

November, 1983

Feedback

Monthly bulletin of

The Georgian Bay
Amateur Radio Club



GBARC

The Georgian Bay Amateur Radio Club (GBARC) is based in Grey and Bruce Counties and meets at 8 p.m. sharp on the third Thursday of each month, except July and August, downstairs in the Grey-Bruce Tourist Information Centre at Springmount, just west of Owen Sound.

The club marks its tenth anniversary this fall and winter. It was formed in late 1973 by a core of area amateurs consisting of Dick Shave, VE3BIS; Jim Vamplew, VE3CRV; Jack Avis, VE3DTS and Bill Hardie, VE3EFX.

Since then, the club has grown to about 60 resident and non-resident members.

The Georgian Bay Club operates a 2-metre FM repeater on 146.34 (in) - 146.94 (out) at 1200 feet ASL at Woodford, just east of Owen Sound. VE3OSR is an 'open' repeater and covers the area roughly from Collingwood to Southamton and from Durham to the Bruce Peninsula. Autopatch facilities are available.

The GBARC net meets every Sunday at 0930 local on 3.783 MHz with a rotating schedule of net controllers. Any amateur is invited to check in on phone or CW.

Club officers for 1983-1984

President	Bill Kohlman, VE3NEG
Vice-President	Jack Avis, VE3DTS
Secretary-Treasurer	Jim Harron, VE3BFV
Membership Secretary	Moe Hurlbut, VE3LPT
Program Directors	Don Finlayson, VE3JUO Harvey Smith, VE3FOT
Net Manager	Dave Dixon, VE3DXO
Feedback Editor	Rob Ludlow, VE3AQT
Coffee	Jack Barrett, VE3AUB

Past Presidents

1973-74-75	Jim Vamplew, VE3CRV
1975-76	Dick Shave, VE3BIS
1976-77	Dave Dixon, VE3DXO
1977-78	Ian Trenholm, VE3HIP
1978-79	Ian Sutherland, VE3HXX
1979-80	Don Richards, VE3IDS
1980-81	Harvey Smith, VE3FOT
1981-82	Laverne Wyville, VE3LPD
1982-83	Moe Hurlbut, VE3LPT

Dues

Annual dues for full club membership including a subscription to *Feedback* are \$10.00.

Feedback

Feedback, the monthly bulletin of the Georgian Bay Amateur Radio Club is published monthly and mailed to reach members prior to each regular meeting. Contributions, articles and letters are encouraged and should be sent to Rob Ludlow, VE3AQT, 847 15th Street East, Owen Sound, Ontario, N4K 1X7. Phone 371-1692. Deadline is the first Thursday of each month.

Information

More information on club activities may be obtained from the Secretary-Treasurer, Jim Harron, VE3BFV, RR2 Kemble, Ontario, N0H 1S0 or from the Membership Secretary, Moe Hurlbut, VE3LPT, Leith, Ontario, N0H 1V0, or from any other club official.

President's Report

Recently, I was talking to a friend and casually mentioned 'ham' radio and I heard the familiar words that most of us have heard: 'Oh, you have a CB!'

Blood rises and starts to boil. I informed him of the differences and he seemed to be very interested. My thoughts turned to prospective and new amateurs and how to inform the public of amateur radio.

At the Split Rail Festival in Flesherton in September, several hams set up a display and demonstrated ham radio. They did an exceptional job and had a lot of fun as well.

What we need is more like that in Grey and Bruce. We certainly have the right people around GBARC who are second to none.

Another great annual activity is JOTA - Jamoboree On The Air. Worldwide scouting and ham radio together in friendship. Here, again, what a great way to inform the public of the possibilities and uses of amateur radio.

JOTA for Port Elgin was held at Sauble Falls this year with many local hams helping out, members of GBARC and non-members.

Not only did we meet a lot of new hams but a lot of prospective hams. The participants had a great time making contacts on the air and friends around the world.

These two events were both very easy to get involved with, provided a lot of satisfaction and a chance to contribute something to the hobby and the public.

But . . . you must participate in order to help out and enjoy.

Editor's Notes

Jim, BFV's minutes on the opposite page give a very full picture of what transpired at the October meeting. As he noted, George, HPW has agreed to be Technical Director and is also on the new repeater committee with AEO, BIS, CPV and MTV. They have been given authority to keep the repeater in good shape. If the committee and the club decide later that further funds are needed for repeater improvement, we could all start thinking now of methods to raise funds such as a club auction, flea market etc. Some members report that OSR's coverage and sensitivity has improved, especially to the southeast and southwest. I find it's generally insensitive and mostly unusable around Owen Sound, especially downtown and even where I am on top of the east hill.

* * *

A club equipment custodian, preferably from Owen Sound, is still needed to keep club property and take charge of the meeting hall key.

* * *

President Bill, NEG, told the club at the last meeting that Jeff, KPT did a "really fine job" of running Field Day '83 last June.

73, Pob, VE3AQT

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DUES ARE DUE!

Just a reminder that dues for this club year were payable as of September 1 and memberships carried over from last year as well as Feedback mailings will cease if payment is not received by December 31.

Membership for the Georgian Bay Amateur Radio Club is \$10 per year. Please fill out the form below to make bookkeeping easier for the secretary-treasurer, to ensure the accuracy of club records and to make sure you get Feedback each month.

Forms and dues can be mailed to the secretary-treasurer, Jim Harron, VE3BFV, RR2 Kemble, NOH 1S0 or brought to the next meeting. Renew early to ensure inclusion in the new club roster in January.

