The Ohm Town News

November 1993

Logan Utah

Voice of the Bridgerland Amateur Radio Club

Club to Elect Officers

by Kevin Reeve N7RXE

At the November 11th meeting of the Bridgerland Amateur Radio Club, new officers and board members will be elected. The elected offices are: President, Vice President, Secretary, Treasurer, and two Board members. Those appearing on the ballot where nominated by a committee consisting of Board members DeAnn Jensen, KB7LLG; Brian Potts, KB7FUB; and Dean Stevens, N7WDY. Only current members of the club in attendance at the November meeting will be eligible to vote. Election will be by secret ballot but before voting occurs members of the club will be able to nominate others for each office. It is recommended that those wishing to nominate someone else first contact them for permission. The nominees for president must have held an elected office in the club. We must not forget one very important item. The ballot will also contain choices of food for the Christmas party. The nominations are as follows:

President
John Stohl AE7T
Dean Stevens N7WDY

Vice President
Stan Wellard N7UXC
Neil Holt N7PEO

Secretary
Tammy Stevens N7YTO
Cheryl Thurgood N7YUE
Kathy Holt N7PEN

Treasurer
Brian Potts KB7FUB
DuaneDutson WB7NRU

Board Members (vote for 2)
Mark Jensen N7EVJ
Tyler Griffiths N7UWX
Terry Zollinger N7PEG
Clayton Clark AC7O
Kevin Reeve N7RXE

Menu items for the Christmas party (vote for 2)
Chicken Cordon Bleu
Steak Maryan (with mushrooms, green peppers, gravy)
Marinated Turkey with shrimp
Chicken breast with shrimp

Amateur Satellites

by Scott Cannon N7LMO

Did you know that amateur radio has been in space since 1961? That first satellite was called OSCAR I and was launched just 4 years after the Russian SPUTNIK I surprised the world. Since that time, the amateur community has been continuously involved in designing, launching, and operating a wide variety of satellites. Currently there are at least 10 functioning birds accessible to ham operators. These range in operating frequency from HF through microwave and provide functions in packet radio, CW and SSB transponders, space measurement data telemetry, and even image telemetry from on-board cameras. Some satellite operation requires fairly expensive equipment and large steerable antenna arrays, but some operation can be done with a 2M FM handheld! Can you imaging the coverage possible with a repeater several hundred miles overhead? All with a no-code Tech. license!

Most operation is full-duplex with separate up and down frequencies. In other words, you can listen to yourself just like with a telephone. For example, OSCAR 13 usually operates in *mode B* meaning it receives on 435 MHz and transmits on 145 MHz. Several Russian satellites use 10m and 15m. Satellite transponders can be thought of as wide-band repeaters -- instead of repeating a single frequency, they repeat a whole segment of spectrum and support many simultaneous users. Satellite operation is more challenging than using the 72 repeater however because they are moving (fast)! This presents two challenges -- first knowing where your satellite is and secondly, correcting for Doppler shifts. Some birds may be overhead for only a few minutes while others may be visible for hours.

Let's cover some operations that are possible with the club equipment. Our portable satellite station consists of 2m and 70cm all-mode 25 watt rigs and corresponding steerable yagi antennas, pre-amps, a computer with a satellite tracking program, and a satellite packet TNC and modem. This should allow us to work at least 7 different satellites and 6 different modes for

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BARC Club Officers

President	Joe Corbett	N7NJR
Vice President	Mike Farr	KG7FZ
Secretary	Dave Fullmer	N7RRZ
Treasurer	Brian Potts	KB7FUB
Board Member	Niel Holt	N7PEO
Board Member	DeAnn Jensen	KB7LLG
Board Member	Dean Stevens	N7WDY

DUES

Dues for the Bridgerland Amateur Radio Club, Inc. are $10.00 per person or $12.00 per family per year. Dues can be paid to the Treasurer or any executive officer and are due January 1st of each year. Only one copy of The *Ohm Town News* will be sent to a single address unless full memberships are paid for each person wishing to receive a copy. The Club maintains with a separate fund, several repeaters and autopatches in the valley. Your voluntary donations to this fund are appreciated.

