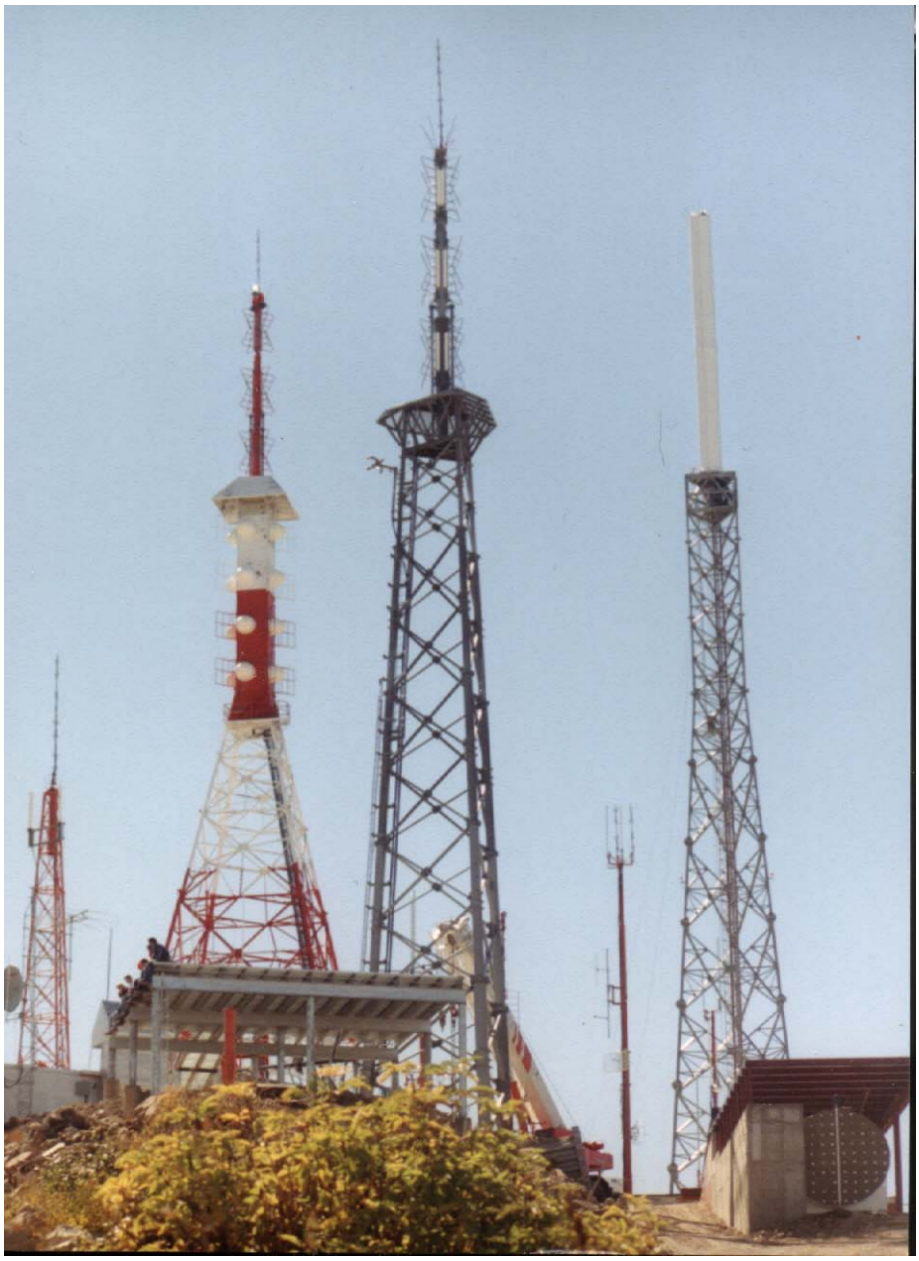

The Antenna Farm on Farnsworth Peak

Volume XLIV Issue 4, April 2000

The MICROVOLT

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Prologue

The Utah Amateur Radio Club was organized under its present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City Area.

Meetings: The club meets each month except July and August. The meetings are held on the first Thursday of the month at 7:30 PM in the Bonneville Medical Building located at 1255 East 3900 South in Holladay, across the street from St. Marks Hospital.

Membership: Club membership is open to anyone interested in amateur radio; a current license is not required. Dues are $15 per year, including a *Microvolt* subscription. The *Microvolt* and membership cannot be separated. Those living at the same address as a member who has paid $15 may obtain a membership without a *Microvolt* subscription for $9. Send dues to the Club Secretary: Gregg Smith, KD7APW, 7546 S. Uranium Dr., West Jordan, UT 84109. ARRL membership renewals should specify ARRL Club #1602.

Contributions: Monetary contributions are gladly accepted. Send directly to the Club Treasurer: Chuck Johnson, 1612 W. 4915 S. Taylorsville, UT 84123-4244. For in kind contributions, please contact any board member to make appropriate arrangements.

Repeaters: UARC maintains the 146.62- and 146.76- repeaters. The repeaters are administered by the UARC Repeater Committee. Comments and questions may be directed to any Committee member. The Lake Mountain repeater (146.76-) has autopatch facilities on both the Orem exchange (covering Santequin to Lehi) and the Salt Lake City exchange (covering Draper to Layton). The 449.10 repeater has autopatch facilities into Salt Lake City only available to UARC members. Due to the volume of traffic, only mobiles should use this autopatch. Autopatch use is open to all visitors to our area and to all club members. Non-members who wish to use the autopatch are encouraged to help with the cost of maintaining the equipment by joining the club.

Ham Hot-Line: The Utah Amateur Radio Club (UARC) has a Ham Hotline, 583-3002. Information regarding Amateur Radio can be obtained, including club, testing, meeting, and membership information. If no one answers leave your name, telephone number and a short message on the answering machine, and your call will be returned.

