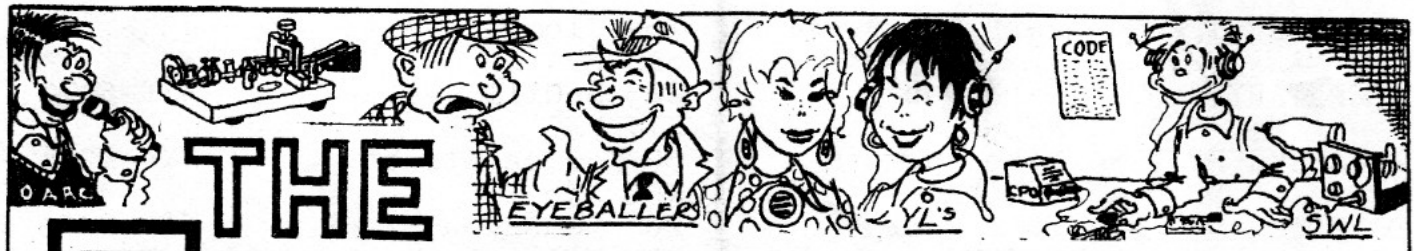
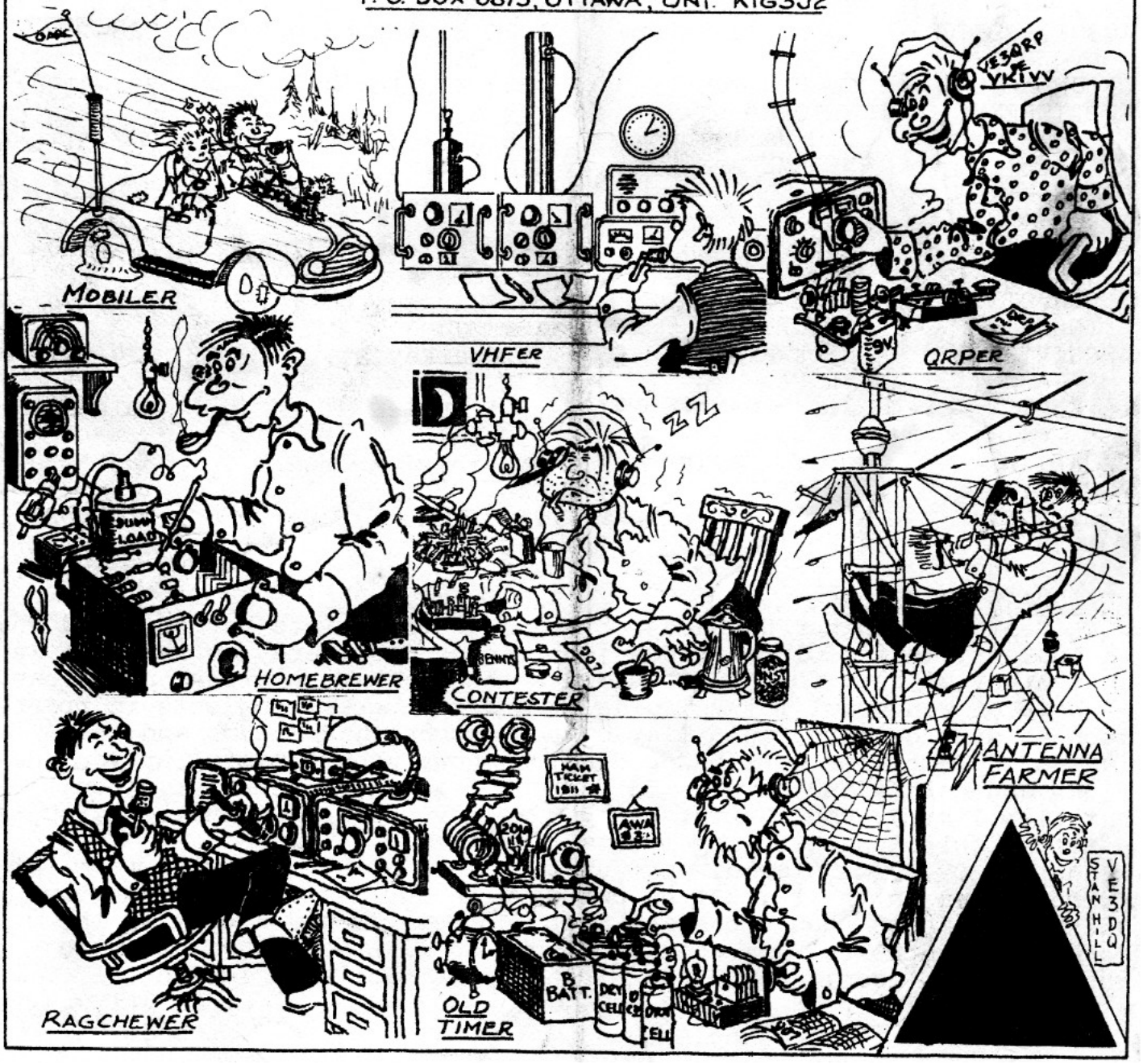


