## **GLOUCESTER COUNTY AMATEUR RADIO CLUB**

## W2MMD

#### 1992 OFFICIERS

President	Marla Bozarth	N2DWR
Vice-President	Joe Wells	N2KLE
Treasurer	Chuck Colabrese	WA2TML
Recording Sec	Peter Butler	KA2DZF
•	John Fisher	

## <u>Directors</u> <u>Trustees</u>

	<u> </u>
3Yr Jim Mollica Sr K2OWE	4Yr Joel Supkow KB2AYW
3Yr Chris Chamberlain N2IVN	3Yr Milt Marder WA2FGA
2Yr Ken Bozarth KN2U	2Yr Howard Marder WA2IBZ
2Yr Irma Colabrese N2FNF	1Yr Virginia Macrie KA2ZZA
1Yr Bob Layton KB2COB	<del>-</del>
1Yr Wesley GosbinKB2IRK	

### **CLUB REPEATERS**

147.780/180Mhz 224.66/223.06 Mhz 442.100/447.100 Mhz (CTCSS 131.8)

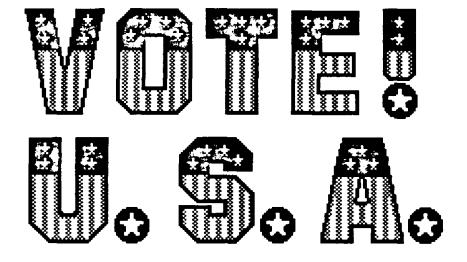
### **CLUB NETS**

ARES/RACES .... Sunday at 2200Hrs on 147.780/180 and 224.66/223.06 Repeaters

10 Meter ....... Sundays on 28.350 Mhz, immediateately after the ARES/RACES net.

## **Committee Chairpersons**

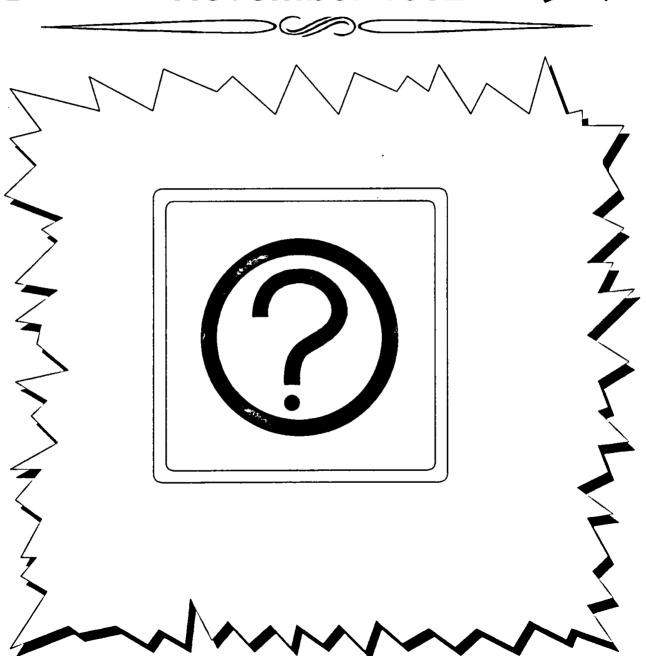
committee chairpersons		
Advertising	. N2KLD	
ARES/RACES	. WA2USI	
Awards	K2ZA	
Banquet	. N2KLD/N2IMK/KB2JCQ	
Chaplain	. //Open//	
Constitution	. WB2DXB	
Crosstalk	N2DUZ	
Data processing	K2PQD	
DX	K2JF	
Field Day	. N2DWR	
HAMFEST	KA2DZF/N2KLE	
Help\Welfare	. N2ILB	
Historiam	.//OPEN//	
Hospitality	N2AIV	
Legislation	K2JF	
Membership	N2KLD	
Nets	. WA2TOP	
Publicity	. WA3UVV	
Repeaters	WA2TML	
Site		
Scholarships	WN2T	
Special Events	WB2OYQ	
Sunshine	KB2EUA	
Technical Site	KN2U	
Training/Testing	WA2VQG	
Ways & Means	N2FNF	