The *Ohm Town News* is published monthly except August. Please send any correspondence, articles, or address changes to the Editor...

Kevin Reeve N7RXE
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Logan Utah 84321

November Club Meeting

Elections of !994 Club Officers
Thursday November 11, 1993
7:30 PM EC 107
Engineering classroom building on the campus of Utah State University.

Christmas Party

Date: DEC 8, 1993 at 6:30 at Zanavoo Lodge
up Logan Canyon
Cost: $9.00 for adults, $5.00 12 and under;
includes tax and gratuity

DOOR PRIZES AND PROGRAM PROVIDED
R.S.V.P. by November 23 net to DeAnn KB7LLG or Cheryl N7YUE

Will vote for menu items at November meeting (see pg. 1)

Nets

VHF Nets

Bridgerland	Tuesday 9:00 PM	146.72
MARA (local)	Sunday 9:00 PM	147.20
UARC info Net	Sunday 9:00 PM	146.62
UARC Packet	Sunday 8:00 PM	146.62
UBET	Wednesday 8:00 PM	145.29/145.43
VHF Swap-Net	Tuesday 8:00 PM	146.94
RACES*	3rd Thur. 8:00 PM	146.68/146.49

UHF Nets

Bridgerland UHF	Wednesday 8:00 PM	49.80

HF Nets

Beehive	Daily 12:30 PM	7.272
HF slow code	Daily 7:30 PM	3.710
FARM	Daily 8:00 PM	3.937
MARA (voice)	Saturday 7:30 AM	3.918
MARA (cw)	Saturday 8:00 AM	3.723
RACES*	3rd Thur. 8:00 PM	3.650
Utah MARA (voice)	Saturday 8:30 AM	3.873

Code Practice

K7HLR	Daily 7:30 & 9:30 PM	156.58
	also on 3.698 MHz & 7.092 MHz	

*NOTE: RACES Net is on VHF in even months and on HF during odd months. You must have a RACES number to check in.

Thanks to Clayton Clark; AC7O, and Blaine Hancey; KI7KA, for Net information. If you have additions or corrections to the above list, please contact the Editor.

Exams

Saturday November 6, 1993 8:00 am
Weber State College's Engineering Technology Building 2nd floor.

Wednesday November 17, 1993 6:30 PM
Basement of Zion's Bank, Brigham City

MARS

by Mark & DeAnn Jensen
N7EVJ & KB7LLG

MARS is an acronym for Military Affiliate Radio System. It is an organization sponsored by the various branches of the military, and operates separately from the Amateur Radio Service. It exists to support, encourage, and cooperate in developing and promoting MARS and amateur radio activities to enhance their military and civil value. The mission of MARS consists of:

- providing Department of Defense-sponsored emergency communications on a local, national, and international basis as a complement to normal communications.

- providing auxiliary communications for military, civil, and/or disaster officials during periods of emergency.

- assisting in effecting normal communications under emergency conditions.

- handling morale and quasi-official record and voice communications traffic for Armed Forces and authorized US. Government civilian personnel stationed throughout the world.

- establishing programs to create civilian interest, recruit qualified volunteers, and furnish appropriate training in military communications equipment, techniques, and procedures.

- initiating efforts to attain improvements in HF and VHF radio and computer systems operating techniques and state-of-the-art technology through experimentation and testing.

Membership in MARS is limited to individuals who are fourteen years of age or older (signature of parent or guardian for those 14-18), citizens of the US. or aliens with permanent residency status, and holding a valid FCC amateur license.

MARS operates on frequencies just outside the normal amateur bands, and so are not subject to the restrictions of regular amateur licensing. All MARS operators have full privileges on all frequencies, regardless of class of amateur license held.

The majority of MARS activity consists of training nets, similar to those held on amateur frequencies, and passing traffic between military personnel overseas and their families in the States.

Locally, the Army National Guard is starting to utilize MARS operators to reduce the $400,000 annually spent in using telephone calls for communications between armories.

For information on how to join Army MARS, contact N7EVJ, Mark, or KB7LLG, DeAnn Jensen.