THE GROUNDWAVE

THE OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB
P. O. BOX 8873, OTTAWA, ONT. K1G3J2



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EDITORIAL EMISSIONS:

* We felt like Mother Hubbard peering dejectedly into her cupboard when we looked into the Club mailbox this month, for there was very little in the way of copy for the Groundwave there. When snooping on the bands, we hear of wonderful things going on and some great projects in progress such as synthesizers, antennae, output meters, SWR meters and the fantastic Satellite work being done; so hows about writing up your devices and doings and give Ye Ed and our readers a break? You won't get rich like J. Paul Getty, but you will yet some recognition! You will note that this issue is largely staff written.

* Shep VE3DV, SCM Ontario, sent us the ARRL Net Registration form for reproduction in the GW, but no can do with our method of production. All Net Managers should contact Shep for details and a copy of the form. The completed Form should be sent to ARRL Headquarters or to your SCM, and soon, as the Net Directory is published in June.

* JUNE GROUNDWAVE: The deadline for submission of articles will be: Tuesday, May 21st

The regular monthly meeting of the CARC was called to orderby President Larry O'Brien at 2010 hours on April 3rd at NRC. He extended a welcome to visitors VE3 AOS, VE3 GHO, Evelyn Clue, and Don Brown. The minutes of the last meeting were drawn to the attention of the members. VE3 BCO moved they be accepted; seconded by VE3 HAT; CARRIED.

WA3 AAC Bill Porter has accepted the Honorary membership offered by the club and a suitable plaque will be presented to him. The club received thanks for their help on the British Empire Motor Rally. Amateur Radio Station VE3 JW opened on March 19 quite successfully and operators are still needed.

The use of a club surplus in funds was discussed and many good ideas were forthcoming. Among them were: Test equipment for club use, A 2 metre rig for the EMO van, and Help to some worthy cause ie:CNIB or the like. The concencus was that we hold off on a decision until we know how much we will have to put up for RSO expenses.

The membership chairman reported 208 regular members and 51 associates. The repeater committee reported that the switch in frequencies will take place May 5. VE3 CRX volunteered to look into a crystal swap with VE3 STP.

A chairman for next years beginners class is needed;we hope to get Wednes day night. A program chairman is needed as well. VOLUNTEERS for Field Day and Miles for Millions are needed.

VE3 CDC reported on a very successful meetin◆of the Repeater Council for the Ottawa Valley at Kemptville on March 16. Sonny Grey's plah was adopted and the spirit was that of co-operation.

The Ontario Hamfest Picnic takes place July 6,7, and 8 at Elora Gorge Park. The sponsor this year is Scarborough.

Mike Coupland and Jerry Mathews gave a very interesting talk on a speak-er system which would replace the bell on a telephone thus making emergency communication possible. The program and demonstration were enjoyed by all and a lengthy quetion period followed.

The meeting adjourned at 2130 for coffee and ragchew.

Secretary,
Marj Zuba, VE3 HAL

MAY MEETING

Time and Place: Wednesday, May 1st, 1974, 8 P.M.
National Research Council, Sussex Drive
Program: Transmission Lines and Matching - By Bud Punchard VE3UD

Come out and enjoy the Program, have an eyeball ragchew afterwards, and sample a Cuppa Jerry's Wunnerful Java! C U there!

- * * * -

FIELD DAY - 1974

Preparations for an active participation in this year's Field Day on June 21, 22 and 23, are well under way. It is expected the site will be the same as last year. The Club's gas driven generator will be put to good use together with another machine to power at least one CW and one phone station for operation on 5 bands (if 5 bands are operating!) Equip ment for these stations is now available and there may be an effort to have a go at OSCAR satellite operation as well. Various vertical and dipole antennas are being lined up and there may even be a soewhat new type for 20 meters.

The response to requests for helpers and operators has not been overwhelming, but perhaps the recent weather does not make one yearn for living in the outdoors. Come June, it will be fun to get out there and work like pioneers to beat the air waves. .....