## G.C.A.R.C President's Message November 1992





## From the Editor's Desk:

NOMINATIONS FOR THE 1993 GCARC officers were submitted at the October General Membership meeting by the Past Presidents Committee. Nominations made were:

4yr Trustee	N2DWR - Maria Bozarth
3yr Director	
3yr Director	N2IMK - Gene Wallace
1yr Director	N2NLE - John Cliver
Treasurer	N2FZ - Bill Mollenhauer
Corresponding Secretary	K2JF - John Fisher
Recording Secretary	KA2DZF - Pete Butler
Vice President	WA3UVV - Cory Sickles
President	//NONE MADE//

Nominations were also taken from the floor with only one additional nomination being made. That nomination was for KB21RK - Wesley Gosbin, as lyr Director.

Are you interested in nominating somone for office, or holding an office yourself? Come to the meeting November 4th and nominate someone, or volunteer yourself, for an office! NE OF THE SUBJECTS brought up at the November General Membership meeting was the new format and other changes to the future issues of your club newsletter, the *CROSSTALK*.

I received a number of comments both immediately after the meeting and since that evening. A couple of the comments were in regards to the membership voting to go black on white for the entire CROSSTALK to... 'appease the Editor and keep him happy'. I can only hope that is not the case! However, because of the many comments and the obvious desire by at least part of the club to keep the traditional color on the CROSSTALK, I am attempting to determine if the CROSSTALK can continue to have the colored cover that we have come to know and recognize so well. This is not a dead issue as of yet, and I will attempt to keep you posted.

Thanks to all of you who made your views, both positive and negative, known during and after the meeting. I welcome all comments and will try my best to do what the majority wants and what is best for the club.

73

Crosstalk Editor, N2DUZ\Harry

THE JUNE 1992 CROSSTALK, listed the priorities for CROSSTALK articles. I am going to reprint this list again, so that the newer members will know what my agenda for the CROSSTALK is, and also to remind other members. Priorities for CROSSTALK articles are:

- 1: President's Message...(Every Month!).
- 2: New Members.....(Every Month!)
- 3: News about GCARC members (Good news, Sad News, and Bad(?) News).
- 4: Amateur Radio Information about both GCARC members and the GCARC.
- 5: Amateur Radio Information about the hobby in general.
- 6: Whatever I can find/use.

in Ham Radio, what they do for a living, about their family, etc.

Of course, my first difficulty is finding time to get this done along with everything else, so...... do we have a volunteer to help out? All I am asking is for someone to gather the information, and if they want they can author the entire article, or we can work together to do it. Nothing fancy, just some information.

Then again, maybe the first question should be.... "how does the general membership feel about this type of column in the CROSSTALK"? Let's discuss it at the next meeting!

3 Crosstalk Editor, N2DUZ\Harry

Input for the December CROSSTALK is due to the Editor NLT Sunday,
November 22, @8PM ET

We was when you just started out as a novice? When you got a thrill just to work a W9? Remember when you would copy each others complete address so you could send each other QSL cards? You know, in the B.C. years (before packet) and before you knew what, let alone had money for, a call book and you could get a QSL from a stateside ham without even sending a card.

Well, it is here now. RS/12. Huh? RS/12, the Russian Satellite! No sophisticated expensive equipment, no antenna farm on 5 acres. Here is how I did it.

First, you need a separate receiver on 10 meters and transmitter on 15 meters. (Two TS-850's will do just fine!) I use a 20 year old Kenwood R599 receiver and T-599 transmitter. Each has their own dipole or vee antenna. That's probably a bit much for the rig because any hamfest junk will do. I worked one station using a Heath HW8 at 3 watts with a Realistic HTX-100 receiver. Plan on CW operation only and you will have your pick of many pieces of suitable gear for pennies.

What's the QSL return rate? Pretty good so far. My first card arrived 3 days after the QSO. All five have been received within 10 days and I sent stamps for only 2 before I realized that I don't think you have to.