GEORGIAN BAY AMATEUR RADIO CLUB

1983/84 Membership Form

NAME (please print) CALL

ADDRESS TOWN

POSTAL CODE ADVANCED AMATEUR SWL

TELEPHONE PHONE PATCH: YES NO 2m

Secretary-Treasurer's Report

Minutes

THE MONTHLY MEETING OF GBARC WAS HELD AT THE GREY-BRUCE TOURIST INFORMATION CENTRE ON OCTOBER 20TH.

THE MEETING WAS CALLED TO ORDER AT 2000EDT BY THE PRESIDENT VE3NEG, BILL, IN THE CHAIR WITH 20 MEMBERS PRESENT. THE TREASURER VE3BFV, JIM, WAS UNABLE TO GIVE A FINANCIAL STATEMENT BUT IT IS NOW INSERTED HERE: THERE WAS A BANK BALANCE OF \$826.37 AND PETTY CASH OF \$2.86.

THE MINUTES, AS PRINTED IN FEEDBACK, WERE MOVED AND SECONDED BY VE3FOT, HARVEY, AND VE3JUD, DON.

VE3HFW, GEORGE, VOLUNTEERED FOR THE POSITION OF TECHNICAL DIRECTOR. ALL WERE IN AGREEANCE.

A CALL FOR A MEMBER TO BE CUSTODIAN OF THE CLUB EQUIPMENT BROUGHT NEGATIVE RESULTS.

A MOTION TO ADOPT A PROPOSAL AS PRINTED IN THE OCTOBER ISSUE OF FEEDBACK RE THE CLUB YEAR BE FROM SEPTEMBER 1 TO AUGUST 31 AND THAT FEES BE \$10.00 ANNUALLY ACROSS THE BOARD, WAS MOVED BY DICK, VE3BIS, AND SECONDED BY MOE, VE3LPT, WAS CARRIED UNANIMOUSLY.

UNDER THE HEADING OF OLD BUSINESS THE REPEATER PROBLEM WAS DISCUSSED. AT PRESENT IT IS NOT OPERATING IN A SATISFACTORY MANNER. THE PRESIDENT PASSED AROUND TWO PRINTED PROPOSALS FOR CONSIDERATION.

PROPOSAL 1 ; GIVE THE REPEATER COMMITTEE A BUDGET AND AUTHORITY TO PURCHASE, MOVE OR WHATEVER IS NECESSARY TO MAINTAIN VE3DSR IN A RESPECTABLE WORKING ORDER AND ADHERING TO DOC RULES. THEY WILL ANSWER TO GBARC. WE MUST HAVE 4 VOLUNTEERS.

PROPOSAL 2 ; ASK A GROUP TO TAKE OVER THE REPEATER AND MAINTAIN IT. THEY WILL LOOK AFTER ALL FEES AND ADMINISTRATION. GBARC WILL NOT BE RESPONSIBLE.

MOVED BY JIM, VE3CRV, AND SECONDED BY NORM, VE3MTV, THAT PROPOSAL 1 BE ADOPTED WITH THE LIMITATION THAT UP TO \$50.00 IN ANY MONTH CAN BE SPENT WITHOUT APPROVAL. CARRIED.

VOLUNTEERS - TED, VE3AEO; JIM, VE3CRV; NORM, VE3MTV; AND GEORGE, VE3HFW FOR THE REPEATER COMMITTEE.

MOVED BY DON, VE3JUD, AND SECONDED BY JIM, VE3CRV, THAT THE CLUB APPLY FOR THE CALL SIGN OF THE LATE FRED KOEPKE, VE3WF, AND IT WOULD BE USED ON FIELD DAYS AND IN DISPLAYS AND EXPOSITIONS, ETC. CARRIED.

IT WAS ANNOUNCED BY NORM, VE3MTV THAT A CW NET WOULD OPERATE ON MONDAY NIGHTS AT 1930 HRS. ON 3700 KHZ.

MOVED BY DON, VE3JUD, AND SECONDED BY LAVERNE, VE3LPD, THAT A RUBBER STAMP BE PURCHASED TO REMIND DELINQUENT MEMBERS TO PAY THEIR DUES. CARRIED.

THE MEETING THEN ADJOURNED AND THE ARRL FILM " AMATEUR RADIO'S NEWEST FRONTIER ", A VIDEOTAPE PRODUCED AND NARRATED BY NBC SCIENCE EDITOR ROY NEAL, K6DUE WAS SHOWN. THIS VIDEOTAPE DESCRIBES DR. OWEN GARRIOTT, W5LFL, INVOLVEMENT IN AMATEUR RADIO AND HIS PLANS FOR OPERATION FROM SPACE ON THE NEXT STS-9 MISSION OF THE SPACE SHUTTLE COLUMBIA (SCHEDULED FOR OCTOBER 28 BUT HAS BEEN DELAYED). IT WAS AN EXCELLENT FILM AND WAS ENJOYED BY ALL PRESENT.

COFFEE AND DONUTS WERE AVAILABLE AFTER THE MEETING THROUGH THE EFFORTS OF JACK, VE3AUB.

SUBMITTED BY JIM, VE3BFV.

Future Meetings

Thursday, November 17 - Fred Kuznicki, VE3KPK, is scheduled to give a talk on interesting aspects of RTTY. I am sure Fred will enlighten some of us, like myself, who have little or no knowledge of RTTY as to the myths and facts concerning this interesting area of amateur radio. Come armed with any questions you may have for Fred.

Thursday, December 15 - Bernice Finlayson (Mrs. VE3JU0) has consented to make us some Christmas goodies for our pre-Christmas meeting which will take the form of a Mini Swap Shop and Bagchew. Come prepared to exchange basements, junk boxes and exciting ham-related stories with Bernice's goodies and Jack, AUB's coffee.