We are particularly interested in finding several tents to be used for operating positions and/or sleeping accommodation. Any offers?

All classes of licensees and nonlicdnsees are welcome to come and help in setting up, operating, cooking, listening or just looking. Call Glen Holt VE3GWY at 225-7185 or Bud Punchard VE3UD at 733-8384 and tell us about your interests.

More details later in the Groundwave and Mondays 8 P.M. on VE3CRA and Sundays 10 A.M. on the Pot Hole Net 2760 KC.

Bud VE3UD

*****

CHANGES TO THE DIRECTORY

New Members

Ralph Cameron VE3BBM
30 St. Remy Dr.
Box 40 R.R. 3
Ottawa K2J 3H2

John Athey VE3CTX
973 Drew Ave.
Ottawa K1G 2R9
731-8047 992-3007

S.G. Harbottle VE3AGU
1568 Kilborn Ave.
Ottawa K1H 6M4
733-0175 992-3007

Lucien Rochette VE3ERH
164 Bruyere St.
Ottawa K1N 5E1
232-8079 993-9976

Add Phone Number to
VE3BCO
246-2118 725-3511

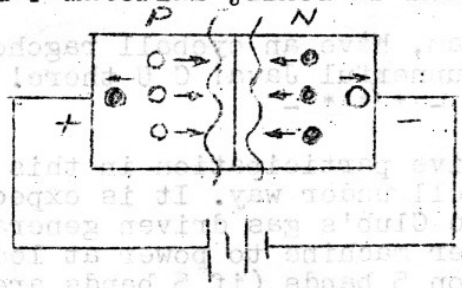
Vic VE3DEP

*****

HOW DOES A TRANSISTOR TRANSIST?

Question: How do you make a diode out of P and N type semiconductor?

Answer: This question can be answered from a physical or theoretical point of view. First let us make sure what a diode does. It is a device which will conduct in one direcection and looks like an open circuit in the other. It conducts when it is properly biased (foward bias) and won't when it is reverse biased. For our money, forward biasing means placing a positive voltage on the P type material and a negative voltage on the N type semiconductor. When you forward bias a diode, little current flows until you have about 7 volts potential difference across the diode. This is known as a diode drop. The diode then consists of a piece of N and P material joined as shown in the figure below.



FORWARD BIASED JUNCTION DIODE

To construct a diode, one takes silicon and dopes it with an acceptor or P type element such as boron. We then take a piece of N type semiconductor and join it to the P type. The N type material has a lot of electrons and the P type has a lot of holes. Since opposites attract, at the junction the electrons and the holes kill each other and no carriers of either sort are left about the junction. This leaves a small

electrical barrier for the holes and electrons to surmount. If a strong enough voltage is put across the diode, holes will appear to flood the P material and electrons will pour into the N area. As the potential reaches the diode barrier voltage, both holes and electrons will head towards each other and combine to become what every good carrier should become; nothing. Now you ask, what happens to the carriers after they combine? They become minority carriers and swiftly move through the hostile territory in an attempt to reach the positive terminal. If they are electrons and the negative terminal if they are holes. It really isn't quite as simple as that, but if you want to go further...

Oh! Before you go! The way they make most diodes and transistors today is by diffusion. There they heat up a piece of silicon and in a cloud of gas, it more or less absorbs molecules of the dopant. They then place it in a cluud of the other kind of dopant..one on top of the other. They are very careful to leave areas when they can cut through the oxide as it gorws and contact either the P or the N material. Next time, some pictures of that.

STAFF

BOOK REVIEW -*Radio News, January 1927

Veteran wireless operator Art Stark VE3ZS, an avid collector of radio memorabilia, loaned me a copy of Radio News for January, 1927, so I will review it here in the interest of history, truth and nostalgia. The familiar red cover certainly evokes fond memories for this operator.

Radio News was edited by Hugo Gernsback who also published Science and Invention, Everyday Mechanics, Amazing Stories, Radio Review, Money Making, Radio International and owned broadcast station WRNY. When I was in school, I tried out many crystal set experiments using circuits and ideas from Radio News. One set used a round salt-box tapped coil using tapped switches for course and fine tuning made with copper tacks driven in two semi-circles through a cigar box lid. Another set used a tapped coil wound on an Edison cylindrical phonograph record plus a variable condenser made from a sheet of metal foil glued to a cigar box lid with a similar "plate" inside the box for fine tuning. You varied the capacitance by opening and closing the lid, the "dial setting" being maintained by the serrated edge of a piece of cardboard. Crystals, all of which worked fairly well, were a razor blade set on edge, a chunk of galena, a piece of coke, and iron filings in a metal bottle top.