Publication: The Microvolt is the official publication of the club. Deadline for submissions to the *Microvolt* is the 10th of each month prior to publication. Submissions by email are preferred (wmgooch@concentric.net), but other means including diskettes and typewritten submissions can be mailed directly to: Manford Gooch, 6344 S. Shenandoah Park Ave., Holladay, UT 84121. All submissions are welcome but what is printed and how it is edited are the responsibility of the Editor and the UARC board. Reprints are allowed with proper credits to The *Microvolt,* UARC, and authors. Changes in mailing address should be communicated to the Club Secretary: Gregg Smith, 7546 S. Uranium Dr., West Jordan, UT, 84084.□

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Autopatch Engineer: Gordon Smith, K7HFV	582-2438
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Contents

For late breaking news listen to the UARC Information Net Sundays at 21:00 on 146.62 or set your browser to:
www.xmission.com/~uarc/announce.html □

We are grateful to the management of XMission, our Internet Service Provider (ISP), for the donation of this Web-Page service. □

For account information go to:
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Or call 801 539-0852□.

The Microvolt

The Official Publication of the Utah Amateur Radio Club, Salt Lake City, Utah

Volume XLIV, Issue 4, April 2000

PHOTO:RON SPEIRS KC7MYS

QST From the Prez

I read an interesting article in the February, 2000 issue of *Worldradio* last week, written by Jeff Reinhardt, AA6JR. It is titled "What does your club do?" It gives several ideas about making our clubs more enjoyable. I am happy to say that we seem to be doing most of the things he suggests.

We have excellent speakers that educate and motivate us each month, and we take a few minutes in every meeting to introduce ourselves. (I like that part). We are building a repeater on Scotts hill to be linked to 146.620, and we have a club station for all to use.

The article also suggests that we make sure there is something for everyone. There are so many facets to this hobby, we should try to address as many as possible. And don't forget the social activities; they help to bring us together as friends as well as fellow Hams. It suggests that we publicize our activities. It is nice to see our club's efforts recognized by our communities. We should also give new ideas a chance. They just may work.

Finally, what makes a good radio club is the people -- making use of the many talents we have at our disposal. Let's make sure we set new goals each year to constantly improve; after all, we are the oldest club -- we can also be the best.

If you missed our March meeting, you didn't meet Dan Brown. He took us on a trip to Myanmar (Burma), and the Dxpedition (see photo). We learned how much is involved in planning something of that magnitude. It took a year to put it all together. He showed us slides of the country, the people, their government and customs. We saw how they set up their towers and antennas, and also how much fun they had, King Cobras notwithstanding. I could go on and on. Just make sure that you make it to the next meeting. You will be glad you did.

See you next month. 73
Maurine Strektenfinger' ▫

From the March Meeting

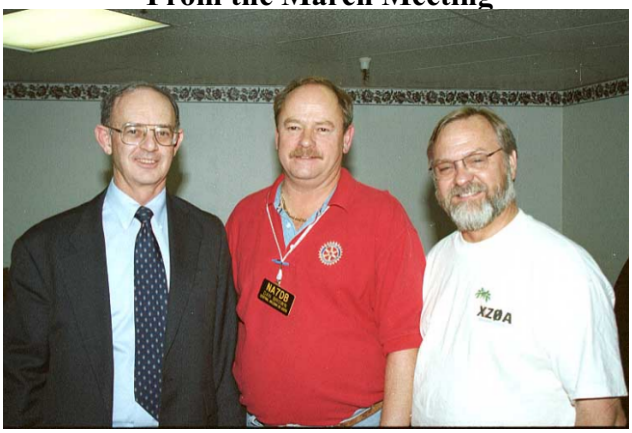


PHOTO:RON SPEIRS KC7MYS

Dan Brown, NA7DB (Leader of the Myanmar DXpedition) flanked by Program Chairmen Dick Abbott, K7MZ, and Darryl Hazelgren, AF7O

On April 15, most of us will have an "opportunity" to interact with our federal government for at least two reasons one of these reasons (IRS) is not new. One (FCC) is new, controversial, and, in some respects for many, confusing. In the February issue of Microvolt*, details of the FCC's restructuring of amateur licensing regulations were presented. Since there have been a lot of questions about the details of both initial licensing and upgrading as of April 15, we report the specifics using as sources an understandable, yet comprehensive, summary published by* Worldradio *and a detailed treatment of the situation with regard to code requirements from ARRL. There follows an observation by our immediate past president. Current issues of* QST, CQ, 73*, and* Worldradio *provide extensive coverage of this issue along with editorial comments. For those who view the new requirements as unnecessary/fatal revisionism, a look at the editorial in the March issue of* CQ *might be worthwhile; it turns out that we've actually been here before. Ed.*]

Restructuring in a Nutshell

With the 30 December Report and Order issued by the FCC, there are major changes taking place in Amateur Radio. In a nutshell, this is what is going to happen:

Novice - no new licenses in this class will be issued.

Technician - no change

Technician Plus - merged into the Technician class. There will no longer be a Technician Plus. No new licenses will be issued.

General- no change

Advanced - no new licenses will be issued.

Amateur Extra - no change

For General and Amateur Extra class, the Morse code requirement will be reduced to 5 words per minute. If you hold, for example, a Novice class license, you may renew your license and remain in the Novice class for as long as you want. The same applies with the Technician Plus and Advanced classes.

If you possess a CSCE less than one year old for theory tests in the General or Amateur Extra class, after 15 April 2000 you can upgrade without taking additional tests, provided you have passed the 5 word per minute Morse code examination. In other words, if you are currently a Novice, Tech Plus, General or Advanced class licensee, you have already fulfilled the Morse code requirement. You will be required to present your CSCE at a VE exam, and you must fill out a Form 605 and pay the current fee for examination.

The new question pools will be released by the middle of February. All current question pools will be invalid after 15 April 2000. There has been a run on study materials for the current question pools, so you may have difficulty locating current material. You may want to check the ARRL website at *www.arrl.org* for materials.

