. cond. |
| L3- 1 turn link | C2- 8 MFD cond. |
| L4- 7 turn #3003 B&W | C3- 50 MFD cond. |
| T1- Transformer 10 K/2K | C4- 2 MFD cond. |
| T2- Small Mic Transformer | C5- 25MMFD var. cond. |
| S1,S2- 2 pole 3 pos. switch | C6- .001 disc cond. |
| S3- Push button switch | B1- 3 V battery |
| M- 100 microamp meter (if used) | B2- 9 - 15 V battery |

 In connection with the above schematic, we would like to print the following ARRL bulletin in regards to obtaining an amateur license.

OFFICIAL BULLETIN NR 756 FROM ARRL HEADQUARTERS, WEST HARTFORD, CONN, JUNE 16, 1960.

TO ALL RADIO AMATEURS: BT

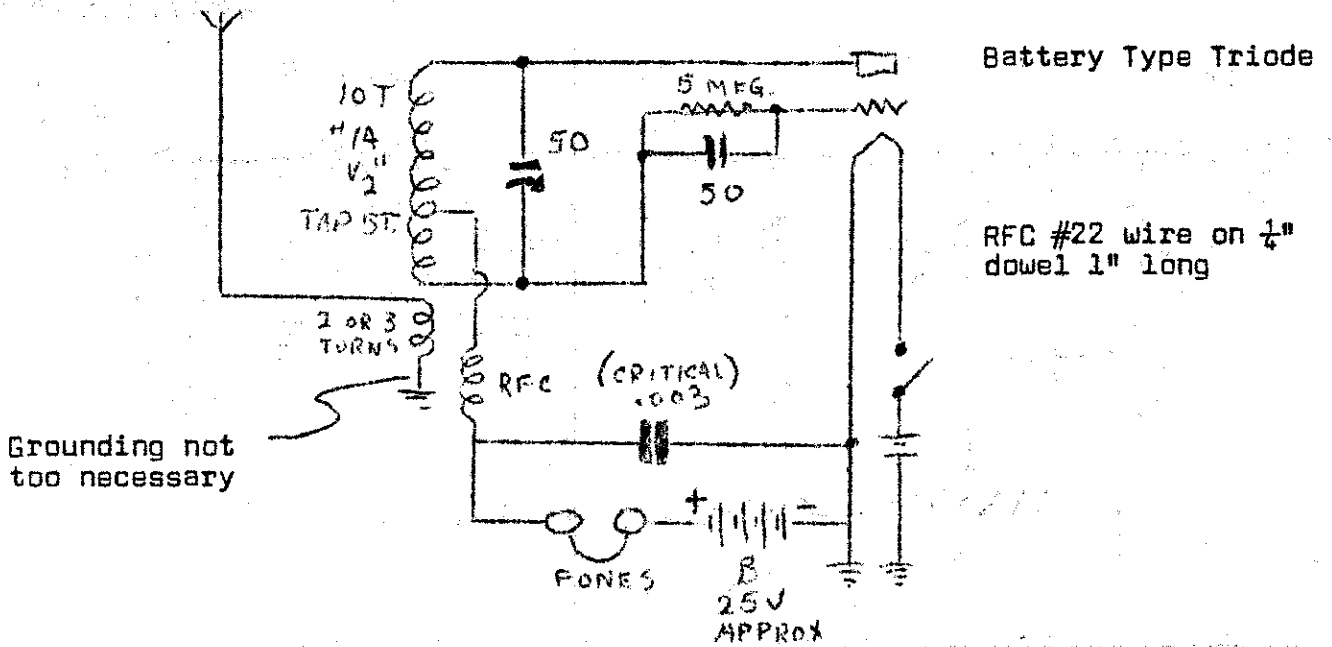
During the next few months FCC Field Offices will adopt new amateur exam procedure with separate answer sheet. Applicant will black in appropriate square to show his choice on the answer sheet which can then be mechanically graded. Diagram questions will become multiple choice also.

See July QST for detailed story.