The articles in this vintage issue are interesting and revealing. They feature a crystal microphone using a piece of zinc ore and a cat-whisker; an article on broadcasting of time signals; a scanning-disk type distance measuring device; and early experiments with facsimile, transmitting weather maps to ships at sea. The "neutrodyne", "ultradyne", "autodyne", "metrodyne", "infradyne", regenerative and reflex circuit receivers all used direct-heated filament triodes, since the cathode and the screen and suppressor grids apparently had not yet been added to vacuum tubes at that time. One superhet circuit features a carborundum crystal second detector and homebrew I.F. transformers. There is an article dealing with "double reading effect" of superhetrodyne receivers. I was disappointed to find no article on early TV experiments, since it was at about that time, or perhaps a little later, that "Goosey", a classmate of mine, built a scanner and was trying to receive early TV signals broadcast by an experimental station in Buffalo, N.Y.

In the construction section is an article on a one-tube shortwave receiver in which it states that it is imperative to keep all leads short, but the parts are spread out in a breadboard that appears to be about 15"X9". The "plug-in" coils are plugged in by attaching the coil ends to six widely-separated fahnstock clips. The regeneration control is

called a "throttler".

In the "With the Amateurs" column there is an interesting 20-meter ham station by 6BX. The receiver is a single 201A regenerative set spread out on breadboard that appears to be 20"X14". The transmitter, a single-tube (looks like UX210) Hartley oscillator on a wooden plank about 36"X18", features 4" dia. coils of ¼" copper tubing mounted on two parrallel strips of plate glass set on edge. The H.V. supply is obtained from a massive 300 volt transformer through a bridge rectifier using lead and aluminum plates inserted in borax solution in 20 one-quart mason jars. No doubt this rectifier was stashed under the table as there was certainly no room left for it on top! No filter condensers or filter choke; in fact, the article states that if no rectifier is desired, the set would work fairly well on "raw" A.C. but the range would be much less. Those were the days when you built your own or you didn't get on; you often had to fabricate your own tuning condensers, filter condensers, RF chokes and transformers!

The advertisements are even more interesting than the articles. There is an "Interference Eliminator" consisting of a spider-web coil and a mysterious knob mounted atop a shallow box! a "Ground Hog" that appears to be a sheet of lead or boiler-plate with a ground wire attached that was "Guaranteed to Increase Power and Distance"; numerous audio amplifiers, loop aerials, and "B" Eliminators. My father built dozens of the latter using Raytheon mercury-vapour tubes and installed them in neighbours' sets. He made his own transformers for them. By that time the horn speaker had become passé, as cone speakers were all the berries. One ad shows 22" cone protruding from the front of a cabinet with a shelf on the top for your Atwater-Kent or Radiola or whatever. Another had a handle to hang the cone on the wall. Old timers will remember with nostalgia such trade names as Crosley, Ozarka, Silver-Marshall, Pilot, Jewell and Kurz Kasch.

On the last page is the inevitable ad of Midwest Radio Corporation, probably the first seller of kits, An "Easy to Troubleshoot" Midwest set helped me out of a bad situation once. I was on an Upper Laker whose skipper, whom we called "Hardtack" was an "operator killer", and it was rough; oh, I mean ROUGH! He had an early Midwest "Unitune 5" that he, in his bullying way, had inveigled a former operator to assemble for him. The thing never worked properly, and old Hardtack wasoften heard fisting the cabinet and swearing lustily.

"Sparks, for the love of Mike" said Joe, our very own Mate, "Fix the Old Man's radio before he foams at the mount and bites somebody's leg off!"

On the pretext of discussing some direction-finder bearings, Hardtack called me to his quarters and darkly suggested that I fix the set, which had quit altogether. Well, the implication was clear that this was my Waterloo; I either could fix the set or I might as well pack my cardboard suitcase and climb the bank.