If you have any questions, feel free to leave a message, and we'll do our best to answer them.
Worldradio□

FCC Change Gives Morse Element Credit to Expired Novices

Anyone who ever held a Novice ticket--expired or otherwise--will be able to claim credit for Element 1, the 5 WPM Morse code examination, under revised Amateur Radio licensing rules going into effect April 15. The change was included in the version of the FCC's restructuring rules, published February 10 in The *Federal Register.*

The change affects §97.505(a)(5) of the rules that spells out element credit. That sentence now says: "An expired or unexpired FCC-granted Novice Class operator license grant: Element 1."

The rules already give Element 1 credit for those holding an expired or unexpired FCC-issued Technician Class operator license document granted before February 14, 1991, as well as to applicants possessing an FCC-issued commercial radiotelegraph operator license or permit that's valid or expired less than 5 years.

There's no indication, however, that the FCC intends to extend Element 1 credit to

applicants who once held any other FCC-issued licenses now expired, including Tech Plus, General, Advanced, or Amateur Extra.

Because of other anomalies in the new rules, the ARRL is recommending for now that holders of Novice or Tech Plus licenses retain their license documents or copies in the event they need to claim Element 1 credit when upgrading under the new rules. When renewed after April 15, 2000, Technician Plus licenses will come back stamped "Technician," and the FCC has said it does not plan to keep track of which Technicians have Morse code element credit and which do not.

The FCC also has indicated to the ARRL that post-April 15 Technicians who subsequently qualify for HF operation by passing Element 1 will retain element credit for upgrading purposes only for 365 days--the term of a *Certificate of Successful Completion of Examination*--not permanently, although this will not affect their ongoing Novice/Technician HF privileges. Without a change in the rules, affected Technicians attempting to upgrade more than a year after passing Element 1 would have to retake the Morse code examination.

The ARRL plans to file a petition for partial reconsideration asking the FCC to continue to keep track of which Technicians have Morse code element credit and which do not. The League also will ask the FCC to make Element 1 credit permanent for post-April 15 Technicians who successfully pass the Morse exam.
ARRL Newsletter

Morse Code

Since the restructuring of Amateur Radio licensing was announced by the FCC, I decided to purchase the "Morse Code, The Essential Language" book from the UARC "Book Lady", Fred. I have had many contacts using Morse Code and have enjoyed learning and using it.

No matter what your feelings are about the new licensing, this is what the licensing is going to be. I was happy to see the FCC leave some code in the licensing structure, while much of the rest of the world is not including it. As the book points, out there are some good reasons to learn and practice the Morse Code:

1. It is the most widely recognized means of signaling in the world.
2. It is the only code understood by both man and machine.
3. It is the only code allowed on all Amateur frequencies.
4. It is the best method of communication that can "get through" and be understood when all other methods have failed.

My favorite reason for learning the code is:

IT IS FUN!

You might want to try it, if you haven't. Who knows -- you might like it.

73,
Gary Openshaw, KC7AWU

Rudy and the Code

When I became interested in Amateur Radio, I set about teaching myself Morse code. It was an activity I could do while walking our bright, alert, family pooch in the still of each morning. I would tuck my little recorder into my pocket as we set out, and it would spit out dits and dahs into the early morning air. I would announce, loud and clear, "B!" or "C!" and on through the alphabet. Rudy dutifully trotted along on his leash. "M! N! O! P!" and so on.

Some ten days into the routine, I stared in amazement as Rudy lifted his hind leg to do his thing whenever I said the letter "P." From then on, Rudy was on his own. Every time ".--." came out of the speaker, up came his hind leg. That Rudy had learned Morse Code became indisputable. In only a few more days, he stopped waiting for me to call out the letter and when he heard ".--." he did his duty. Poor dog, when he passed away at the ripe old age of 17, our veterinarian was convinced that the cause of death was a super-dry bladder. We know better, he just ran out of gas. 73 to you, Rudy, we hope you teach all the other dogs the code in "Dog Heaven."

Abe Sommer,, KF6PF, in *Worldradio*□

Examination Schedule

04/01/2000 (Sat.) Salt Lake City
Contact: Gordon Smith, K7HFV
Phone 582-2438; 534-8116**

04/12/2000 (Wed.) Mantua
Contact: Niko Takahashi, AA7OL
Phone (435)512-5919

04/19/2000 (Wed.) Provo
Contact: Steve Whitehead, NV7V
Phone 465-3983

04/25/2000* (Tues.) Salt Lake City
Contact: Eugene McWherter, N7OVT
Phone 484-6355**

05/03/2000 (Wed.) Farmington
Marc Uhrey, AB7PL
Phone 771-0105; 536-4782

*Only Technician elements given at this session
** Pre-registration required; call before examination date
For more detail either call the contact or refer to the information on the UARC webpage *http://www.xmission.com/~uarc*□

Blast from the Past

TAKING AN EXAMINATION

By Little Willie

LISTEN, while I tell you how they made me buck the goat the other day, when I went up against it for a First Grade Comm.

There were three of us. We borrowed a semi-broken down omnigraph, and we listened to this running at anywhere from twenty-five to fifty-five words a minute, running frontward and backward until we had it all down pat, and could write it left handed whether the machine was running or not. I think it was successful in one particular only. It taught me the exclamation mark. I never knew it before.

There were not enough records for this omnigraph, but nevertheless we thought we ought to use it because they told us the Radio Inspector would pull one on us when we went up for our exams. As an omnigraph sounds altogether different from the phones, we thought we ought to get used to the 'graf.

With the phones, and nobody around, and if the pencil is sharp and nice and soft, we can handle twenty easy, especially if we know what is coming. The latter makes a lot of difference. But when a half dozen disinterested and wholly unsympathetic critics stand around and watch you, and you have no idea as to what the stuff is that is going to come, and you also have a feeling down in your midst that you are almighty likely to flunk anyway, it is some job getting twenty, or even eighteen. At least that is the way the writer of these lines feels about it.