AR

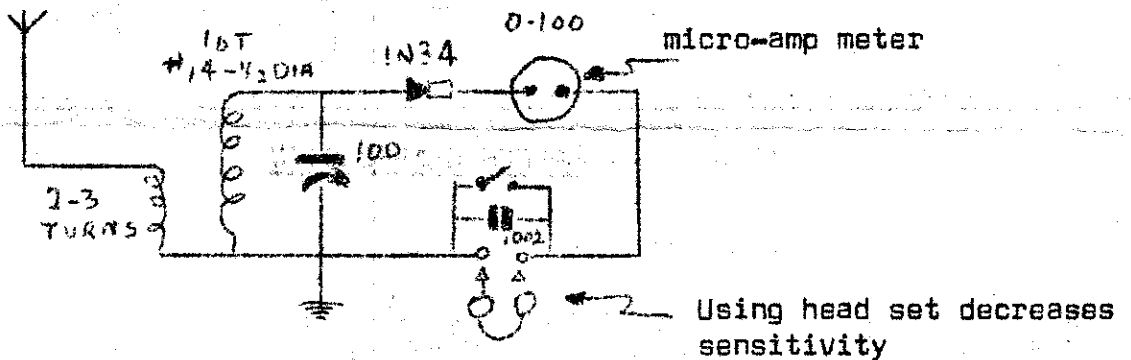
TRANSMITTER HUNTING

By W3AJF, Horace Deacon



ONE TUBE SUPER-REGEN RECEIVER

Plenty sensitive for Transmitter Hunt use for long range triangulation.



FIELD STRENGTH METER

Will register up to 1/4 mile with Beam as Antenna

ADDITIONAL ACCESSORIES

COMPASS ***** GOOD MAP

Get out of your car to get a good bearing.

***** ***** ***** ***** ***** ***** *****

WELL !, we have had two transmitter hunts and so far the only winners have been the committee. Of course this saved the club the cash awards for prizes.

Since we have so many hunters who are willing to try to outwit the hidere, we will hold another transmitter hunt sometime in July. There is only one hitch in this hunt ~~so far~~ so far no date or boundries have been set as yet, so it is a necessity that everyone interested listens in on the Monday night Nets.

Remember the committee remains the same, W3HKZ, W3KKN and K3HWZ. (The Unholy Three)

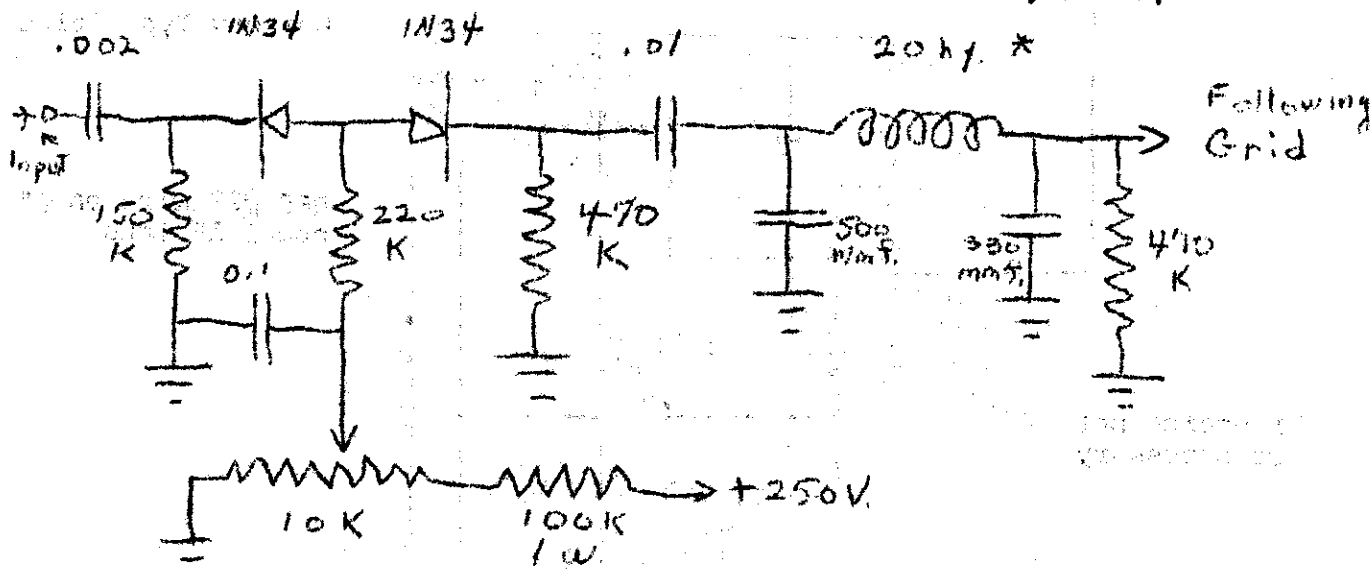
(Remeber what happened on the last one. A very good tip would be to check your own QTH before starting out.)