When was the last time someone asked for your US QSL for WAS? Two of my contacts asked for my QSL for just that reason.

RS/12 is not crowded, so you don't need a super receiver. I think there are only six people using it! HiHi.

Operating procedure is fast and furious because the window of the pass time is so short. Best passes seem to be 50 degrees or better above the horizon. QSO's are best limited to RST, OP, QTH unless the satellite is quite high.

The critical part to all this is knowing when and for how long the satellite will be visible. N2PRD supplied this to me. If you have a computer, there are programs available to give you this information.

When ;you are ready for your first contact, tune in to the satellite beacon frequency and listen until the signal is strong, then tune into the transponder pass band looking for "CQ RS". This denotes someone working through the satellite not just communicating on 15 meters.

So far, I have found that people are friendly, will call you again several days later just to give a signal report, are patient, and do not send fast CW. It's a lot of work scheduling and making contacts this way, but it is also a real challenge too.

Thanks to N2PRD for the satellite pass times and answering some questions to get me on the air.

73

N2FZ\Bill



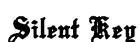
OR THE MONTH OF NOVEMBER
WE WISH THE FOLLOWING A
VERY HAPPY BIRTHDAY:

CALL	NAME	DAY
N2JXS	. ELEANOR MATTISON	10th
N2CFW	. GEORGE HANKINS	17th
K2JF	. JOHN FISHER	1st
N2DJN	. HANK BASCH	30th
KA2DZF	. PETER BUTLER	29th
N2ASV	. RUSSEL GLANS	24th
KG2G	BERNARD ONACHILA	27th
N2AIV	. JIM McDONALD	13th
N2SIK	. ROCKY CARROCINO	15th
K3JGJ	. JOE McCONAGHY	5th
WA2IBZ	. HOWARD MARDER	9th
WB2LNR	. RAYMOND MARTIN	14th
KB2ERL	. ROBERT NICOTERA	29th
WA3UVV	. CORY SICKLES	10th
N2RTW	. GERRY CONNER	14th

Please pass along your birthday if not already in the club's data base. Call or write to:

C. SKETCHLEY, K2PQD. 22 G St.

Woodbury, NJ 08096-1413



It is with deep regret that we aknowledge the passing of two of our membership. WA2EVK, Haywood Pelley, and NJ2C, Bud Mathis, became Silent Keys on October 10<sup>th</sup> and 14<sup>th</sup>, respectively.

Also we acknowledge the passing of former GCARC member KA2BNJ, Rich Deane, this past month.

We extend sympathies to the families and friends of these fine individuals from the GCARC Membership.

SK



OUR TRADERS TABLE was a success last month with many going home happy at what they had either sold or bought. Be sure to bring in an item for the traders table this month! Maybe you will be one of the lucky ones to go home happy this month!

BECAUSE OF COMMENTS I received after the October General Membership meeting, I asked a couple of people in the club to answer the following question for me:

"What were you looking for when you joined.
the GCARC, and what is your opinion — good.

<u>bad or indifferent -- since you became a member</u>." I promised these persons anonymity if they wanted it! Here is the response from one person...

ERE I AM A NEWCOMER to amateur radio, and now I have joined a club! This club, the GCARC, was brought to my attention by a friend who had joined just a few months before. My first meeting, August 1992, took me by surprise because of the democratic manner in which the meeting was conducted. As a visitor, I felt very welcome and encouraged to join.

At the end of August, the GCARC held a Hamfest and needed volunteers. Eventhough I was not yet a member, I decided to volunteer, and was immediately accepted. I helped to setup that Saturday, and arrived at 530AM to park tailgaters most of the morning. After we finished parking the vendors, I just hung around the Hamfest for the rest of the day. Again, I was surprised because I was thanked for my help that day, and that made it all worth while.

At my second meeting, September 1992, I received my membership packet along with a round of applause. This made me feel as if I had become part of a large family of friends. In the same night, it was announced that a few days before the hamfest, one of the club's older members (W2GSN) had become a silent key. I could feel the sadness in the group and this showed me even more just how much everyone cared.