When the awful day came and we found the office of the Radio Inspector in the Custom house, we were just a little bit shaky. I wondered if I had overtrained. They say that you can do this in football and boat racing, and I don't see why one could not also do it in wireless.

The office, when we timidly edged in the door, had a lot of other goats with scared looks on their faces sitting down at tables

engaged in chewing the ends off of lead pencils. Some of them had their hair all mussed up where they had scratched it too hard, and others were just staring straight ahead into vacancy. The instrument of torture we recognized at once. It lay on the table over at the other end of the office, and had plenty of room to itself. No one wanted to get anywhere near it. The first look at its brass gears gave me a chill.

We mistook the Radio Inspector. I saw a man at a table and he looked sort of like the boss, so I asked him if he was the Radio Inspector. He said "No," and I saw at once that he was nothing but a goat himself. He was struggling through a First Grade Amateur and was having quite a time with a diagram.

Finally a keen looking, quick spoken youngish man came up and guessed the first time who we were and what we wanted. He was without any doubt, the real thing, and before our numbed intellects had quite mastered what was going on, he had us herded around the instrument of torture, and was hooking up the dry cells and fixing up those darned records. We each had plenty of paper given us, and knew that the awful moment had come.

The first thing was starting the machine up at nothing less than fifty-five words a minute. I gave up my goat on the spot. If he expected me to get anything at that speed, he was booked for a disappointment. The machine buzzed around so fast that you could not tell an H from an S to save your life. A J. and a figure 1 were absolutely alike, and what all the rest of the stuff was, was Greek to me. Then he pulled out his watch. I thought this was the sign to get ready, and I got, but noticing me, he said to wait a minute he was not ready yet. Then he screwed the business down and to my intense joy, the speed came down to something human. Finally he said to go ahead and we jumped in.

I got the first two letters O. K. Then something came and when I was trying to make up my mind whether it was an X or a space sig., I lost half a dozen letters. I grabbed hold with a jerk again, realizing that I was losing my grip. A lot of mixed up stuff about tugs and docks and fires came in about one-half of which I got straight. I was just getting control of myself when he stopped the shebang and told us to correct it and write it out neatly. I don't blame him, for the neat business. My copy looked like somebody had used the paper to sharpen a pencil on left-handed.

When I finished my copy and handed it in, I was dead sure I was not cut out for a First Grade Commercial. I might squeeze up some day to a cargo, and I ought to be satisfied with a First Grade Amateur. But, a First Grade Commercial—well, nothing doing for little Willie, I feared.

Then we had handed up a lot of papers with questions on them which Mr. Radio Inspector sliced up with a pair of scissors and told us to paste each part onto the top of our blank paper and go ahead. The first question suggested that we might draw a complete diagram of a ship's radio equipment, showing the complete transmitting equipment, receiving equipment, auxiliary emergency equipment, explain the object of all parts, give their names, and use symbols to your heart's content. We had heard of this question, and we had crammed up on motor generators and storage batteries and wave meters, and decrement dingbobs, but when we came face to face with this diagram business, it seemed like quite a contract. After two hours and a half of drawing in and rubbing out, I had mine finished. Then I looked it over and found I had connected my DC ship mains up direct to my AC generator, and had forgotten all about my DC motor. This took another half hour to correct.

Then I tackled my questions. I knew how many kinds of condensers there were and I also knew what inductance does to my wave length, and also what happens when I put a condenser in series in my ground lead. But what in time was the reason for using high resistance phones with a crystal detector got me. I had to give this one up, although I supposed a lot of the wise guys who read this will know all about it. I confess I did not then, but I do now, and let's see some of you chaps guess on the subject.

I got snarled up trying to tell what I would do to prove that I had a pure wave. My goat got to slipping also when it came to proving whether or not my antenna was radiating, although I think I got by on this after a while. I made a fool of myself on what the law says about superfluous signalling. I allowed as how the law advises not to engage in this to pass time any more than was necessary. The correct answer is PROHIBITED. No half way business at all. Just simply cut it out.

Finally after four and one-half hours, I was wringing wet and the job was finished. I waited around with my other fellow victims about an hour and found I had got away with 86 out of a possible 95. They cross five points off of experience in the case of an amateur because he has never worked a ship's station. This figure nearly made me drunk. I expected about 56. I walked home with the other fellows, who also got good figures, and my little certificate in my pocket showing I was a licensed First Grade Commercial operator, felt mighty good. I took it out fourteen times on the way home, to take a look at it.

Well, QRU nil, cul gn gn SK.

UARC Jackets and Hats

Official Club apparel is now available through Joe Flurer, KD7EGY, owner of Custom Design Marketing.

Hats are available with the UARC logo for $10.65. If you add your call sign to the back of the hat, the price is $13.85. Jackets with the UARC logo on the back and your call sign on the front are $48.92. If you add a small UARC logo to the front, the price is $52.11. Golf shirts are also available with a small UARC logo on the front for $28.71. All of the above prices include sales tax. You can order your apparel at club meetings or by contacting Custom Design Marketing, 6049 S. Highland Drive, 278-5258. REMEMBER … a portion of all sales goes back to the Club to support the repeaters. Wearing the apparel also helps promote the Club.□

Contesting Calendar for April 2000

SP DX Contest - CW/SSB	1500Z,Apr 1
DX YL to NA YL Contest - CW	1400Z,Apr 6
UBA Spring Contest - CW	0700Z, Apr 9
EU Spring Sprint - SSB	1500Z,Apr 15
Michigan QSO Party - CW/SSB	1600Z,Apr 15
Holyland DX Contest - CW/SSB	1800Z,Apr 15
Good Friday CW Sprint - CW	2200Z,Apr 21
Low Power Spring Sprint - CW	1500Z,Apr 24
Florida QSO Party (1) - CW/SSB	1600Z,Apr 29
Nebraska QSO Party - CW/SSB	1700Z,Apr 29
Ontario QSO Party - CW/SSB	1800Z,Apr 29
Florida QSO Party (2) - CW/SSB	1200Z,Apr 30

