The Blurb

Newsletter of The Phil-Mont Mobile Radio Club
66 Years of Public Service, 1949 to 2015

Volume 68 Number 1 www.phil-mont.org January 2017

Board Meeting on the 4th, General Meeting and AuctionFest on the 12th at Wolcoff Auditorium

Happy New Year 2017!

Inside…

Part two: the Importance of Bandwidth on HF bands by Barry K3EUI …
ND3B continues relating some of his excellent European adventure

A "Steadi" Road to Relicensing

The unusual story of a younger mentor and his older, Oscar-winning mentee unfolds over the course of 25 years. *See Page 7*

Garrett Brown (at left) with Sylvester Stallone on the set of *Rocky*. Garrett and his groundbreaking invention, the Steadicam, gave us the iconic movie moment of Rocky running up the Philadelphia Art Museum steps.
[Photo courtesy of Garrett Brown]

A professional meeting between Chris Brady, N3CB (left)and Garrett Brown W3AFF led to a friendship that lasted 25 years – and got Garrett relicensed
[Lisa Brady, KA3VII photo]

The Blurb is published monthly by and for the members of The PHIL-MONT MOBILE RADIO CLUB, Inc., whose purpose is to promote Amateur Radio in general, and Mobile Radio in particular. ***Copying and quoting*** is permitted with a credit line. We gladly exchange publications with other amateur radio clubs. Requests should be sent to the Editor: *Rick DeVirgiliis ND3B@ARRL.net*

Subscriptions are available to non-members for $12, addressed to the Treasurer.

Labels and mailing: **KB3IV**

Submissions deadline: All copy must be in the hands of the Editor by the 20th of the previous month.

Directors:

AJ3DI (18)
WA3DSP (18)
KB2ERL (18)
N3QV (17)
W3RM (17)
K3HWG (17)
W3STW (A)

Contact Phil-Mont: P.O. Box 404 Warminster, PA 18974
http://www.phil-mont.org
Website: Eric N3QV & Andrew KC2PMW
For club information: Contact any club officer, or the repeaters listed below. Address or club directory changes and articles for the membership e-mail list should be sent to: KB3IV

Sunday Morning Net Schedules

- **2 Meter/ 70cm Net**..... at 0930L on W3QV repeater
- **10-on-10 Net** ..... at 1000L 28.393 MHz USB (±QRM)
- **75 meter Net** ..... at 1020L 3.993 MHz LSB
- **ARES** at 2100L on the W3QV repeater

Committees

Blurb folding: KB3IV & N3GLU
Directory: KB3IV
Field Day: KC2PMW
Fusion Coord: NC3U
Internet: N3QV & KC2PMW
Membership: K3HWG
Net Control: KB3IV
Program: W3AOK
Publicity: W3RM
Refreshments: W3AOK
Repeater: W3AOK
Scholarship: W3RM
Sunshine: N3GLU
VE Program: NS3K
Welcome: N3UBY
Youth: KC2PMW

All visitors are welcome!

The club meets at 7:00 PM on the *second* non-holiday Wednesday each month except July and August at Giant Supermarket, 315 York Rd, Willow Grove, PA
Maps and directions are available at www.phil-mont.org.

License Examinations are held on the fourth **non-holiday Thursday** each month at **Community Ambulance Association, 1414 E. Butler Pike, Ambler PA 19002**
Registration begins at 7:00 P.M. Applicants should contact Jim McCloskey NS3K at 215-275-2979 or jmccloskey@msn.com for the latest information.