What is a Ham?

Here is another story about how the nickname "Ham" originated, as relayed to us by Russ W6ONK.

In 1908 three members of the Harvard Wireless Club, Albert S. Hyman, Bob Almy, and Reggy Murray, operated one of the first amateur wireless stations under the call "Hyman-Almy-Murray". To avoid a glass fist, they soon shortened this to Hy-Al-Mu. Early in 1909 their call became confused with that of a Mexican ship, HYALMC, so the boys decided to use only the first letter of each name and the call became HAM.

In the early pioneer days of unregulated radio, amateurs picked their own frequency and call letters. Then, as now, some amateurs had better signals than some commercial stations. The resulting interference finally came to the attention of Congress, and they proposed to critically limit amateur activity.

In 1911, Albert Hyman chose as his thesis at Harvard the controversial Wireless Regulation Bill. Senator Walsh was so impressed that he asked Hyman to appear before the committee. Hyman described how the little amateur stations were built, and he almost cried when he told the crowded committee room that if the bill went through they would have to close their station because they could not afford the license fee and all the other requirements in the bill. Then the debate started and little station "HAM" became the symbol of all the little amateur stations in the country, crying out to be saved from the greed and menace of the big commercial stations..

Nationwide publicity associated station HAM with amateurs. The bill was finally changed and passed, with changes in favor of the "Hams".

This article appeared in "Skip" publication, March 1958. Thanks to Russ Smith W6ONK.

Basic Antenna Theory

by Dr. Clayton Clark, AC7O

This is the second of a series of elementary articles to help our newer Hams understand antennas. I have had some requests for more information. I have also had a lot of silence. Please let me know if you are reading these articles and if they help you. Do I write with words and descriptions easier to understand than the handbooks?

There is no BLACK ART in antennas, as some people think. Any RF current flowing in a wire will radiate. The current will be larger and the radiation more efficient if the wire is resonant and up away from reflecting and absorbing structures. Any shape can be resonant. Usually we think of a resonant antenna being a dipole, a wire about a half wave long (trimmed about 5% short to allow for end effect). This is our most efficient antenna, usually more than 95% efficient. It will also radiate in many other configurations, losing some effectiveness in any shape other than flat and high. Push up the middle and have an inverted V, slope it, have one half high and the other sloping. If your lot is too small put it high across the lot and let the ends bend down. Some put a coil in the center to shorten it. In the G5RV a piece of open line is used in the center to shorten it and make it useful on other bands. Some bend the wire in a circle.

Whatever you do, it will radiate at some frequency but less effectively than the flat, high dipole. A standing wave meter will tell you at what frequency it is resonant so you can trim it to your frequency. You should use an antenna tuner to transform the impedance that appears at the feed line to your radio which must see about 50 ohms with little reactance. It should have a standing wave ratio of 2.0 or less.

A dipole up a half wave high will radiate at quite a low angle, which is best for long distance. With its reflections from the ground it radiates well in all horizontal directions with approximately twice the signal broadside to the wire compared to the signal strength in other directions.

Most of us use 2 meters and are interested in vertical antennas. The principles are still the same. A quarter wave antenna will radiate if you do something to take the current at the base as the other half does in a dipole. A ground plane serves that purpose. The ground plane can be the top of a car or some radials or maybe just your hand when using your handheld. The quarter wave vertical over a good ground plane is a good radiator but when you coil it down, as in a rubber duck, its efficiency falls way off.

In building towers for AM radio stations we learned that making the tower higher over a good ground plane increased the signal along the ground. With the same power input and measured at one mile on the ground, the field strength was 20% higher when the tower was increased from a quarter wave to a half wave in height. When it was increased to 5/8 wavelength the signal increased 52% over the quarter wave. That means that the 5/8 hot rod on your handheld will give you more than twice the filed strength over a good rubber duck. Twice the field strength is 6 dB gain.

Amateur Satellite *continued from page 1*

packet, SSB, FM, and CW communications. So far, I've had CW QSOs on RS10 and OSCAR 10, and received images from OSCAR 18. Unfortunately, our station has proved a little two weak to work the popular high-orbit OSCAR 13 satellite. The next year or so should see the launch of PhaseIIID -- with far greater versatility and capability than any previous amateur satellite. Our humble station will be more than adequate.