For more comprehensive listings and rules see: www.sk3bg.se/indexeng.htm, www.contesting.com/links/calendars□

Featured Member of the Month

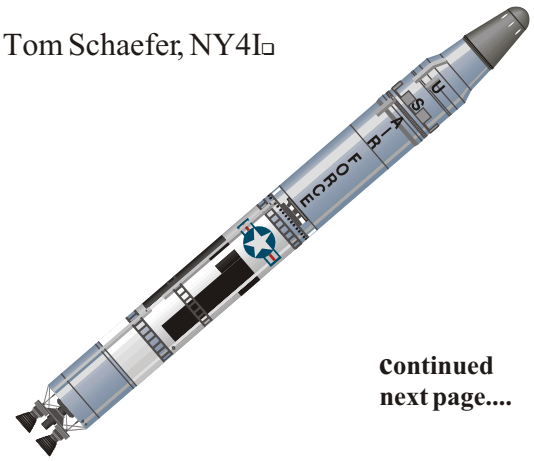
In meeting UARC members and in doing this column, the author is continually amazed at the caliber of people that belong to UARC. This month's UARC featured member of the month is no exception.

Dick Bell, W7TGC, has been a ham since 1953. He mostly operates HF, and occasionally VHF, and he is active in helping new hams get on the air as well as being a frequent contributor to the UARC-sponsored test sessions. A UARC member for 12 years, Dick finds that being a member of UARC allows him to support the local community as well as to sit in on some interesting presentations and good company.

When talking to people about this article and researching material on Dick, the author was delighted to find that he also has another hobby. It seems that Dick (yes, mild-manned Dick Bell) is a mountain climber. As you can see by the accompanying article (p. 9), he has scaled some interesting peaks here in Utah. Additionally, Dick was on the first team to climb the West face of Lone Peak in 1958. He has also managed to mix his hobbies. He has operated HF from Notch Peak and even operated a 2m HT from Wheeler Peak in the East Nevada Desert.

Professionally, Dick used to work for Sperry in their data reduction laboratory. Data reduction involves taking telemetry data from missile launches and converting it into usable and manageable pieces of information. As you can see, UARC enjoys a diverse and interesting membership. Dick is a very special part of that membership, and the club is honored to have him as a member.

73, Tom Schaefer, NY4I□



Continued next page....

SPERRY UTAH NEWS July 16, 1959

DICK BELL CLIMBS 'THRONE'

Mountain climber Dick Bell, a technician in Sperry Utah's data reduction lab, was a member of a four-man party which recently scaled the Great White Throne in Zion National Park — a feat accomplished only on five previous occasions.

Indicative of the importance of their performance was a three-column story about the climb which appeared in the *Deseret News*.

The climb was made on June 28 from the southwest corner of the huge monolith. It required seven 200-foot pitches up the side of the nearly vertical rock face.

Four-and-one-half hours after beginning, the summit was reached. The four-man party toured the entire top of the rock, and climbed the limestone cap in the center. They described the experience as like being on an "island in the sky."

The descent, considered to be even more dangerous than the climb, was begun in the early afternoon.

Using trees as anchor points and two lengths of 120-foot rope, the men swung down the side of the cliff in action known as "rappels." In rappelling, climbers kick away from the face of a mountainside, and swoop down with the climbing rope held between their

DICK BELL, Sperry Utahn, shown on one of his previous climbs.

The Bell party has the distinction of being among only 15 persons who have successfully climbed the Zion Park landmark.

Dick Bell was the subject of a "SUN Spot" article in the February 13, 1959 issue of *Sperry Utah News*.

Dick Bell Today

PHOTO:RON SPEIRS,KC7MYS

With QRP rig and test equipment

PHOTO:RON SPEIRS,KCYMYS

On CW with TS520/VFO520

6-Meter FM Repeater Now On the Air!

In the past few years, many of the rigs sold for HF include 6 METERS (50 to 54 MHz). What can 6 meters do? Well, on SSB, when skip is in, a few watts can go well over 1000 miles. Most of the time, though, the band is simply a local access band (like 10 meters). But why don't hams use it more? Not very many people had rigs (until recently.) Not only that, it was a major case of the dreaded TVI (television interference) because of its close proximity to channel 2 television (54 to 60 MHz) and the relatively poor front-end response of older TV's -- the hassle just wasn't worth it.

Today, a few things have happened and continue to happen to make this under-used band a better prospect for ham radio. TV sets have gotten better, and more people in urban areas have switched to satellite or cable TV, which reduces the probability of off- air pick-up of interference. And maybe the future will eliminate channel 2 entirely with the new digital television migrating in many areas to UHF. Wow!

Which mode do I use? Well if you are a Dxer, maybe the CW and SSB modes will excel in weak signal situations. What about FM? Just like on 2 meters and 440, it sounds great and has an added advantage of being less likely to interfere with consumer electronics though envelope demodulation. Besides the newer HF rigs, the new tri-band handhelds are becoming more popular. Commercial FM gear is also available for conversion to 6 meters with modest power levels, typically from 40 to 110 watts.

To help increase the usage of 6 meters in Utah, a few of us have gotten together and built a new repeater for 6 meters. For sure, this isn't the first 6-meter FM repeater ever in Utah or the only frequency pairs coordinated, but it appears to be the only one currently on the air (I suspect more will be on soon). Dave Williams WA7GIE procured a recent vintage solid state base station and antenna, John Lloyd K7JL supplied a control board, Clint Turner KA7OEI supplied brains (he actually assembled and retuned the complex duplexer needed for this machine), Glen Worthington WA7X supplied financial support and the cavities for the duplexer and Larry Mahoney KB7YAF (along with KSTU-TV) supplied the future mountaintop site.

Additional technical information and pictures can be found on my web site at http://www.wa7x.com/ki7dx_rpt.html, (thanks to KA7OEI's excellent web editing). The repeater has an INPUT frequency of 52.150 MHz and an OUTPUT frequency of 53.150 MHz. A tone squelch frequency of 146.2 Hz will be remotely switchable but most likely left on to prevent unwanted skip and potential local "garbage" interference (distant stations could use the code to talk through the machine if desired, though). The repeater will ID as KI7DX (Janet Worthington's call) since she will be around more to monitor the operation (and it is a real cool callsign too!)