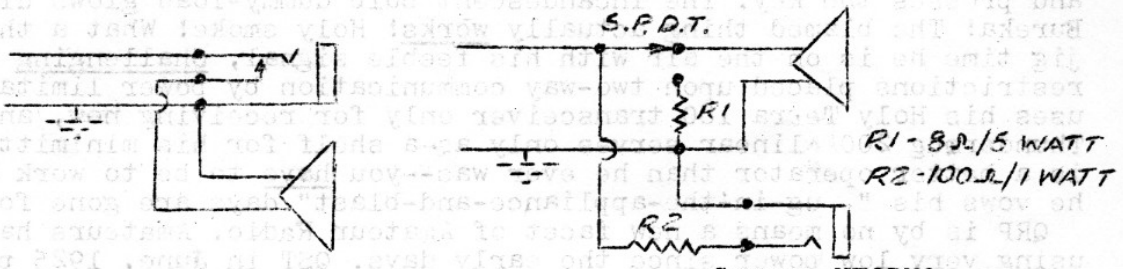
I approached the massive set with some doubt; but it turned out to be duck soup--merely a loose filament wire. Hardtack was as delighted as a kid with a new toy choo-choo. Oh yes, after that I was the white-haired boy alright; even to the extent that Hardtack paid me my backpay as a moonlighting purser and wrote out a flattering letter of recommendation when I left the steamboat; - something he had never been known to do before....

*Radio News, "Radio's Greatest Magazine" January 1927, 25 cents.
- Over 200 Illustrations - Over 350,000 copies.

STAN VE3DQ

AN EARPHONE JACK FOR YOUR GEAR - by George Roach VE3BNO

One of the things that came out of the ski Marathon debreifing was the need to have the two meter transceivers equipped with earphones. A good do-it-yourself project for those who will be using their gear for similar exercises would be the wiring of an earphone jack on their gear.



George VE3BNO

QRP - The Mouse that ROARS! - by Stan Hill VE3DQ

A number of months ago, when I was listening on 40 meters, I heard a weak W2 signal calling CQ 'way down under a rock-crusher. I moved my VFO a few Khz below the flak and gave the weak fellow a call. He moved to my frequency in the clear and I was thrilled to have a half-hour QSO with a QRPer located in his hunting camp near Saranac Lake, N.Y. He was running 100 milliwatts output and he told me he had just previously worked a station in Denver, Colorado with his flea-powered rig. The band was wide open, so I began listening in the spaces between the QRO stations for weak signals. I picked up a very weak signal and snagged him. He was Lincoln, Nebraska and also running 100 MW. To put the thing into perspective, consider that this is equivalent to one-six-hundreth of the power required to light a 60 watt light bulb! We worked for about ten minutes until a QRO station began blasting away, ending the QSO. This whetted my appetite for more of the same and a few days later I stumbled onto a pre-arranged frequency where a QRP contest was taking place. I worked a half-dozen HW7's Tentees, and homebrew mini-rigs on that frequency, then got in on the fun by reducing the loading and drive of my DX40 to QRP level. Man! I had not experience such exhilaration since I got my ticket and had my first stumbling QSO using a borrowed 201A TNT rig and a two-tube regenerative receiver!

What, you ask, is the point of running such low power? Isn't it the obvious ambition of almost every ham to own the most powerful and sophisticated equipment he can afford and be King of the Bands? A listen on any band, any night, will tell you that the opposite phenomenon is taking place. True, the block busters are still inanely blasting away; but between, beneath, and around the big berthas, the mini signals are appearing in ever increasing numbers. Numerous operators, who have been accustomed to tearing chunks of the spectrum to shreds nightly, are becoming disenchanged with the big power game. The satisfaction is gone. They look back to their fledgeling efforts on the air when they were thrilled to the core with their contacts, using only a fifteen watt crystal oscillator. They wonder dejectedly what has gone wrong? What happened to the magic of yesteryear? There are some elements notably missing from their amateur activities. Then, one day, they work another veteran having a ball with a homebrew mini rig and they know! The missing ingredients are incentive, ingenuity, and challenge. Often a longing for the "good old days" overcomes one of these high power boys;

he remembers building his first rig and he looks wistfully into his junk box. Parts of his first rig are still there. My gosh, he was proud of that little rig! A wave of nostalgia overcomes him. Wouldn't it be great to get on the air with a rig similar to that lil' beauty? The incentive comes easily now and before you know it, he is cracking open long disused handbooks; is using his inganuity to design a transmitter c rcuit using the old parts. He heats up the old, neglected soldering iron and builds the transmitter. Hesitantly, he turns on the switch and presses the key. The incandescent bulb dummy-load glows dimly. Eureka! The blamed thing actually works! Holy smoke! What a thrill! In jig time he is on the air with his feeble signal, challenging the restrictions placed upon two-way communication by power limitation. He uses his Holy Terra 180 transceiver only for receiving now, and his Thundermug 200A linear serves only as a shelf for his minimitter. He is a better operator than he ever was--you have to be to work QRP--and he vows his " ug-in-the-appliance-and-blast" days are gone forever.