GOOD LUCK TO ALL OUR HUNTERS

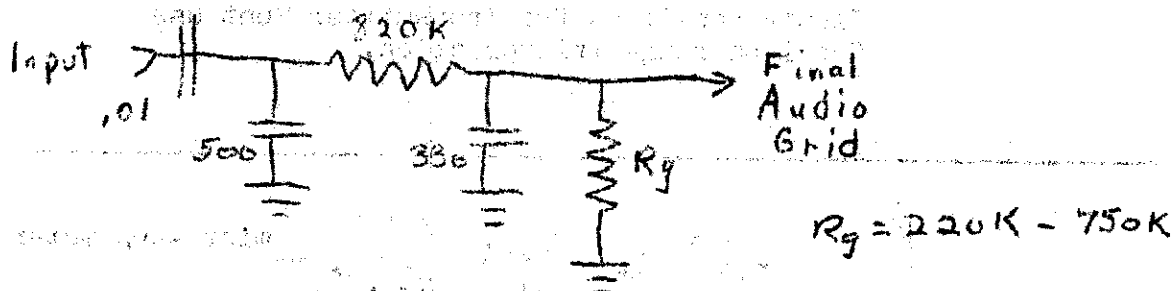
To all who attended the meeting on June 15th; You heard K3GAY, Don, give his talk on "Speech Processing". To those who were unable to attend and are interested, the following is a schematic that was handed out.

SIMPLE CLIPPER-FILTER CIRCUIT

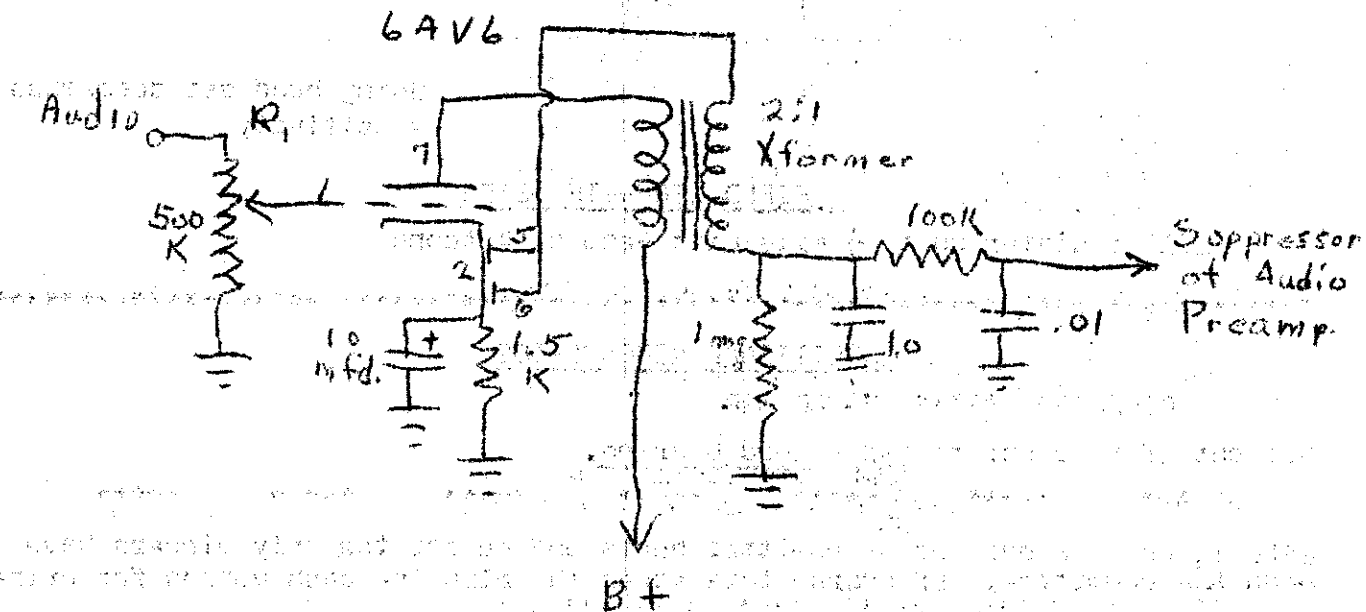
By K3GAY, Don Lauer



RECEIVER NOISE FILTER



SPEECH COMPRESSION



The following letter, as you can figure is the result of a QSO with Jack, K3BRJ.

Dear Francis:

The other night I promised to give you a little note about the use of mobile amateurs in Disaster work out in Ohio.