I wish to thank Harvey Smith, VE3FOT for so graciously stepping aside as last month's speaker to allow the club to view the videotape Amateur Radio's Newest Frontier when it was available.

73, Don, VE3JU0
Program Director

Trading Post

FOR SALE: Choice of three ASR33 teletype machines in above average condition. \$80 each.
Also two metal teletype tables. 18" x 21" x 27" high.
\$16 each.

Jim, VE3BFV
371-1209

Nets

As Jim, BFV noted in the minutes of the last meeting on page 3, Norm, MTV and Tom, NEM have got a CW net going to help all of us improve our code proficiency. It's at 9:30 p.m. local time Mondays on 3.7 MHz \pm 5 kHz for QRM. The repeater or .94 simplex can be used just prior to net time to make final arrangements.

Silent Key

Fred became a Silent Key on October 13, 1983 and I'm sure that we will all miss him.

He designed the club crest that appears on the cover of Feedback and was one of the amateur radio pioneers in this area.

My first recollection of Fred goes back to 1934 when we both became fascinated by the radio contacts of Jack, VE3DF.

He had an apartment just south of the local A and P store. At that time, the city PUC generated most of our electric power using steam engines.

The PUC had a dandy brick smokstack 140 feet high and Jack had a wire stretched from the top of this stack to his apartment with a 20-metre rig on the end of it.

To change from receive to transmit it was necessary to shut down the receiver, dash 40 feet down the hall and grab a mike and switches for the antenna, plate supply etc. after saying a few words.

The performance was repeated so it was that Fred and I came to know each other as we tore up and down the hall.

Eventually, Fred operated his own CW and phone rig including much experimenting on 5 metres. Oh yes, we had 5 metres at one time.

Fred made a valued contribution to our club and to amateur radio and our sympathy goes out to his widow Agnes and their children.



FRED KOEPKE - VE3WF

Ted Scarrow, VE3AEO

Looking Back

Ten years ago, the November 15, 1973 GBAPC meeting at the CIAG computer building in Owen Sound was attended by 11 people. There was some snow and slush on area highways and attendance was reduced due to the bad weather.

Discussion of repeater frequencies resulted in the 34/94 pair being picked for initial operation and if QRM was encountered 25/85 was picked as the alternate pair. The repeater was almost ready to be installed at the Woodford location.

It was mentioned that some club members felt too much emphasis was being put on 2 metres and the repeater but it was also explained that this was to be expected because getting the repeater up and running would dominate club discussions for a few months.

Jim, CRV, was on the air with a new FTDX101B.

Eighteen Marconi DT-65 mobile 3-channel VHF transceivers were available to club members for \$30 each from Jim, CPV.

It was announced that ham classes were to begin at Georgian College at 7 p.m. on Tuesday, January 8. The course, to be taught by Jim, CRV, was to consist of 12 sessions of 2½ hours each.

Under the For Sale heading, Bill, EFX was selling an HW-12A with HP-13 DC supply, mike, mobile bracket, two spare finals and an 80m mobile Bandspanner antenna all for \$175.

Compiled by Bob, VE3AQT
with old Feedbacks
courtesy of Dick, BIS

Bits 'n' Pieces

The new DOC Telecommunications Regulation Circular that applies to amateur radio, the TRC-24, recently became available and is effective February 1, 1984. Some of the key changes are a requirement to send as well as receive code for both the amateur and advanced amateur exams and an end to the logging requirement for most amateurs, letting foreign visitors from Region 1 who have reciprocal operating privileges use the whole of our 2-metre band and the removal of existing low power restrictions from 160.

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For DX hounds and just general operating, Nov. 22 to 25 could bring the best overall DX conditions of the season due to favorable solar flux conditions.

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OUR NEW 'BOSS'

Robert A. Gordon has replaced Dr. John deMercado as DOC Assistant Deputy Minister, Spectrum Management. He will be responsible for regulating the use of radio in Canada including the Amateur Radio Service.

* * *

Those increasingly popular cordless telephones that you see in trendy TV shows and on Radio Shack shelves are causing a few headaches for some owners. Crafty crooks have been cruising around some neighborhoods with a handheld unit, triggering it until they get a response from a nearby home. Then they dial up long distance calls, all at the unsuspecting owner's expense. Coded access phones can help solve the problem but the cheaper units have no protection and more and more proud owners of cheap cordless phones are going to have fun explaining to Bell calls they claim they didn't make.

* * *

This isn't awfully new, but for those who hadn't heard, the DOC has reported that the majority of amateurs who commented on the proposal for club volunteers to administer exams, most favored the DOC continuing to administer the exams. The DOC will not proceed further with the proposal that amateur volunteers take over this function. The DOC is willing to accept volunteer help from amateurs in connection with certain aspects of exams. If you want to help, let the closest DOC office know.

* * *

According to a recent issue of the federal Canada Gazette, it won't be long before U.S. CB'ers visiting Canada will not have to obtain written authority to operate here. The Gazette said the prior authority required for the now-delicensed U.S. CB'ers to operate here 'causes unnecessary burdens on both administrations.' As a result, the DOC is taking steps to abolish this requirement. Meanwhile, Canadian GRS operators must apparently still go through the obligatory U.S. hoops, paperwork and pay a \$13.50 fee. Is this what 'reciprocal' means?

* * *

A well-known electronic organ manufacturer recently advised an organ owner in the U.S. who complained of interference from a nearby amateur station to 'put a pin in the ham's coax'. The ARRL came to hear of the incident and fired off a letter to the pinheads at the organ company who issued the helpful advice.