Within the next month, even before my third meeting, some club members helped me get my station setup. Any problems I had, members helped anyway and everyway they could! That I appreciated very much.

Today, I would gladly donate my time to the club when needed, knowing I am helping do my part for the family club members and to help keep the organization running smoothly.

I was asked by the editor(N2DUZ\Harry) to write this article. He asked for ... "my views as a new member of the GCARC". He also asked for both positive and negative comments and told me that if I wanted to I could remain anonymous. However, since there is only one thing I have a complaint about(not having anyone available to take me to the site so I can operate the HF equipment) and that isn't anything major, why not let you know who I am.......

## ATLANTIC DIVISION ARRL 1992 HAMFEST SCHEDULE

+ denotes ARRL hamfest

NOV 15 CENTRAL PA REPEATER ASSN - HERSHEY, PA NOV 15 MOOSE ARC - TOWSON, MD +NOV 22 WACOM - HOUSTON, PA +DEC 6 GODDARD ARC - LARGO, MD

#### 1993 HAMFESTS

JAN 20 Baltimore ARC Mini-Fest - Timonium, MD +FEB 6 Columbia AARC Winter Fare - Lancaster, PA +FEB 27 Appalachian ARC - Lebanon, PA MAR 14 York Springfest - York, PA (new location) MAR 21 Two Rivers ARC - Monroeville, PA MAR 21 Penn-Del ARC - New Castle, DE MAR 27-28 Baltimore ARC - Timonium, MD +JUN 6 Tamaqua Trans. Soc. - Tamaqua, PA +JUN 6 Breezeshooters - Butler, PA

AUG 14 Fingerlakes / Tompkins Co. ARC - Ithaca, NY SEP 12 Foundation for Amateur Radio - Gaithersburg, MD

## FOR TRADE OR SALE

I have a 40 foot crank up tower for trade or sale. It stands approximately 24 feet when lowered, and is in good condition with some sanding and painting needing to be done.

If I could trade, it would be for a PK-232, MFJ-1278 or comparable type of TNC with current firmware. Needless to say, if sold I would want to be able to pay most (if not all) of the cost for one of these TNCs.

Please contact me via phone, packet (N2IMK @KF2AW) if you are interested.

73 & Thanks

N2IMK\Gene

or



## 1993 BANQUET

F YOU HAVEN'T already done so, make a note of the date for the GCARC Installation of Officers and Awards Banquet: Saturday, January 9, 1993. Once again, we're holding the banquet at the Dutch Inn in Gibbstown. This time, Cocktails (cash bar) are scheduled for 6:00 p.m.; Buffet dinner is at 7:00 p.m. There will be dancing and door prizes.

For only \$16.04 per person, you can have the following entrees, plus vegetables, salads and desserts:

- \* Seafood Newburg on a Bed of Rice
- \* Jumbo Stuffed Shells
- \* Carved Top Round of Beef
- \* Boneless Breast of Chicken Italian Style
- \* Roast Vermont Turkey with House Dressing and Giblet Gravy

If you plan to attend, *PLEASE* clip the reservation form below and mail the completed form to me with your payment. (My record-keeping will be easier if you MAIL your reservation, rather than pay me in person.)

If you'd like to help with preparations in any way, please contact me via packet(N2KLD@KF2AW) or phone (468-8196). Other members on the committee so far are:

Gene/N2IMK ...... 232-1293 Ginny/KB2JCQ ..... 232-1293 Marla/N2DWR ..... 468-6255

We're looking forward to a great time.

Mary Ellen/N2KLD

( CUT ALONG THIS LINE, and MAIL WITH PAYMENT )

# 1993 G.C.A.R.C. Installation of Officers Banquet Reservation

If you would like to attend the Banquet, please fill out the following information. Cost is \$16.04 per person. Please include payment for each member of your party. Mail this reservation form and payment to:

Mary Ellen Wells/N2KLD 469 Westminster Road Wenonah, NJ 08090-1345

EBASE. CHECKS ONE	11.10 CALOM. WATER CHILDREN TO COME .
Name:	Callsign:
Phone:	<del></del>
Number attending:	X \$16.04 = Amount paid:\$

PLEASE: CHECKS ONLY NO CASH MAKE CHECK PAVABLE TO "GCARC"

## TNC's: The Numerous Choices

During the summer, most of our meeting's programs focused on the newest and highest-growth area of amateur radio today; Packet Radio.