Club Stations **W3QV/R: The Jim Spencer Memorial Repeater System**
Ridge & Port Royal Avenues, Philadelphia, PA ***Trustee:*** **W3RM**
147.03 MHz + PL 91.5 Hz 444.80 MHz + PL 186.2 Hz
Reach us on EchoLink through W3QV-R
W3AA *Trustee:* WU3I
W3EM: Field Day/special event station *Trustee:* N3QV

The Officers

President: **NC3U Sal Marandola nc3u@verizon.net**
Vice President: **WA3GM Greg Malone wa3gm@yahoo.com**
Treas: **KB3IV Ed Masarsky kb3iv@comcast.net**
Secretary: **WU3I Steve Hoch wu3i@arrl.net**

The Prez Sez …

Hello Phil-Mont and Happy Holidays. I'm NC3U and my name is Sal. I have been elected to be your next club President and I'm Psyched up! Great thanks to Greg WA3GM for running the ship the last few years and for also taking on the daunting position of Vice-President.

I have been a Ham since the late 70's and living in South Philadelphia I thought I had compromised antennas on the roof. Living here in the Valley Forge area in an Apartment I really know what a compromise antenna situation is.

The meeting in December went very well and my thanks go to all the members and guests that attended. A special thanks goes out to Al W3STW for doing the honors of Election Chairman. I would also like to welcome Jim AJ3DI and Doug WA3DSP for also joining the board. Whenever you get a chance to attend a meeting please go up and give a Thank You to all the board members for doing a Great job. The work they do is tireless and priceless.

Where is Phil-Mont going this year is something I have given great thought to. We have a great Field Day, which we hope everyone will attend this year. We are looking to have fun and have some new operators to help Phil the bands. I would hope that we might be able to have some more social events like Breakfasts and lunches and the sort. If anyone has an idea please send me an email at nc3u@arrl.net or at nc3u@verizon.net.

Hopefully by the time you get this Blurb our Annual Auction will be over or very close to starting. Check your shack for any kind of stuff that you think maybe of interest to other hams. Please remember that the Auction will NOT be at Giant it will be held at Roxboro Memorial Hospital on Thursday January 12th.

Phil-Mont is always looking for speakers and programs for our meetings so if you know anyone please have them contact WA3GM and get them/you onto our meeting list.

Don't forget that Phil-Mont has a Yahoo mailing list. This is one of the best ways to get some up to date news on things going on at the club. Look up philmontmobileradioclub in the Yahoo list and you will find us.

I hope to see everyone at a meeting and have the opportunity to shake your hand.

Remember we are not a club without YOU

73, Sal NC3U

ARRL VEC

The Thursday evening session is on the 26nd this month.

As always, many thanks to our VE team!

Phil-Mont Birthdays &Tidbytes

JANUARY BIRTHDAYS

03 Jon Verlin - K3VU
Dotty Toth (XYL K3CHJ)
05 Dorene Weiner (XYL WX3PHI)

13 Jim Leahy - N0VVV
Jim Toth - K3CHJ
14 John Bates - KC3CEW

15 Karen Lenczynski (XYL KA3EIP)

23 Susan Garretson - KB3YQM
26 Colleen Coughlin (XYL KC3DII)
27 Maureen McCloskey (XYL NS3K)

MEMBERSHIP STATS
At press time P.M.R.C. has:
108 FULL PAID MEMBERS
11 FAMILY MEMBERS
3 YOUTH MEMBERS
1 HONORARY MEMBER
1 Pending Member

New Member Pending:
Norman Miles AB3ZZ
Willow Grove, Pa.
Extra Class
Teacher

From the Secretary

General Meeting 12/14/2016

WA3GM opened the meeting at 7:13PM. Secretary announced November minutes did not make the Blurb. No elevator for the editor.

Treasury: KB3IV reported thanks for the prompt dues payments and keep it coming. Ed extended thanks to WA3DSP and W3DZZ for their work on the Archives DVD. The 2017 net control list is out please review and contact Ed if there is a conflict with your assignment.

Tech Report: W3AOK reported all is working. New repeater is in, will install when able. There is a fluctuation in power output, will check it out when able.

Old business - None

New Business: Auction 1/12/2017 at Roxborough Hospital.
VE Session 12/15/2016.