(From CQ)

* * *

Speaking of interference, if you thought your problems were over with the advent of cable, they be just beginning. With the explosion of TV 'peripherals' such as home video recorders, disc players, computers and games being patched into TVs in more than one room in many homes, there are increasing reports of amateur RF finding its way into nearby TVs, by way of poorly-shielded coax hookups. It may be a word to the wise as one of the first things to check if you get any complaints.

* * *

Lim Sang Ki, HL1IJ (KH6MC), a flight steward with Korean Airlines, was unfortunate enough to be on board the ill-fated Flight 007 jumbo jet en route from Anchorage, Alaska to Seoul, South Korea when the Soviets 'accidentally' blasted it out of the sky. There were no survivors.

* * *

For VHF-UHF scanner fans, Regency has announced a new, full coverage unit to be released in March 1984. The MX-7000 will provide full and continuous coverage of all frequencies from 25 MHz to 1.25 GHz, receiving NBFM, WBFM and AM. The price is expected to be about \$600 U.S.

* * *

Still in the scanner department, for anyone with a Bearcat 250, I have a mod. article that will improve the utility of the unit by adding a 'resume scan' feature. It can be adapted to suit most other scanners on the market and shouldn't cost more than \$5 or \$6 and a few hours of work. Let me know if you want to know more.

* * *

I also have another mod. article available from another club bulletin on a cassette recorder interface for a Commodore VIC-20. It gets around having to use their expensive hardware.

* * *

The Nortown Club of Toronto has been approached by the CTV network show Live It Up for participation in a program on amateur radio. Discussions are under way and we'll try to keep you posted on further developments or air dates.

* * *

The DOC has cracked down on a ring of illegal radio operators by seizing equipment in Nova Scotia. The group is believed to be the notorious 'Radio Raiders' which claims to have a worldwide membership of half a million. The illegals operate in and out of the ham bands using modified amateur gear, assigning 'call signs' to themselves and even issuing cards. Prosecution seems likely as a result of the enforcement action. The group claims to be a spinoff coalition of militant CB'ers who obviously feel they shouldn't be forced to go through all the pesky exams and red tape of getting a real licence.

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The 1983-84 ARRL Net Directory listing more than 1200 public service nets in North America will soon be available. To reserve your free copy, send a 9 x 12-inch self-addressed envelope with 85 cents postage to CPRL, Box 7009, Station E, London, Ont. N5Y 4J9.

* * *

Bill Gillespie, VE6ABC of Edmonton, is the CPRL Amateur of the Year. Setting an example for involvement, Bill is Alberta Section Traffic Manager, District Emergency Co-ordinator, manager of two nets and an Official Bulletin Station. He operates the Alberta Tube Bank and maintains a Western depot for CPRL supplies and materials. He also provides on-air code practice that has helped amateurs all over Western Canada get their tickets. Despite all this, Bill always has time for one more job.

* * *

Space Shuttle STS-9 may finally get off the ground this month! NASA has announced Nov. 28 at 1600 UTC as liftoff time with the mission ending Dec. 7. This is a full duration mission with some experiments reduced in scope. It seems unlikely the cuts will have an adverse effect on the operations of Dr. Owen Garriott, W5LFL who will be working 2 metres in his off-duty hours when the shuttle is over North America (see QST excerpts next four pages.) Apart from 2-metre traffic, the following are confirmed shuttle support traffic frequencies to listen to pursuit aircraft, recovery ships, search and rescue etc. 9006 kHz USB and 10,780 kHz USB. For later, up-to-date details try the ARRL Shuttle Hotline 203-666-0688.

Space Shuttle Columbia Calling All Radio Amateurs

Will NASA Astronaut W5LFL, the first ham in space, put you in his STS-9 log?

By Bernie Glassmeyer,* W9KDR, Peter R. O'Dell,** KB1N and Roy Neal,*** K6DUE

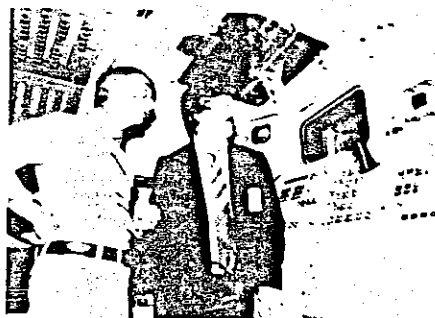
Electrifying excitement is building rapidly as word is spread around the world of the official NASA approval of Owen Garriott's bid to become the first Amateur Radio operator in space. On September 30, the Space Shuttle *Columbia* will, if all goes according to plan, lift off the launch pad at Cape Canaveral, Florida, carrying a specially built 2-meter fm transceiver. Dr. Garriott will establish two-way communications with as many amateurs as he can while he circles the globe.

All Amateur Radio operators will have an equal chance to work W5LFL from *Columbia*, but his operating time will be limited. It will be impossible for everyone who would like a QSL card from space to complete a two-way contact, since Owen will be allowed a total of only six hours of operating (one hour per day). Before delving into the mechanics of this historic event, let's look at it from a public information standpoint.

You and the Press

You don't have to make a contact to participate in this history-making event. Simply monitoring the operation and passing up-to-the-minute information to your local media will enable you to become involved personally. But if you do make a QSO, so much the better. As Rich Moseson, N2BFG, of the CBS-TV program "In the News," explains, "A local person actually talking to an astronaut could easily be front-page stuff in a newspaper or a near-to-lead story on a radio or TV newscast." Rich also points out the other side of the coin: "No reporter or editor can cover a story he or she doesn't know about."

It's not too early to set up an appointment with your local news reporters or editors. Make your arrangements now. This is the first major national story about Amateur Radio that doesn't involve a



Dr. Owen Garriott, W5LFL (left), and Bernie Glassmeyer, W9KDR, discuss some antenna-mounting possibilities inside the Space Shuttle Trainer at the Johnson Space Center in Houston. (NASA photo)

catastrophic event. Let's make the most of a perfect opportunity to promote the Amateur Radio Service.