In time of disaster, there is always a lack of good communication circuits. The planners in Evendale, Ohio, found that there was a real "find" in including amateur mobile units. This area is an industrial one (G.E., Crosley, Ford, etc) with a working population of about 45,000. Naturally, a number of them were hams.

As a result, these hams are an integral part of the control system and can be used wherever a channel is needed. When an alarm occurs, these men are excused to man their cars ready for service as needed.

This town of Evendale (about 1200 population) got the idea of inviting industry there ten years ago--offering low taxes. As a result, they now have more income than they know what to do with. They have a very complete Fire Department; Police Force; community Hall, Swimming Pool and the very latest equipment. Very few of the industrial people settled in the town so it is still small. And the taxes are low too.

In case of a disaster, every plant sends equipment and men to the scene. A helicopter goes overhead to handle road traffic. Radiation teams are the first in. Medics and nurses next. Bulldozers and truck follow too, together with cranes. They are ready to handle anything. This group put on a simulated run--using technicolor smoke in a building. About 150 men were made up by a makeup artist to look like casualties--and they sure did, bloody and all. A communication truck directs everything--including the hams.

We went out to see this demonstration as we are thinking there might be an application in this area. As far as the hams are concerned, I think we would have to offer our services--otherwise no one will know we can help. Incidentally, this is distinct from CD or any other services. Possibly, the Club might consider such a program and offer their services to Mr. Sam Baxter (who is the Disaster Coordinator in Phila.) Sam is the City Water Commissioner, as you may know.

Well, you have the story for what it is worth. It was nice to talk to you the other night--and Mother Rat in the background. I did enjoy the story about 3CL's transmitter blooper in his own house.

Sincerely,
Jack, K3BRJ

PAST EVENTS

The results of the second transmitter hunt can be found on the first two pages and the schematic and plans for a future one will be found on page 13.

REPORT ON JUNE 15th MEETING

W3KKN, Ernie gave a report on the last transmitter hunt and announced the date of the next one: JULY 23rd. As stated on page 13, be sure to listen on the nets for the boundaries.

W3AYG, John, made a report on the D.V.C.A.R.C. and stated that four operators were promised from Mt. Airy for the Boy Scout Jamboree to be held on July 23rd and 24th.

New members voted in are; K3KVS, Jerry Polin, W2EIF, Joseph Kilgore, W2KFC, Lee Miles and K2SMZ, John Yost. (Addresses and phone numbers are on the new membership list which is included in this issue. I would like to state that on the new list, W3NWP's address, at present is temporary until he finds a permanent residence in Reading, Pa.)

K3GAY, Don, volunteered to act as recording secretary until W3ZRR, Ray, feels that he can continue following his illness. Thanks, Don.

RESULTS OF THE ELECTION

OFFICERS 1960 - 61

- PRESIDENT--W3HKZ, E. EDWARD KUSHNER
- VICE-PRES.--K3HWZ, WILLIAM McCUTCHEDON
- REC. SEC.--W3ZRR, RAYMOND WHITEHEAD
- COR. SEC.--W3SAD, FRANCIS D. BRICK
- TREASURER--W3MVF, DAVID BLOCH
- DIRECTORS--W3KKN, ERNEST KENAS
- W3CL, HARRY B. STEIN

Following the election K3GAY, Don, presented a very interesting talk on Speech Processing. A copy of his Speech Clipper is found on page 14.

REPORT ON FIELD DAY

As we go to press, we do not have too much to report as the score has not been totaled as yet.

We can report that we were located in Almont, Pa. on the Landing Strip, (private) of the James Poultry Farm. Thanks to the prowess of W3BRU, Frank. Among some of our visitors were a couple of SWL's, who thought we were located at the QTH of Brad Algeo, W3EM. Brad, very kindly brought them over to the site. Thanks, Brad.

I do know that we had one visitor whom we helped to line up his 2 meter, 417A converter. He was having trouble with the tuning and he used our signal to tune it. Further reports later, but we would like to thank all who helped.