QRP is by no means a new facet of Amateur Radio. Amateurs have been using very low power since the early days. QST in June, 1925 published a list of low power reports. One of them from 8KW of Buffalo, N.Y. reported working 29 stations in two weeks at distances between 300 and 1400 miles at power inputs from .20 to 1.2 watts using a 201A. Also in 1925-26 L.G. Windom, 8GZ of Columbus Ohio--developer of the Windom antenna--won the Jewell Award contest using a UX199 tube in a Hartley oscillator at 75 volts and 4 mils input. With this famous antenna up 70 feet, he worked all U.S. districts, Brazil, Australia, New Zealand and others in 40 meters. Of course there wasn't the erud on the bands we have nowdays, but also there were no transistors or beams.

Our current QRP champions, figuring their accomplishments in KM/W (Kilo-miles-per watt), are doing amazing things. Bob Rosier K4OCE has worked over 150 countries on 20 meters using 4.5 watts to a 2N3632 and a quad! That DXCC record has caused many QRO DXer to give pause! W4VNE has worked 76 countries and 50 states with 1 watt! KØOEL has worked 46 states with 0.27 watts. W5JKD has worked 5 states with.02 watts.

There is a growing body of QRP literature in the current Amateur journals. CQ started a new QRP column in their Nov. 73 issue. The most useful forum for QRP buffs in the Milliwatt, National Journal of QRPp, published at the University of South Dakota by its editor, Adrien Weiss, K8EEG. Since the first issue in Feb. 1970, they have published more data on QRP than has been gathered together before in history. It is a gold mine of QRP rigs, VFOs, receivers, power supplies, antennae and working info on propogation paths for all bands.Write to: Adrien Weiss, 213 Forest Ave., Vermillion, S.D. for information.

You can get into QRP operation in a number of ways:

(a) By purchase of a "plug-in-and-play" rig; one such is the Tentec Argonaut all-band, solid-state, SSB/CW transceiver at 2-3 watts output. Another is the Tentec PM1/PM2/PM3 line of solid-state CW transceivers. Another is the Heathkit HW-7 CW transceiver rated at 3 watts input.

(b) By turning down the wick on your QRO rig, i.e. by decreasing drive to the final and reducing the loading. With rigs like the FT-101 you can also get QRP by reducing carrier insertion to QRP level in the CW mode.

(c) By removing the final tube of your QRO rig and connecting the driver output to the pi network. Disconnect the H.V. to the final first! Switch to safety; pull the power plug to your rig.

(d) By feeding the output of your QRO rig into a symmetrical RF resistive pad and thence to the antenna.

(e) By using your VFO. Units like the VF-1, HG-10, Knight, and the old Meissner Signal Shifter into an antenna matching network all seem to work

well.
(f) Roll your own! This, I think, is the most fun. At this hacienda, I first tried the W5LET transformerless "Bare Essentials Transmitter." I had a few QSOs with it, but reports on its atrocious note were so scathing that I abandoned it. I used the chassis (A 6" X 9" pine slab with brads driven in for tie points) for my single 6L6 VFO rig (3 bands, bandswitching) that works well, but a swinging antenna causes a swinging signal, so I use this rig only in a dead calm. I have worked both coasts, Mexico, Cuba and Europe with this rig. My next rig was built from a defunct AC/DC mini bdcst set. The chassis measures only 3"X7" and I use 3 of the original 4 tube sockets. It's transformerless, using a solid-state voltage doubler for H.V. The original tuning capacitor, in situ, is the pinet loading condenser. It uses two 50L6's and a VR tube. I am presently changing it from 80/40/20 to 20/15/10. With 2 watts output to a dipole, I worked I2BNV, Isidoro in Mantova, Italy on the second QSO. The third rig, also made from an ancient BC set uses an electron-coupled 6L6 VFO into an inverted 6L6 amp. It is stable at QRP levels, but has a "choupy-choupy" signal with increased drive and loading. My technically sophisticated friends deplore my use of tubes, but like of hams, I suffer from chronic flatulation of the pocketbook, so the junk box is the route I must follow for the present. Output power is the criterion of QRP, so what difference is the manner with which you generate your RF signal? I have found that the simpler the circuit, the better a rig seems to work. The machinery recommended in recent QRP articles by authors such as Demaw and Haywood boggles the mind and one wonders, why duplicate their circuits when simpler circuits work just as well? Maybe I will find out why when I go solid-state! I am presently working on the design of a new rig using MOSFET VFO, a string of 2N3053's for buffering/doubling and a 2N3632 in the final.