During the programs, various facets of packet radio such as AX.25 ("regular" packet), TCP/IP Networking, Bulletin Board Systems, higher-speed data rates (2400 and 9600 baud) software transfers and more were discussed. With increased interest in this mode, the question "Which TNC (Terminal Node Controller) is the best one for me to buy?" was asked many times. Hopefully, this article will answer most of your questions and give you the impetus to "go digital".

One of the things that adds to the confusion of choosing something like a TNC is the issue of standards. In order for YOUR TNC to communicate with MY TNC, there have to some similarities. Additionally, there is a standard set of control commands. A long time ago in a galaxy far, far, away, the Tucson Amateur Packet Radio Corporation (TAPR) developed a series of communications and software standards that exist in virtually all of the TNC's in use today. So, like IBM became the compatibility standard for personal computers, TAPR-compatability has become the standard for TNC's.

Quick-minded hams reading this may now be shouting "Ah Ha! All TNC's are the same. It doesn't matter which one I buy". Well, almost. Remember that no engineer is satisfied with someone else's design and that all good marketing people are looking for something to make their product unique and better. Just as many different companies build computers and accessories for IBM-type systems that are better, cheaper, faster, greater-featured, etc. than IBM, so it is with TNC's. While the "base" commands and features are compatible, most manufacturers offer a wide range of additional features. Couple this with the manufacturers whose components are used, and you can find yourself with a number of differences. (Example: While the MFJ's use the TAPR command of MHCLEAR to clear your 'heard list', the PK-88 uses MHEARD &. While both perform the same function, the command syntax is not the same.)

I have had hands-on experience with TNC's from AEA (PK-88), DRSI (PCPA), MFJ (1270B & 1278T) and PacComm (Tiny 2). All have worked well, but there are some differences in performance and commands. The following list some of the highlights:

AEA PK-88: Solid performer, works well with TCP/IP, good (simultaneous) mailbox features, auto-forwarding of

messages possible, extensive communications diagnostics, intelligent parameter changes, excellent command (software) documentation, minimal hardware documentation.

<u>DRSI PCPA</u>:Built on a PC Expansion board, includes extensive software support (AX.25, TCP/IP, BBS, etc.), only VHF modem included, faster throughput than with external TNC, handles TCP/IP very well, good software documentation, good hardware documentation (could be better for a device of this type).

MFJ 1270B:Solid Performer, runs TCP/IP a bit faster than PK-88, minimal mailbox features, good communications diagnostics, more "hands-on" philosophy in command library, good command documentation, good hardware documentation. Easy to add 2400 or 9600 baud modem upgrades.

MFJ 1278T: Multi-mode TNC with Packet, SSTV, RTTY, AMTOR, NAVTEX, CW & FAX. Does not handle TCP/IP mode transitions very well, packet firmware similar to 1270B, minimal mailbox, 2 radio ports, printer port, good software support, excellent hardware documentation. Easy to add modem upgrades, as above.

PacComm and Kantronics: Ask me sometime...

I have used both the 1270B and PK-88 for my primary packet station and have been pleased with the performance of both. Today, my PK-88 is dedicated to my AX.25 activities. One of my 1270B's has been upgraded to 2400 baud and is being used for my TCP/IP activities. Both are up 24 hours per day. My 1278T is used wherever I need to 'plug in' a TNC for some experimenting. Otherwise, it is connected to my HF and 220Mhz rigs. It has also been upgraded to 2400 baud. I usually take it with me when I travel. Another 1270B is used as a spare and for some experimentation as well. (i.e. WA3UVV-11, packet mobile)

The DRSI I tested belongs to Skip, KE2SC. We swapped TNC's for a while to compare notes. Skip has been using a number of DRSI cards for a few years now, and is quite happy with the product.