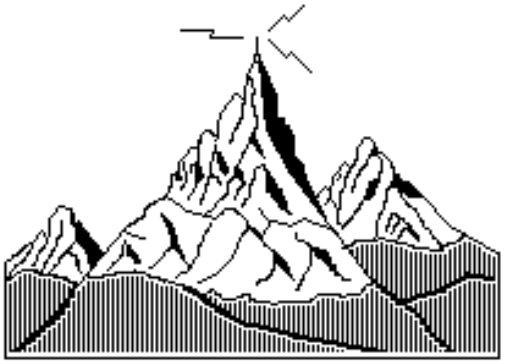
Don't expect 6 meters to operate like 2 meters or 440 with a handheld and rubber duck antenna. Just as 440 handhelds work consistently better into repeaters than 2-meter handhelds, the 6-meter handhelds with a duck will seem to just barely work. Why is that? Well, a quarter wavelength on 6 meters is about 54". If you used a 54" antenna AND a 54" counterpoise (like the floppy wire "tiger tails" supplied by popular antenna manufacturers) you would get out great, unless you're in a building with windows (or RF transparent) openings greater than 54". Here is where 440 really shines with a 6" quarter wavelength and the radio itself almost always 6" of counterpoise. Bottom line: a small rubber duck on 6 meters probably has a negative 10 dB gain!

But from a mobile, an external antenna will fit the bill. A ¼ wave "buggy whip" will work the best, but practically speaking a loaded ¼ wave will work fine. A neat trick is that the Larsen 5/8 wave 2-meter antenna also functions as a 6-meter ¼ wave loaded antenna. Most antenna manufacturers also have loaded antennas that work well for this band. With the requirement for a counterpoise of 54” of metal, most vehicles work fine, but you will find out that the placement of the antenna on the vehicle is much more critical than for either 2 meters or 440. I placed one near the front left hood on a lip mount and adjusted the antenna length to resonate on the desired frequency. All looked great until I opened up the driver’s side door, and the VSWR went from a respectable 1.3 to 1 up to 2.5 to 1 -- whoops! The ideal placement would be in the center of a large metal roof, but one has to do what works best for practicality, too.

Another problem with this band can be that it is noisy. Both ignition and man-made noises affect the reception in this band. Many of the commercial rigs have an excellent noise blanker that can extend the useful receive sensitivity by 10 dB or more. Most commercial receivers in this range have sensitivities of better than .15 microvolt for 20 dB quieting. Another fact is that the radio waves propagate differently than on 2 meters and 440. Just as the higher in frequency the more radio waves travel in a straight line, the lower in frequency bands tend to stretch the radio horizon. This also extends the useful range of 6 meters (even without skip). And then there is the "aperture" of the larger antenna (look this up in the ARRL antenna handbook), making the range of a repeater, with proper installation of the mobile antennas, greatly extended. Once we get the machine up on the mountain, we will be looking for coverage reports from as many stations as possible. There is still some debate concerning linking this repeater to a 440 or 2-meter machine; maybe we will make it switchable remotely.

This will be an open repeater in the spirit of Amateur radio. See you down (or up) on 6 meters soon!

73, WA7X□



222 MHz: The Forgotten Frontier

Recently I heard a conversation on a local repeater about a new HF/VHF/UHF multiband rig. One of the parties mentioned that "it covers all bands from 160 meters to 440 MHz, except, of course, 222 MHz." The other party chimed in and said, "Well, no need for 222 in a mobile rig. Only data and packet are allowed on 222." I bit my tongue, and I'm still biting it; so now I'm writing an article for the newsletter!

I earned my novice license about 11 years ago in the Washington, DC area. My first "rig" was a 220 HT (back then, the 1.25 meter band stretched from 220 to 225 MHz, and was referred to as "220". Thus, for "old timers" like myself, it is hard to call it 222!). In the DC area, there were several 220 repeaters that enjoyed a large number of users, yet the repeaters always seemed to be quiet when you wanted to make a call.

There are several widely proliferated misconceptions about the 1.25 meter band. The first one, mentioned earlier, is that the band is for data traffic only. This may be a good use for certain portions of the band, but that would be like saying 2 meters is only for APRS. Another misconception is that radio manufacturers want no part of the "220 business", since the band is allocated on a shared basis with the government. If this were the case, we would have a hard time finding equipment for use on 440 (70cm)!

The main reason that we don't see a lot of equipment for 220 is based on international allocations of the spectrum. 1.25 meters is allocated for amateur use in only a few countries (Japan is not one of them see the connection?). 2 meters, on the other hand, is an amateur band in many nations across the globe. Thus, radio manufacturers have a smaller market for 220 gear than they do for other equipment. Since the market is smaller and fewer rigs are offered, 220 equipment tends to draw a higher price than similar rigs that cover other bands.

So maybe you're saying to yourself, "Okay, I live in Utah and there's no 220 activity here anyway. So what does it matter to me?" First, it's always helpful to understand different aspects of the amateur service. Second, there is actually quite a bit available to Utah hams on 1.25 meters. The IREAN (Intermountain Repeater Emergency Amateur Network) 222 MHz repeater system covers large parts of the state, and it can be linked into other systems across the Western states. The repeaters have nice HT and mobile coverage all along the Wasatch Front.

While you may not always hear a lot of activity on the repeaters, there are usually plenty of people listening (very friendly folks, I might add). In addition, quiet repeaters with wide coverage are great for keeping in touch with licensed family and friends without having to monitor busy repeaters or having to wait for a break between long-winded conversations.