BEATING THE ODDS

The QRPer competes against massive odds in the crowded bands, so he uses his skill as an operator to even things a little. Here are some of the dodges that seem to work:
(1) Reduce losses in your transmitting system to a minimum, A QRO station can afford the loss of a few db through poor matching, a lossy transmission line, and a poor antenna. A QRP station cannot afford to lose one db unnecessarily. Also remember that a haywire setup will bomb out on you, during an important contact.
(2) Use a VFO. You gotta work 'em where they ARE; not where they aint! Most stations listen on or near their transit frequency and you will wait a long time for a CQer to appear on or near your crystal frequency. Additionally, a VFO is needed to move out from under QRM. Failing a VFO, it will help a little if you install a "rubbering" circuit in your crystal oscillator.
(3) Let your contact know early in the QSO that you are QRP. This lets the operator know why your signal is relatively weak, and often excites the fellow's interest nough so that he is willing to do his best to pull you through.
(4) QRS: - Slow sending of a mini signal is much easier to copy than the virtuosity of a speed merchant. 10 WPM is about right. If you "mail it to him" at lesser speed though, your contact becomes impatient and/or bored.
(5) Work the contests: During contests, RF gains are cranked wide open and contesters are willing to endure massive QRM/QRN to rack up one more lousy point and maybe a juciy multiplier.
(6) Patiently wait for a station you want to finish a QSO, then drop in a tailgating call.
(7) Answer CQs rather than call CQ yourself: You can call CQ 'til the cows come home and noone will notice your feeble signal. I have found that answering CQs brought QSOs so long as a QRO station didn't beat me out.

(8) Do not answer a CQ call zero beat:-Move off the frequency of the CQer a hundred hertz or so. This avoids the pileup, and there is a chance that your signal, in the clear, is the only one he can copy due to the pileup.
(9) Call a CQer no more than twice:- If your quarry doesn't answer, he either has his gain too low, conditions are against you, or he is unwilling to expend the effort to copy a weak signal.
(10) Send QRZ? at the end of each QSO:- Often others are reading the mail and QRP has gained interest to the point that many stations are pleased to work a QRPer and discuss details of your rig and accomplishments.
(11) Use QRP club, QRP Net, and other QRP frequencies:-The boys are listening for you! 3540, 7040, 14065 and 21040 KHZ.
(12) Answer North American CQ DX calls:-DXers are willing, often enthused, to spend some time with you when they discover you are QRP. You gain the advantage of his sophisticated receiving equipment and his super-sensitive ears. It is said that a good DXer can hear a yak-herder on the Steppes of Tibet scratching two wires together!
(13) Try to marshall your time so that you are listening when the bands are likely to be open. Like fishing, you have to be there when the "fish are biting!

So there you have it my friends. Why not whomp up a lil' rig and give it a go? A word of warning though:-those of us who have been bewitched by the "song of the flea" will never be the same! You will find it harder to make contacts than with QRO operating. Patience is the watchword here. You will find that some QRO boys will dump you like a hot stovelid when they find you are QRP. Do not be disheartened if Proliferation Pete over in the next county feigns deafness when your paltry signal corrupt the innards of his shiny, new 1200 bux transceiver. Chances are, a pro in Munich or Valparaiso, or even Tokyo or Canberra will dig your faint whisper out of t the mud and get back to you with a report. When QRM/QRN are fierce, your signal will have about as much chance as a mosquito in a wind-tunnel. At such times, best take the day off and go streaking on the Mall. After all, "The Amateur is Balanced"!

QRO has a thousand watts; a lot of CLOUT has he.

QRP has a mere half watt; but he makes it WORK, by gee!

Good hunting - Stan VE3DQ

OTTAWA AREA NEWS

* A session will be conducted by Larry Kayser VE3QB and Randy Smith VE2BYG on Oscar 7 and Its Capabilities at the Western New York Hamfest and VHF Conference held May 17,18,1974 at Rochester N.Y. Larry will be the Guest of Honor at the Banquet. The Amateur of the Year Award will be presented by Harry McConaghy, W3SW, ARRL Director, Atlantic Division.
* Don't forget the OVMRC Inc. Spring Auction at EMO HQ April 27th.
* Miles for Millions May 4th.