On the issue of price, with the exception of the 1278, the TNC's selling prices are within a few dollars of each other, although the PK-88 does not come with a power supply, which may make it a few dollars more, if you can't tap off your existing 12 volt system.

So my personal recommendations are as follows. If you are looking for a TNC to handle 1200 baud AX.25 traffic with a well-featured mailbox, buy the PK-88. If your interests may include TCP/IP and higher speeds in the near future, and the ability to receive e-mail while simulta-

neously on the air is not important, buy the MFJ1270B. If you are using an IBM-compatible system and want 'something different', or want to run simultaneous sessions, buy the DRSI. If you are the kind of person who 'wants it all', then a multimode TNC such as the MFJ1278 is the one for you.

Last, but not least, you may be able to find a used TNC either listed on a BBS (ask a friend) or at a hamfest. Be reasonably certain you are getting the latest firmware revision with up-to-the-date features and 'bug fixes'. There are certain features such as KISS, HOST and MONITOR that I would not want to be without. (Your mileage may vary.)

While I know this comparison of TNC's is only a beginning, I hope it has covered enough ground and answered enough questions to enable you to make an intelligent comparison of you own when you purchase YOUR TNC. If you have any further questions, or need some help in getting your station on the air, let me know and I will try to help.

I may follow this article up next month with one concerning the new world of things you can do once you are on packet, or it may be a project of building a 100-watt, 10.7Mhz mobile transmitter so you can tell the guy that cut in front of you and has just slowed down to 40mph on I-295 what you REALLY think of his driving skills right through his FM radio.

73, WA3UVV\Cory



WE WILL INTRODUCE 5 new members at the November General Membership meeting:

James Coombs, Sr. .... (T) N2SIX .... Monroeville Harry English ...... (TP) N2JIB .... Elmer Stanley Nierzwicki .... (T) N2SCD ... Sewell Stephen Nierzwicki .... (T) N2SCE ... Sewell

Donna Reed .....(T) N2QED ... Sewell

Welcome to the Club!

1992 New Member Count: 52

Mary Ellen/N2KLD

enroute to the Bahama Islands. Immediately following the Hamfest in August, we moved from our home of thirty years in Pitman, NJ, to our sailboat at Havre DeGrace, MD. We have been busily preparing her for our second trip to the Bahamas for the winter of 92/93. We hope to be underway down the Intercoastal Waterway by Saturday, October 15, and will cross over to the Bahamas around Christmas and then continue south through the islands to Georgetown, Great Exuma Island, by March '93. In April we will sail north through the Abaco Islands and back to the U.S. by May or June.

Living on a boat is a wonderful way of life, however, being a Ham operator really makes it great! We have our ICOM 735 with the AH2 auto-tuner working off an insulated back stay, about 38 feet long. For a ground system we have three large "Dyna-plates" (copper, porous plates) bolted to the outside of the bottom. One is under the antenna base, one under the radio (in the Nav Station) and a really large one under the mast. All the bronze throughhull fittings and the engine block, propeller shaft, etc., are tied together with three inch copper foil which is glued inside the hull under the floors, and also attached to the "Dyna-plates". This setup seems very effective as we consistently can work all the U.S. and many boating friends in Europe, the Canary Islands, Bahamas, etc.

For Power we use a large battery plant of four 6 volt, 225 Amp, "Rolls" batteries. We have them arranged in two sets of two in series, and we alternate each set in and out of use every other week to let them rest. We charge them daily and never let them discharge below 50%. We have a 100 Amp alternator which runs off the diesel auxiliary whenever we are powering the boat or need a charge. We also have a wind generator which will charge the batteries either at anchor or when we sail off shore.

We are members of the "Waterway Radio and Cruising Club" and report our daily positions to them on 7.268 Mhz at 0800 EDT whenever we are moving, as do many of our friends on other boats.

In 1990/91 we traveled out to the Bahamas on "LYRA" covering a total of 3,281 miles in ten months, with 800 miles in the Bahamas. It is a rigorous life, but we realize someone must do it!