Begin by making a survey of your local media; in addition to the obvious daily newspapers, radio stations and TV stations, remember the not-too-obvious things such as company newsletters, cable-TV stations and weekly "shoppers." Send the ARRL Public Information Coordinator (ARRL Hq.) a list of the reporters/editors you will be in contact with, including the type of an organization they represent. We'll send you a Press Information Kit explaining what the Garriott mission and Amateur Radio are all about. You can pass these kits on to these reporters and editors when you contact them. (This should be done at least several weeks before the launch.)

The next thing is to think about your station, the image it presents to the "uninitiated" public and what you can do to make the most favorable impression on visitors. First of all, it just makes good sense to tape-record everything on a mission like this. You should experiment now to determine the best method of hard-wiring the recorder into your station. (There are too many variables to give you a "universal" interface, but start with some 1-k Ω isolation resistors.)

The next thing to consider is what your station is going to look like to the outsider

— particularly one with a camera. Ask unlicensed members of your family how it looks to them. If you have an instant camera, take a few photos and go over the prints carefully. (You don't have to dispose of the box of surplus RTTY gears you bought at the hamfest; honest. Just hide them.) Dispose of clutter until your station conveys an image of "professionalism."

Suppose you are trying to work the Shuttle and a reporter asks you a question; what would you do? The best bet is to team up with at least two other hams. Two can keep track of the station equipment and operations, watch the clock and, generally, double-check each other. The third should act as spokesman for the team. The spokesman should be completely familiar with the station and its operation, because he or she will need to answer questions about what is going on. (You'll also need a second set of handouts for the reporters who cover the story. ARRL Hq. will provide these to the people who make the advance contacts we suggested.)

This is a once-in-a-lifetime opportunity for the local ham to be a part of a national story — and it's a story that doesn't involve pain and suffering. Make your preparations early. *Do it now!*

Preparing for W5LFL's Flight

How can you have the best chance to work W5LFL aboard the Orbiter? Completing a two-way contact is going to take some advance preparation — and some luck!

Starting on day three of the nine-day mission, Dr. Garriott will provide about one or two hours advance notice of his intention to operate the Amateur Radio transceiver. He will announce this to Mission Control on the Orbiter's normal air-to-ground frequency. The announcements will then be disseminated through AMSAT nets, W1AW bulletins and a special "900" telephone number that will be announced before launch.

Operation will be limited to a maximum of about one hour per day, when no other flight activities (or sleep periods) are

*OSCAR Program Manager, ARRL
**Public Information Coordinator, ARRL
***c/o NBC News, 3000 West Alameda Ave.,
Burbank, CA 91523

Table 1
STS-9 Operating Frequencies

- Space to Earth: 145.510 to 145.770 MHz
- Earth to Space: 144.910 to 145.470 MHz (20-kHz steps)

All operations will be F3.

This range of frequencies will allow operation from most parts of the world. Although some frequencies fall on some repeater inputs and outputs, operation through repeaters is not planned.

scheduled. Orbit numbers and ground tracks for potential Amateur Radio operations are being prepared and will be identified prior to flight.

As the Orbiter approaches the portion of the ground track where Amateur Radio operations are planned, Owen will call and listen on alternate minutes. He will transmit continuously for one minute, beginning on the even minutes, and will receive continuously for one minute, beginning on the odd minutes. Be sure to synchronize your station clock to WWV, plus or minus two seconds.

The transceiver will have the capacity to transmit and receive on channels 20-kHz apart within the planned operating range shown in Table 1. Discrete downlink (space to earth) frequencies and uplink (earth to space) frequencies will be announced before the flight.

During a typical even-minute transmission period, Dr. Garriott will identify a geographical area or call district that he will listen for. He will also announce the frequency range and, as time permits, describe crew activity or views of the earth.

During the odd-minute receive period, Dr. Garriott will scan the announced uplink frequencies for call signs from the designated area only. To establish contact, you will send your full *call sign only*, repeating it several times during the scanning period.

During the next transmission period, on the even minute, Dr. Garriott will acknowledge all call signs he has heard during the scan period. No other report will be needed; call-sign identification constitutes a two-way contact. This procedure will give more operators a chance to make a contact. If time permits, some stations may be called on for short transmissions to fill the time period.

How to Track the Orbiter

Maximum communication time as the Shuttle passes directly over your QTH is eight minutes. Accurate timing is essential, so calibrate your clock to the most accurate time standard available to within two seconds. Orbital information will be updated daily on the "900" number, on AMSAT nets and on WIAW bulletins.

Tracking with the OSCARLOCATOR is possible, but you will need to make a simple modification: You can modify your existing OSCAR 7 or OSCAR 8 overlay by

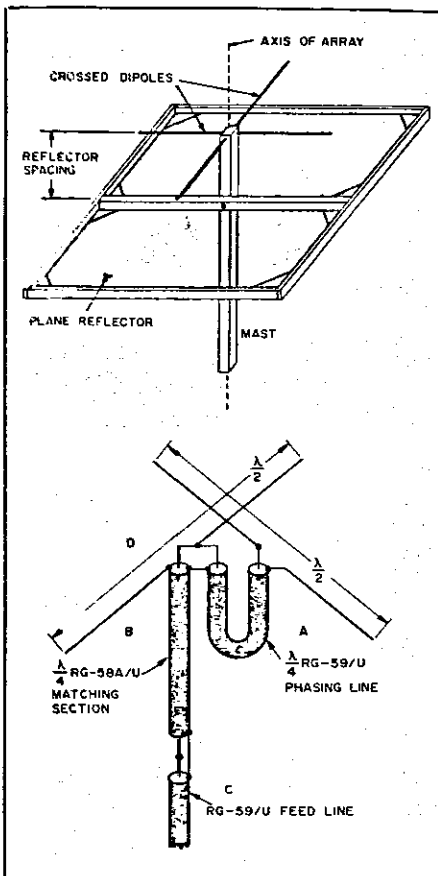


Fig. 1 — Dimensions and connections for the turnstile antenna. The phasing line is 13.3 inches of RG-59/U coax. A similar length of RG-58/U cable is used as a matching section between the turnstile and the feed line.

tracing the full-size ground track and range circle shown on page 79. Use a permanent-ink fine-point pen, like the Pilot SC-UF, to trace your curve, and you're all set.