REPEATER NEWS

St. Lawrence Valley Repeater Council Formed

At a meeting in Kemptville on March 16th, 1974, a new repeater council was formed covering the area from Montreal to Deep River to Belleville in Ontario , over to Watertown and up to Massena in N.Y. State. Membership is open to all repeater groups in the region. Liaison will be effected with the Northern New York Council, and with the Western New York and Southern Ontario Council. Liaison with the latter group will be through the RSO VHF Committee and George Davis VE3BBW, its chairman.

Chairman of the new council is John Clark VE3KE, Mountain, Ont. Frequency Co-ordinators are Howard Fralick VE3RL, Belleville, Dick Chalk VE2DGU, Dollard Des Ormeaux, P.Q., and Graham Patterson VE3AMN, Stittsville.

The Council agreed to follow the recommended frequency plan (Canadian) which is a simplified version of the ARRL 2 meter plan. The recommended frequencies are 146.34/146.94; 146.46/147.06 as primary frequencies. If

more are needed, a secondary set of 146.16/146.76, 146.22/ 146.82 and 146.28/146.88 are recommended. Control and command link frequencies will be kept confidential. The frequency committee will recommend frequencies as aked and will only refer allocations to the whole Council in case of problems.

Twenty interested Amateurs were present representing ten repeaters, two of them from the U.S.A. Anyone contemplating setting up a repeater in the area outlined is advised to get in touch with the Council when considering what frequencies they are going to use for the repeater and the command system. Credit - CRAG/The Canadian Amateur.

CRYSTAL SWAP

A crystal exchange service will be attempted in conjunction with the change of input frequencies for VE2CRA and VE3STP. If you wish to participate, contact Larry Bradley VE3CRX at 824-3753 or on VE2CRA and provide him with the following information:
(1) Type of rig (Make and Model) Marconi BT 23 B
(2) Fundamental freq. of transmit crystal you have and the fundamental freq. you need. 36615 36585 .095 — .480
(3) Type of holder. (Pin size and pin spacing)
(4) Name, Call and Phone Number. Gerry Martin VE3CNS 731322

An attempt will be made to match up people with similar rigs so that they can arrange a swap. Larry VE3CRX

OPERATING THROUGH VE2CRA

Here are some tips on operating through VE2CRA after the new receiver is installed:
(1) Make sure you are on frequency. Off-frequency operation presently acceptable will no longer be tolerated; you simply will not be heard!
(2) Do not yell into the mic. or over-deviate; The band-pass of the receiver will cut you off over 10 KHZ deviation and the repeater will drop out. Average deviation should be around 7 or 8 KHZ for optimum.
(3) If you operate Simplex often, it will only be necessary for you to back away from the mic. when operating the repeater.
(4) Let the repeater tail drop before coming back to a call. The timer is still on the repeater.

For those of you who need a frequency check, and I think we all do, we are planning a tune-up session Thursday, May 2nd at a time and place that will be announced on the Capital City Net or at the club meeting. Plan to be there. If you don't come, then don't complain because you can't hold or get into the repeater.

The frequency change is tentatively scheduled for Sunday, May 5th in the afternoon. It may be necessary to delay the change-over by one week due to technical difficulties, so ask around. Alternate date will be either Saturday or Sunday of the following week.

Cary Honeywell VE3ARS
Asst. Chairman, Repeater Committee.

CRYSTALS

Bob VE3CDG says that a good place to buy crystals is Valpey Fisher Corp., 75 South St., Hopkinton, Mass. 617-435-683. Ask for Miss Russell.
The North Shore Radio Club "SPARKS" says that a good place to buy crystals with fair prices and good delivery is K.W. Industries Ltd., P.O. Box 508, Prague, Okla 74864.

ARCOVERS: Gord VE3EKS is a race-car driver and has driven Formula Ones all over the world-***-Cary VE3ARS is studying hard, so makes "flash" appearances at Amateur meetings, then rushes back to the books-Good luck Cary! -***-John VE3GAQ is setting up a 2 meter-10 meter stn for OSCAR-***-Shep VE3DV had a bad session with a slipped disk; hope you are much better now, Shep-***-Lyle VE3CEZ is in Israel es hopes to visit Europe es Turkey-***-Howard VE3VP is working on his Richardson 30' cruiser*-*-*All for this issue. Hope we can get it delivered! 73 de VE3GUW VE3HAT VE3DQ ...-.-

now 146.46 ÷ 4 = 36.615

now 146.34 ÷ 4 = 36.585

10/32

[redacted]

Xmitter

Xytal multiplies is 4

385
385
2 | 190
.095

4 | 146.46
36.61

41
7
95
480

38
4
152

43
4
172

385
.95
.480

4 | 146.340
36.585

4 | 146.460
36.615