Elections
W3STW announced the Slate of Officers:
NC3U President
WA3GM Vice President
KB3IV Treasurer
WU3I Secretary
Board of Directors
AJ3DI (18)
WA3DSP (18)
KB2ERL (18)
N3QV (17)
W3RM (17)
K3HWG (17)
W3STW (A)

K3HWG made a motion to close the nominations. K3FXR seconded.

As all positions were running unopposed, the Secretary cast a single vote.

Program W3AOK: Bill played a movie about a new product, a cell phone with a VHF or a UHF transceiver all in one. The RANGERFONE was a hit. Since the announcement new models were found online at the meeting.

We introduced a new ham AA3ZZ
Norm. Welcome Norm.

The 50-50 was won by W3AOK and donated to the Scholarship Fund

K3HWG made the motion to close the meeting. AJ3DI seconded. WA3GM closed the meeting at 8:00 PM.

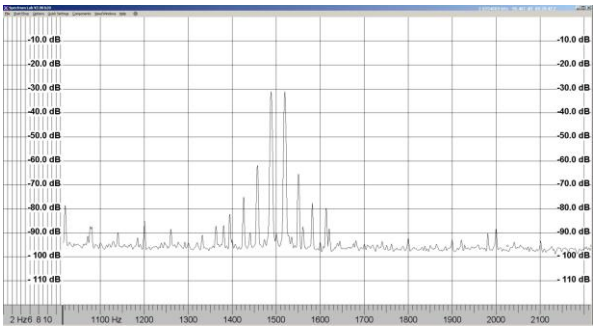
Respectfully Submitted Steve, WU3I

The Importance of Bandwidth on the HF Bands Part 2

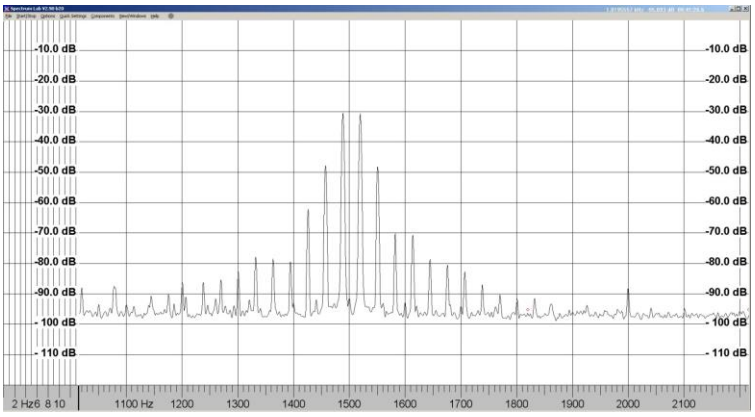
K3EUI Barry Feierman

Why is ALC an important factor in judging your transmit signal?

Let's compare two spectra of a BPSK31 signal taken from the same transmitter at the same power output using the same sound generator (a SignaLink usb device). In both cases, the audio output of a SignaLink is sent to the MICROPHONE input of the radio (a Yaesu FT1000). In the first spectrum the audio output from the SignaLink feeds only enough audio into the MIC jack to get 25 watts output on 40 meters, with the **ALC** (automatic level control) meter on the rig reading absolutely zero. ALC is a circuit that cuts back on the gain of the audio chain if the transmitter senses it is being overdriven, which would likely result in a broader, more distorted signal. One can see the extra tones generated (intermodulation distortion) at -30 dB below the peaks of the signal as far at +/- 50 Hz from the center frequency. This would be considered a very good psk31 signal, about 100 Hz wide.



For testing purposes, I then introduced much more audio into the MIC jack, driving the Automatic Level Control (**ALC**) on my transmitter into action, but then turned down the RF power control on the radio to limit the power output back to where I had it before, a presumed "safe" level of 25 watts. The ALC reading on my radio indicated I was nearing the maximum permitted level of ALC action. Of course, the radio doesn't know I am on a digital mode with a sound card, not on phone with a microphone. The widened spectra of this distorted PSK31 signal clearly shows what we would call "splatter" which would widen the signal, causing it to interfere with neighboring signals. In speakers, this sounds awful to listen to…. a rather raspy buzzing sound. Had I been in QSO with another PSK31 operator, I would surely have been told that my signal was wide and spattering, and for me to turn down the audio. Thus, even an inherently narrow bandwidth signal like PSK31 can be abused by the operator and driven into distortion with too much audio.