222 MHz is a nice band with a lot to offer, from repeaters and simplex to packet and weak-signal work. If you have a 220 rig in the basement, dust it off and give the band another try. If you're looking to try a new band or want to get away from the crowds, perhaps it's worth your while to look into picking up a 220 rig. There are some nice rigs on the market these days at fairly reasonable prices. When you get on the air, give me a call!

If you'd like more information regarding the IREAN 222 MHz repeaters, check out their web-site at http://www.asd-webtec.com/irean/

73! Rick, N9SP□

April Meeting

Kenny Silverman, K2KW, a well-known contester and dxer, has agreed to speak to the Utah Amateur Radio Club on Thursday, April 6, 2000.

First licensed at 14 years of age as WN2UUH, Kenny quickly became interested in contesting. But it wasn't until he became real DX in the mid-1980's as HL9CW did the serious contest and DXpedition bug really bite. Since then, Kenny has racked up an impressive list of contesting accomplishments and world records. He has just returned from the Caicos Islands where, operating as VP5TT, he won the Single Operator Single Band 15 Meter class with 360,903 points making 2036 QSOs and gaining 59 multipliers.

You have probably heard of Kenny's role as team leader for the 6Y4A, 6Y2A, and 4M7X Multi Operator/Multi Transmitter operations - the group also known as "Team Vertical". The team consists of N6BT (Tom), N6BV (Dean), W9QA (Dave), N6TV (Bob) & W4SO (Scott), AG9A (Mark) & KE7X (Fred), and K2KW (Kenny). Team Assistants were AF7Y (Dennis Utley) and his son K7CO (JT). In 1998, 6Y2A scored 44,138,528 points making 19,052 raw QSOs. This performance netted them a new M/M World Record, an M/M North American Record, an All-Time CW QSO Record, and a new 40m QSO Record... and this was all done from a 2-point location! Of particular note is the fact that the antenna strategy designed by N6BT, K2KW and N6BV, consisted of erecting Force 12 vertical parasitic arrays that were transported to Jamaica as luggage in two hard-sided golf-bag cases.

Kenny does not have a station of his own, and all of his operating is done from the DX end, or as a guest op from local stations. Currently Kenny is semiretired from the Cellular Telephone Industry, where he was a International Telecommunications Analyst.

Calls held include: 6Y2A, 6Y4A, VP5TT, VP5VKS, VP5VDC, HL9CW, ON9CXX, K2KW/6Y5/YV1/YV5/YV7, WM2C, WM2C/CT1/DL/PA/ON/HA/VP5/C6A/YV5, WA2UUH, and WA2UUH/KH6/KH2.

Team Member (op at): 4M7X, 4M5X, 4M5I, 4M1X, YW5LT, KP2A/KP5, C6AHX, VP5P, VS6WO, HL9US, 4U1ITU, 4U0ITU, PI4COM, OT4T, VU2RAK, and K9VV/XE2.

Darryl Hazelgren, AF7O□

[*The following is an excerpt of an e-mail distributed to members of the Force 12 Rreflector. The author, Tom Shiller, N6BT, is President of Force 12 and the designer of all Force 12 antenna products. The article is shared with readers of the* Microvolt *by Darryl Hazelgren, AF7O, with the permission of N6BT. Ed.*]

The Illuminator

.... Everything <u>does</u> work, to some degree or other. I hope everyone will agree that this statement is absolutely true. How well it "works" is the issue, and this is the performance of the antenna system.

....The performance envelope addresses the practical relationship between enjoyment of amateur radio and antenna performance. The entire station should be considered; however, the radios available today are all pretty good, so the

antenna system is the major key.

....A 150 watt bulb was selected and a TS-805S transceiver which had been adjusted to run a bit more power than normal was used. The bulb was mounted on a porcelain base atop a wooden fence post at a height of about 4'. The bulb was fed through a Force 12 B-1 current balun with 3" leads, and the coax feedline was 9913 Flex, to minimize loss. The feedline ran straight down the fence post, then along the ground. There were no other antennas within two wavelengths on 10 meters, but to make sure, the closest Yagi was kept with the elements at 90 degrees (ends-on) to the target area.

The VSWR of the 150 watt bulb was about 4:1 and the built-in tuner matched it easily, but there was a little problem. As the filament heated up, the impedance changed, so I had to hit the tuner button at random moments in order to have a good match when sending. One operating technique developed, which was to use the XIT, transmit for a second off frequency to heat the filament, turn off the XIT and make the call. I eventually used an external tuner, which made operating much easier, as I could make real time adjustments as necessary.

The first time "The Illuminator" was on the air was during the latest 10-10 contest. I operated a total of about an hour. All of the contacts were in the Midwest. Experimentation showed that if a station moved the S-meter to S-3, I was fairly sure we could make the path. Many of the QSO's were with one call, no repeats, no comment about how weak the signal was. Interesting. It was obvious that the station on the other end was providing the majority of the resources to make the path. Nevertheless, it "worked." I remembered the many times I have heard how well an antenna "works", because of the number of countries that have been worked. All right, then, maybe we can do even better.

The A.R.R.L DX CW contest was coming. Our weather was not very nice, with heavy rain and high winds. The QTH is on a small hill and the wind is usually extremely strong, but at least I did not have to be concerned about the rotator on the light bulb! Trying to complete some outside work between storms, I got on the air. I have operated contests for more than 35 years, but I never felt so ill-equipped to call someone. It was mid-morning on Saturday and the first station I decided to try was V47KP. I send my call at 36 wpm - he comes right back - one call, perfect. Just like using a "real antenna." Hey, that is not only a new country with a light bulb, but a new distance record. My sporadic operating produced 14 countries the first day. I brought the log to the Paso Robles Amateur radio Club pot luck dinner that evening and Larry, W7CB noticed I was missing Africa for worked all continents. Aha - another challenge! I figured the best bet would be if Jim Neiger, ZD8Z were on.