Those who have computer tracking programs will also be able to track the Orbiter. The elements needed for most programs are shown in Table 2. If you have a computer or programmable calculator and need a program, write to AMSAT Software Exchange, Box 27, Washington, DC 20044.

Equipment You'll Need

Making a 2-meter contact will not require an elaborate station setup. Actually, it will take less than is required for normal OSCAR-type contacts. AMSAT and ARRL recommend around 40 W of output power to a turnstile antenna (see Fig. 2) to have the best chance of being heard. Construction details are available in recent editions of *The Radio Amateur's Handbook* and *The ARRL Antenna Book*. Most 2-meter nbfm equipment will be able to make the earth-to-space connection. Dr. Garriott will be running only 5 W to a loop antenna, and it will be interesting to see how little power it takes to make a contact.

Table 2
STS-9 Orbital Parameters

- Period: 90 minutes
- Altitude: 155 nautical miles (250 km)
- Inclination (angle measured north from equator): 57°
- Increment (equator degrees that the earth turns during one complete spacecraft orbit): 22°

This data, with an equator-crossing time and coordinate (in degrees, west longitude) after launch, will "plug in" to most computer or calculator programs.

Operating procedure and timing will be key factors in getting your call sign in the W5LFL log.

Since the planned operation calls for separate listen and transmit periods, you won't need special split-frequency capability. Having the exact frequencies of operation, you can simply monitor the space-to-earth frequencies during the even minutes and switch to the earth-to-space frequency of your choice for your transmission.

Do not try to track the Shuttle with azimuth and elevation control unless you have precision, computerized equipment; with only a few minutes of access time, you'll find it almost impossible, especially if your antennas have a narrow beamwidth. If you use a gain antenna, we recommend the old, reliable "Arm-strong Rotator" method — holding the antenna and aiming it by hand for best reception.

QSL Cards for All

Specially designed QSL cards will be available to everyone who sends a reception report of the Amateur Radio operation from Space Shuttle *Columbia*. Pass the word to your nonamateur friends so they can monitor on scanners, or let them listen in on your receiver so they can qualify for the special QSL. Send all reception and confirmed contact reports to ARRL, STS-9, 225 Main St., Newington, CT 06111 USA.

Operation Protocol

The first attempt to communicate with the Space Shuttle will present a challenge to most Amateur Radio operators. Beyond the achievement of being in the right place at the right time is another challenge: public relations. The public at large may have a little trouble relating to a cold piece of electronics hardware orbiting the earth, but they can relate to a human aboard the Space Shuttle. What we do and how we conduct our operations can bring more prestige to Amateur Radio and promote international goodwill.

If we can keep this historic event simple and remember our rules of diplomatic etiquette, we will have a better chance of gaining future Space Shuttle Amateur Radio opportunities. Join in the fun of this operating "Event of the Decade."

Owen Garriott: The Man Behind the Mission

By Roy Neal,* K6DUE

When the Space Shuttle Columbia lifts off from Cape Canaveral, Florida, on October 28, Amateur Radio will be aboard looking to make its own mark on history. It is during that nine-day mission, designated STS-9, that NASA Astronaut Owen Garriott, W5LFL, will become the first radio amateur to operate from space. Using a specially designed 2-meter fm transceiver and antenna, Dr. Garriott will attempt, at certain times during the flight, to make two-way contacts with Amateur Radio operators worldwide (see accompanying sidebar). Recently, NBC Science Editor Roy Neal, K6DUE, had the chance to meet with Dr. Garriott and find out more about the man who will soon usher Amateur Radio into the world of manned space communications.

In Enid, Oklahoma, the main road is "Owen Garriott Street." Enid is as proud of its astronaut as he is of his home town. Garriott feels strongly that Enid gave him the training and inspiration to become what he is today — and Amateur Radio played a prominent role.

During the early '40s, when Owen was in junior high school, his father came home with the news that the Enid Amateur Radio Club was starting a code class. Father and son began taking lessons. A few months later, the club offered classes in the theory and practice of radio, and the Garriotts kept right on studying. They went to the FCC field office to take the test for an amateur license, and both passed. Owen Garriott, Sr., became W5KWQ; Owen K. Garriott got the call W5LFL.

The future astronaut's first station was a "homebrew" two-tube transmitter — a 6L6 feeding an 807. His antenna was a wire strung from a bedroom window to the garage, and 80-meter cw was his favorite hunting ground.