Recently, OSCAR 21 has been placed in FM-repeater mode for 6 minutes out of every 10. With your handheld set to 145.99 and an outside antenna, you can hear QSOs and announcements for 10 to 20 minutes several times a day. (See Nov. QST, pg. 70). In fact, while writing this article, I'm listening to a ham in Calif. and one in Mont. exchanging names on my 2m rig and water pipe J-pole. If I had a 70cm FM rig and a good steerable beam, I could join in!

How can you get involved? I've never tried packet on the satellites -- we need volunteers to build simple 2m and 70cm J-pole antennas and to install our TNC and modem to try out packet operation at the club shack. Anyone interested in a backyard expedition to set up our portable antenna array and rigs and try for QSO's on OSCAR 21 or OSCAR 10? Would someone like to build us a Lindenblad antenna? Anyone else interested in reading the Amateur Satellite Assoc. newsletters? Anyone interested in setting up our portable station at a school and scheduling a demonstration QSO during a class?

Satellite operation is a step beyond using your handheld on the 72 repeater, but if you are in this hobby for the technical challenge, this might be the next step for you.

There Is No Free Lunch

by Clayton Clark AC7O

Every privilege has an obligation attached. When you receive your amateur radio operator license from the government you become obligated to uphold the laws and support the reasons licenses are issued: to become an efficient operator to serve in a national emergency and/or to advance the state of the art.

As a user of the 146.72 MHz repeater, which is available to us through the authority and financial support of Cache County, you are obligated to prepare yourself with equipment and training to assist the Cache County Sheriff in an emergency. You are also obligated to help pay the maintenance costs and to help pay the phone costs if you use the autopatch.

In every society there are some who say, "let some one else do it". Those are known as FREELOADERS. There are calls heard on the repeater which do not appear on any of our activity lists.

As a user of the repeater you are able to fulfill your obligation by making a reasonable effort to do at least some of the following:

- Join BARC and pay your dues,
- Pay about $5 per year toward the repeater and autopatch,
- Check in to the Tuesday night BARC net,
- Attend the BARC meetings,
- Participate in BARC service projects,
- Attend Lt. George Becker's emergency training classes,
- Participate in the Sheriff's emergency drills and exercises.

WE CAN NOT ALL DO EVERYTHING BUT WE CAN ALL DO SOMETHING!

There are nearly 300 licensed Hams in Cache Valley. Fifty are on the net list. One hundred have paid club dues. How many are FREELOADERS? You are not obligated if you don't use the repeater or autopatch.

Bridgerland area Hams: Is your name and call listed among the doers? If not you have no right to use the repeater and autopatch.

Since I negotiated the original agreement, my call is on the repeater and I supervise the autopatch. I am determined that we uphold our agreement or shut down the system.

Our autopatch now has a 100 AH backup battery, on floating charge, to power our autopatch and control link radio for as much as a week if we have a power failure. This was donated and installed by Niko, AA7OL. Niko has been a great help to us in many ways. The Logan Peak repeater has backup power from a generator.

RACES Training

by Lt. George Becker

Cache County Emergency Management and the State of Utah Division of Comprehensive Emergency Management will be sponsoring the Federal Emergency Management Agency (FEMA) class: "Introduction to Emergency Management" course on 15 November through 19 November.

This is a 36 hour class presenting the relationship and responsibilities of the Federal Government, State Government, County Government and municipal agencies in the areas of mitigation, planning, response and recovery operations involving disasters. This is an excellent opportunity for those interested or involved in all levels of emergency management to find out how the system operates.

This course will be held in the Emergency Operations class room in the basement of the Cache County Law Enforcement Building. The class size is limited. If interested obtain a form 75-5 from the receptionist at the Sheriff's office at 50 West 200 North, Logan, and return it: Attention: Lt. George Becker, by 5:00 PM, Monday, 8 November, 1993. Feel free to call me at 801-752-4203.