Enough for now. 73 to all!

N2FJL Ralph DeGroodt C/O Verbits 415 Virgina Ave. Salisbury, MD 21801

#### DX REPORT

By K2JF\John Fisher

ELL I HOPE all of you who wanted to work Jim on VK9WW got a chance to do so. I finally snagged him on 10103 at 1200 Z on Oct 17. I found out something interesting. The 30 meter band counts for DXCC for CW only. I was unaware of the change until I call the League. It is still NO GOOD for contest, and is still restricted to low power (200 Watts).

9E Independent Eritrea...If you hear 9ER1TA or 9ER1TB WFWL. Eritrea became independent from Ethiopia and is now looking to become another DXCC country. It used to be one but in 1962 it was deleted. In many minds it should never have been deleted. (Hey N2SS, what say?)

VU7CVP LACCADIVE IS...Well they sure were busy this week. I hope you worked them because they will be QRT early in Nov.

4U1ITU GENEVA...will be active around the first week of Nov. OSL via DL1IAI.

OY/G4XRV FAROE ISLANDS...He will be active primarily on CW on 80-10 meters, from Nov 1-5. QSL via G4XRV.

S5 SLOVENIA... According to information received from YU3FK, stations in Slovenia will begin using callsigns in S5 series Oct 24. The call sign will be like this: S51AA-S55ZZ. These use to be old YU and 4N calls. Work them they will be new DXCC countries.

T32BE by WC5P E. KIRIBATI Nov 24 - DEC 7...He will be active on all bands mainly CW. Look around xx.020 slot listening up.

FW WALLIS ISLAND...A group of Japanese operators will be active from Wallis Is. November 1-4. They plan to sign FW/KG7XE. They will be active 160-6 meters including the WARC bands on CW SSB and RTTY.

<u>RUMOR...FR/T TROMELIN...There</u> are rumors of a possible operation from Tromelin in November. (I sure hope they have a CW operator with them. I need it on CW.)

Well I hope you all had fun in the CQ DX PH contest of the week-end Oct.23-25. Next big one is Nov. 7 ARRL SS CW start 2100Z for 30 hours. Here is your big chance to get WAS. Don't forget the ARRL SS PH on Nov 21, again 2100z for 30 hrs. Then the Big CQ DX CW starting Nov. 28 at 0000Z for 48 hrs. Good DXing.

C U in the Pile-Ups

73 - John K2JF

#### LAUNCH OF THE SPACE AGE

BEEP-BEEP...The world knew that the Space Age had begun. The incessant beeping came from the radio transmitters on Sputnik 1. Earth's first artificial satellite which was launched 35 years ago. (Where were you then? Were you even born?) Me? I was working for RCA and also going to school. The launch of Sputnik stunned Americans and most others in the West. The Soviet Union was viewed as a backward nation, lacking the scientific and technological know-how needed to accomplish such a feat. That changed abruptly on October 4, 1957. A giant A-1 rocket carried the 183-pound satellite aloft from the Baiknonur space center on the steppes of Kazakhstan, The A-1 placed Sputnik in a highly elliptical orbit that took it from the low point of 142 miles above the Earth's surface to a high of 589 miles. Observers in much of the world watched the Soviet satellite as it repeatedly crossed the sky. And ham-radio operators listened in as the craft's radio transmitters broadcast the telltale beeps at wavelengths of 20 and 40 megahertz.

I can tell you it was exciting to hear the Beeps on my old Hallicrafters SX-17 receiver. World reaction to launch ranged from amazement to shock and panic. Only the Eisenhower administration appeared unimpressed. Administration officials tried to play down the Soviet accomplishment by claiming it was a minor step and something most anyone could do. However, it too nearly four months marked by some spectacular failures before the United States matched the Soviet feat. Sputnik continued to transmit for 21 days and remained in orbit a total of 96 days and 1,400 orbits. Even though these numbers pale in comparison to those of many subsequent space missions, every space flight since Sputnik can grace it ancestry back to that glorious October day.

Why don't you come and enjoy space communica-