By the time Owen graduated from high school, his interest in radio had set him on course for college. He earned a BSEE degree from the University of Oklahoma (1953) and an MSEE degree (1957) and a PhD (1960) from Stanford, where he taught electronics, electromagnetic theory and ionospheric physics as an associate professor. Later, he was presented with an honorary doctorate from Phillips Univer-



Aboard the Space Shuttle Trainer at Johnson Space Center in Houston, Astronaut Owen Garriott, W5LFL, goes through a trial run with the specially designed equipment he will use when he becomes the first radio amateur to operate from an orbiting spacecraft. (NASA photo)

"Ham in Space" Update

At periods of time during the nine-day flight of STS-9 (rescheduled for launch on October 28), radio amateurs will have a chance to make a two-way contact with Owen Garriott, W5LFL. During the *odd minutes* of this time period, Owen will scan the earth-to-space frequencies and log those call signs he identifies. During the *even minutes*, he will transmit on 145.550 MHz (the primary space-to-earth frequency, with backups available) and read back those call signs he has entered in his log. Remember to synchronize your station clock with WWV. See Amateur Satellite Program News, this issue, and July and August QST for more details.

sity in Enid. Owen has authored or coauthored more than 30 scientific papers and a book, most dealing with ionospheric physics. He remains a consulting professor at Stanford.

As an electronics officer in the U.S. Navy from 1953 to 1956, Owen saw duty at sea on several destroyers. Also, he has logged more than 4300 hours of flying time, including more than 2500 hours in jets.

In June 1965, NASA selected Owen as a scientist-astronaut. As scientist-pilot

aboard Skylab 3, he was in orbit from July 28 to September 25, 1973, logging a total of 1427 hours and 9 minutes in space. Owen also spent more than 13 hours in three separate spacewalks outside the orbital workshop. He tried to get permission to carry Amateur Radio equipment on that flight, but NASA management turned down the request.

Since then, Owen and fellow scientist-astronaut Robert Parker have been working as mission specialists, preparing for the Spacelab 1 flight aboard the Space Shuttle Orbiter *Columbia*. When NASA decided to allow him to operate 2-meter equipment on that flight, Owen says it was a dream coming true — the achievement of a project that had been on his mind since he first became an astronaut.

In his 53 years, Owen Garriott has received many honors, among them the Collier Trophy, the Goddard Memorial Trophy and the NASA Distinguished Service Medal — special honors awarded to a man who has pioneered the techniques of space. Now, he is about to pioneer Amateur Radio from the flight deck of a spaceship. And one of his proudest possessions is the ticket that reads "Owen Garriott, W5LFL."

*c/o NBC News, 3000 West Alameda Ave., Burbank, CA 91523

They Made First Space Operation Possible

A happy coincidence and three men in key spots have made Owen Garriott's upcoming historic shuttle operation a reality.

By Peter R. O'Dell,* KB1N

Hundreds of hams and nonhams in NASA, AMSAT and ARRL have worked for more than 10 years to bring about the first Amateur Radio operation from space, but three individuals (in addition to Astronaut Owen Garriott) have played critical roles. They are Major General James A. Abrahamson, NASA's Associate Administrator for Space Transportation Systems; Harry G. Craft, Jr., Mission Manager for Spacelab (the primary mission of STS-9); and Roy Neal, NBC Science Editor (better known to us as K6DUE).

Gen. Abrahamson, who is "on loan" to NASA from the Air Force, is the man who approved the concept of an Amateur Radio station aboard the Shuttle. A graduate of MIT, he holds a master's degree in aeronautical engineering as well as having trained as an astronaut with the Air Force Manned Orbiting Laboratory.

Spacelab Mission Manager Craft is the man in charge of the STS-9 mission once it's in orbit. He is the person who has given Garriott permission to operate aboard STS-9. Craft is responsible for seeing to it that the objectives of the mission are met — sometimes it's hard for us hams to recall that the main purpose of the STS-9 mission is Spacelab, but Craft is the man who will keep the priorities straight. A native of Huntsville, Alabama, Craft holds a BS degree in electrical engineering from Auburn University and a master's degree in administrative science from the University of Alabama. He entered the Army in 1964 and served as a Signal Corps officer in Vietnam and at the Army Missile School, Redstone Arsenal in Huntsville. After leaving the Army, he returned to work at the Marshall Space Flight Center, specializing in scientific payloads and mission management.

During a commercial break on the *Today* show last spring, Roy Neal reminded Gen.

Abrahamson of the often-talked-about plans for an Amateur Radio station on a Shuttle mission. That happy coincidence set the stage for one of Amateur Radio's finest hours. Neal is NBC's leading expert on aerospace coverage, and has been present at every one of America's major space flights. Born in Bryn Mawr, Pennsylvania, Roy graduated from the University of Pennsylvania, where he majored in journalism, English and drama. He began his ham radio career as W3GIB in Wayne, Pennsylvania, in 1934. After serving in Europe during WW II, Neal returned to the Philadelphia area, where W3GIB was among the early experimenters with tri-band antennas and 2-meter relay stations (now called repeaters). In 1952, NBC moved him to California, where he picked up the now-famous call K6DUE.

Hundreds of people are playing a major role in this operation. But all effort would be to naught if it were not for the cooperation of these three men. QST

*ARRL Public Information Coordinator

Gen. James A. Abrahamson, NASA Shuttle Chief



STS-9 Mission Manager Harry G. Craft



NBC Science Editor Roy Neal, K6DUE



ARRL QN SIGNALS FOR CW NET USE

- QNA* Answer in prearranged order.
- QNB* Act as relay Between.....and.....
- QNC All net stations Copy.
I have a message for all net stations.
- QND* Net is Directed (controlled by net control station).
- QNE* Entire net stand by.
- QNF Net is Free (not controlled).
- QNG Take over as net control station.
- QNH Your net frequency is High.
- QNI Net stations report In.*
I am reporting into the net. (Follow with a list of traffic or QRU.)
- QNJ Can you copy me?
Can you copy.....?
- QNK* Transmit messages for.....to.....
- QNL Your net frequency is Low.
- QNM* You are QRMing the net. Stand by.
- QNN Net control station is.....
What station has net control?
- QNO Station is leaving the net.
- QNP Unable to copy you.
Unable to copy.....
- QNQ* Move frequency to.....and wait for.....to finish handling traffic. Then send him traffic for.....
- QNR* Answer.....and Receive traffic.
- QNS Following Stations are in the net.* (Follow with list.)
Request list of stations in the net.
- QNT I request permission to leave the net for.....minutes.
- QNU* The net has traffic for you. Stand by.
- QNV* Establish contact with.....on this frequency. If successful, move to.....and send him traffic for.....
- QNW How do I route messages for.....?
- QNX You are excused from the net.*
Request to be excused from the net.
- QNY* Shift to another frequency (or to.....kHz) to clear traffic with.....
- QNZ Zero beat your signal with mine.