We're going to the
and Family Day
14th. In case
be held on

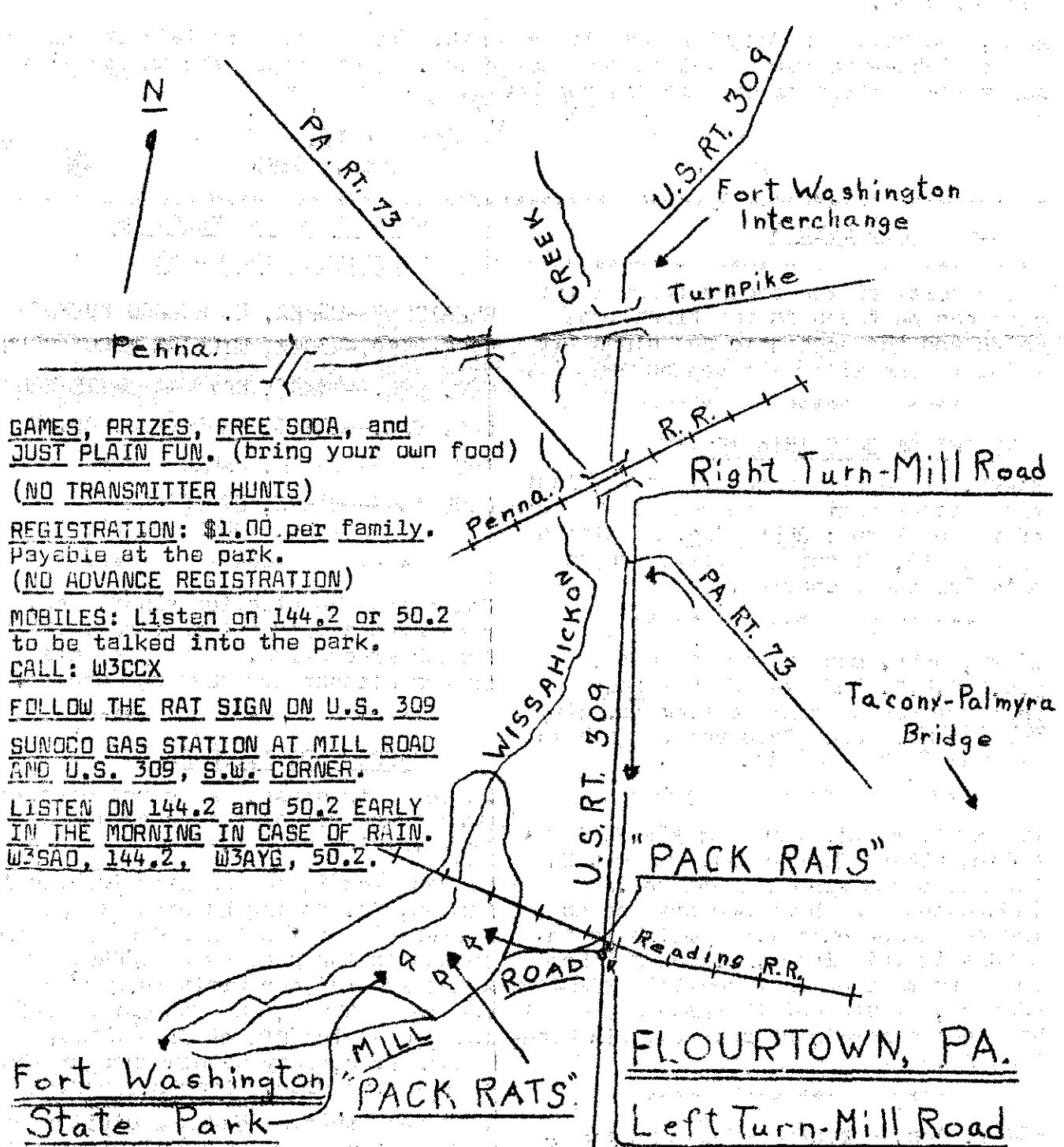


"Pack Rats" Picnic
on Sunday, August
of rain, it will
Sunday, August 21st.

Won't you join us
fun? It will be
ington State Park in Flourtown, Pa.

(Mc. Army U. H. F. Radio Club, Inc.)

73's,
Frankie, W3SAO, + "Mother Rat"



GAMES, PRIZES, FREE SODA, and
JUST PLAIN FUN. (bring your own food)
(NO TRANSMITTER HUNTS)

REGISTRATION: \$1.00 per family.
Payable at the park.
(NO ADVANCE REGISTRATION)

MOBILES: Listen on 144.2 or 50.2
to be talked into the park.
CALL: W3CCX

FOLLOW THE RAT SIGN ON U.S. 309
SUNOCO GAS STATION AT MILL ROAD
AND U.S. 309, S.W. CORNER.

LISTEN ON 144.2 and 50.2 EARLY
IN THE MORNING IN CASE OF RAIN.
W3SAO, 144.2, W3AYG, 50.2.

"WELCOME TO ONE AND ALL, FROM THE "PACK RATS"