The sun had begun to illuminate the morning sky, and I was tuning across the band with "The Illuminator." By the way, the band is really quiet on this antenna. I hear some one. Sure enough, there he is. He was having trouble maintaining his frequency and hearing through some European stations. His signal was less than S1 on the meter, so I knew I would have to wait for conditions to improve. About 90 minutes later, the sun was fully up, and so was ZD8Z, reaching S3/S4 on peaks. It took a few calls, but we made it: the first Worked All Continents on a light bulb.

Now I was really motivated, but there was more work outside before the next rain. I decided that short "rest periods" were necessary every hour. The country count at the end of the contest was 28, with 41 stations worked. We now know that truly, everything works. The performance envelope is the important factor.

Although I had fun using the light bulb, it certainly would not promote my interest in amateur radio if it were my only antenna. Radio would be boring and frustating, to say the least. Adding a kilowatt amplifier would allow more QSOs to be made, but I would not hear any better. I would not be aware of the sea of activity on our bands. The more efficient our antenna, the more enjoyment we can get from our wonderful hobby.

[*Ed. Note: We've known for a long time that using a light bulb for a dummy load can cause significant interference, but this? QSOs have been made with window screens, drain pipes, trash cans shopping carts, and flag poles (real onws, not the stealth antenna kind), so why not a light bulb?*]

My First Radio

I remember it well. It was in March, 1953 and I was a new novice and tech licensee with absolutely no money to buy a radio. Never gave it a thought. Homebrew was the only way to go. I did have a pretty good junk box of old radios donated by friends who heard I was tinkering with radios.

First came the receiver which had an RF amp and two IF stages -- also had some controllable positive feedback in the RF amp to help the selectivity and sensitivity (also caused the RF amp to radiate its own signal somewhere, but who knew anything about that? Of course there were no solid state devices. Just the wireless valves. But the receiver worked pretty good.

Next was the transmitter. Forty watts to a 6C5-6L6 tube line-up. Probably put out about 25 watts. In those days we measured power in, not power out. It was easier that way.

The rig was crystal controlled. Nobody thought of a VFO until you were a General Class. The frequency was in the 80-meter band. The send-receive switch was a DPDT knife switch. The power transformer and choke were rescued from one of the first "All electric" RCA Radios -- about 1928 vintage.

Well, the big day finally came, and I fired up the station and called CQ. It was a real thrill to hear my own call letters coming back to me on that junk box station. I worked a bunch of states and had a lot of fun building and using this rig. I had to buy a crystal and tuning capacitor, but the total cash outlay for this station was about $3.50. Yes, that was **Three Dollars and Fifty Cents**. Not bad for my first Radio.

73 - Dick Bell, W7TGC□

Tigger's Corner

Alexander Graham Doorbell

Out of the early years of the last century, came some of the most ingenious inventions ever. Without them our daily lives would be much less convenient and more tiresome. My favorite inventor of the period was Alexander Graham Bell; we all know what he was most famous for inventing. But few realize that he was responsible for an even more widely used, lower tech device that we all use on a daily basis. It's even named after him, (sort of). It's called a doorbell.

Out of the early Bell system research labs came news of a breakthrough. People soon learned that Bell's scientists had developed a remote "people sensor", that provided a low impedance circuit closure whenever someone approached it and put their finger on it.

This was fantastic. The scientists could hardly wait to find new applications for their new sensor. In this lab there was a particularly brilliant apprentice, however. As is frequently the case with brilliant apprentices, he was absent-minded -- a real ding-a-ling. He is said to have heard bells in his head that no one else could hear. He had the idea that he could hook up an electrically operated bell to the new people sensor so it would be easier to detect when folks were on the front porch.

The scientific community was stunned. It was ingenious. The Bell lab scientists had once again proven their genius to the world. It was no longer necessary to bruise one's knuckles pounding on someone else's door; you simply set off their "Bell System" people sensor and annoyed them with much less effort on your part. Without this new invention, legions of children might never know the simple delight of annoying their neighbors with a delightful game of "Doorbell Ditch". Imagine how much harder Trick-or-Treating was before the invention of the doorbell.

Later on, when traveling salesmen found that folks had gotten wise to the fact that they didn't always want to talk to the person setting off their people sensors, and wouldn't answer the door, they called upon the Bell System to invent another ringing device that could actually be installed in the most intimate parts of a person's home. Then they taught the traveling salesmen how to be something called a telemarketer. But that's another story....Thank You Alexander Graham Doorbell.

(Next Month; How Albert Einstein invented relatives!)

GOTCHA! APRIL FOOL.

KA7TGR□

HamFest and Computer Swapmeet

The Eastern Idaho UHF Society is having its ARRL sanctioned HamFest and Computer Swapmeet on April 22, 2000 at the Idaho Falls Elks Lodge, 640 East Elva. The assigned talk-in frequencies will be 443.00 MHz(+) UHF and 147.15 MHz(+) VHF.

Advance reservations (planned):

Table - $5.00 (incl. one admission)
Single admission - $2.00
Commercial - $35.00 (incl. two admissions)

At the door:

Table - $7.00 (incl. one admission)
Single admission - $3.00
Commercial - $40.00 (incl. two admissions)

Checks are to be made payable to:

Eastern Idaho UHF Society
c/o Jay Greenberg, HamFest Chairman
2582 Granite Way
Idaho Falls, Idaho 83402□

There will be VEC testing for all license classes (new regulations) and guest presentations:

Two DX talks by Bill Freede, W7II

APRS talk by Tom Schaefer, NY4I

The main door prize will be a Kenwood TM-V7A dual-band mobile, and the EIUHFS will be selling Ten-Tec kits. Rooms have been blocked at Cavanaugh's with room rates ranging from $55.00 to $65.00 (request "Special HamFest Room Rate"). For additional information:

(208) 524-1388 Evenings and Weekends
(208) 526-7033 Weekdays
e-mail wa4vrv@srv.net□

Year 2000

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Quincy Andelin KD7EPR
Carl Anderson WA7PIB
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Registration Information:

Adult (18 and over) $7.00 Before June 7th
$10.00 at the door (No mail-in after June 7, 2000)
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(Youth registrations eligible for youth prizes only)

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