*For use only by the Net Control Station.

Notes on Use of QN Signals

The QN signals listed above are special ARRL signals for use in amateur cw nets *only*. They are not for use in casual amateur conversation. Other meanings that may be used in other services do not apply. Do not use QN signals on phone nets. *Say it with words.* QN signals need not be followed by a question mark, even though the meaning may be interrogatory.

INTERNATIONAL Q SIGNALS

A Q signal followed by a ? asks a question. A Q signal without the ? answers the question affirmatively, unless otherwise indicated. See the ARRL Handbook and Operating an Amateur Radio Station for an expanded list.

- QRA What is the name of your station?
- QRG What's my exact frequency?
- QRH Does my frequency vary?
- QRI How is my tone? (1-3)
- QRK What is my signal intelligibility? (1-5)
- QRL Are you busy?
- QRM Is my transmission being interfered with?
- QRN Are you troubled by static?
- QRO Shall I increase transmitter power?
- QRP Shall I decrease transmitter power?
- QRQ Shall I send faster?
- QRS Shall I send slower?
- QRT Shall I stop sending?
- QRU Have you anything for me?
(Answer in negative.)
- QRV Are you ready?
- QRW Shall I tell.....you're calling him?
- QRX When will you call again?
- QRZ Who is calling me?
- QSA What is my signal strength? (1-5)
- QSB Are my signals fading?
- QSD Are my signals mutilated?
- QSG Shall I send.....messages at a time?
- QSK Can you work breakin?
- QSL Can you acknowledge receipt?
- QSM Shall I repeat the last message sent?
- QSO Can you communicate with.....direct?
- QSP Will you relay to.....?
- QSV Shall I send a series of V's?
- QSW Will you transmit on.....?
- QSX Will you listen for.....on.....?
- QSY Shall I change frequency?
- QSZ Shall I send each word/group more than once? (Answer, send twice or....)
- QTA Shall I cancel number.....?
- QTB Do you agree with my word count?
(Answer negative.)
- QTC How many messages have you to send?
- QTH What is your location?
- QTR What is your time?
- QTV Shall I stand guard for you.....?
- QTX Will you keep your station open for further communication with me?
- QUA Have you news of.....?

ABBREVIATIONS, PROSIGNS, PROWORDS

- CW PHONE (meaning or purpose, exception obvious)
- AA (Separation between parts of address or signature.)
- AA All after (used to get fills).
- AB All before (used to get fills).
- ADEE Addressee (name of person to whom message addressed).
- ADR Address (second part of message).
- AR End of message (end of record copy).
- ARL (Used with "check," indicates use of ARRL numbered message in text.)
- AS Stand by; wait.
- B More (another message to follow).
- BK Break; break me; break-in. (interrupt transmission on cw. Quick check on phone.)
- BT Separation (break) between address and text; between text and signature.
- C Correct; yes
- CFM Confirm. (Check me on this.)
- CK Check
- DE From; this is (preceding identification).
- PHONE Phone; telephone.
- HH (Error in sending. Transmission continues with last word correctly sent.)

- CW PHONE (meaning or purpose, exception obvious)
- HX (Handling instructions. Optional part of preamble.)
- Initial(s). Single letter(s) to follow.
- IMI Repeat; I say again. (Difficult or unusual words or groups.)
- K Go ahead; over; reply expected. (Invitation to transmit.)
- N Negative, incorrect; no more. (No more messages to follow.)
- NR Number. (Message follow.)
- PBL Preamble (first part of message).
- Read back. (Repeat as received.)
- R Roger; point. (Received; decimal point.)
- SIG Signed; signature (last part of message).
- SK Out; clear (end of communication, no reply expected).
- TU Thank you.
- WA Word after (used to get fills).
- WB Word before (used to get fills).
- Speak slower.
- Speak faster.

-over-

Net Control Schedule

The following is the new roster of operators to control the Georgian Bay Amateur Radio Net for the next five months.

In looking over the last couple of lists I note that, in a period of 20 consecutive weeks there were 14 appointed controllers who did not take their regular positions.

These things happen, but it is appreciated when you can arrange for an alternate if you can't keep your place as set out.

1983	Nov. 20	LPG Mal	} From previous list
	27	AUB Jack	
	Dec. 4	JUO Don	
	11	NEG Bill	
	18	FFN Walter	
	25	LCZ Andy	
1984	Jan. 1	FOT Harvey	
	8	CRV Jim	
	15	LPD Laverne	
	22	DTS Jack	
	29	BSF Verne	
	Feb. 5	AQT Rob	
	12	DXO Dave	
	19	LPT Moe	
	26	BFV Jim	
	Mar. 4	AEO Ted	
	11	IDS Don	
	18	HXX Ian	
	25	LPG Mal	
	Apr. 1	AUB Jack	
	8	JUO Don	
	15	BIS Dick	

Thanks fellows!

Dave, VE3DXO