Since the invention of PSK31 in the 1990's additional sound card based modes have been created to solve a number of problems that often occur on the HF bands. Unlike contacts via the 2 meter FM repeater, which is mostly local line-of-sight, HF signals come to us mostly via the ionosphere. The process of refraction (not reflection) by the various layers of the ionosphere alters the direction, polarization, amplitude, and phase of an RF wave. Time delays of up to 50 milliseconds are common on 80 and 40 meters. If we are lucky, that RF wave bends sufficiently back to the surface of the Earth so that we can communicate with someone tens, hundreds or thousands of miles away. The ionosphere is not like a brick wall where a tennis ball changes direction after hitting it. The ionosphere is more like a fuzzy elongated bowl of Jello, and the RF waves that encounter it undergo slow changes in speed and direction. Often the amplitude changes, frequency changes, and phase changes occur during this process, leading to some very altered RF waves coming back to Earth. All of these processes can severely limit the effectiveness of sound-card based digital modes.

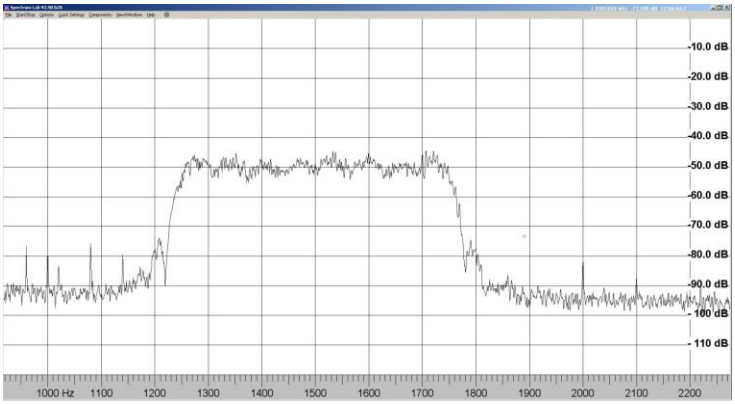
Based on the multitude of changing conditions in the ionosphere, and different paths of propagation

around the world, new sound card based digital modes were designed such as MFSK, Olivia, THOR, JT65, and others. Each mode tries to solve problems that prevent perfect print on any given propagation path. Let's examine some of the possible ways we can improve accuracy of digital signals via HF bands.

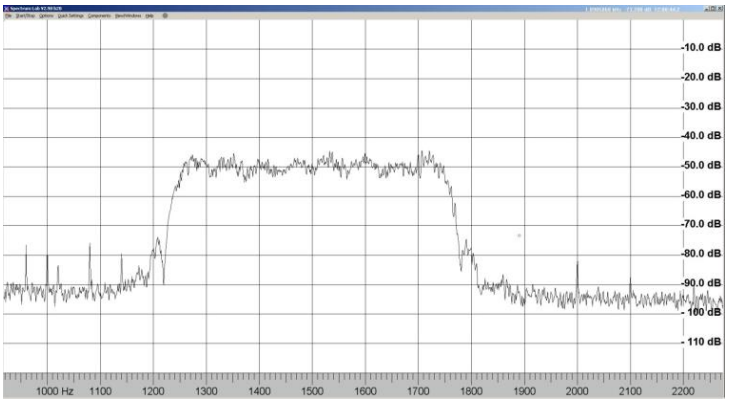
Is there safety in numbers? That is, rather than sending digital information as one of two possible states (CW on/off, RTTY as Mark/Space, PSK as phase shift or no phase shift) why not send more than one possible state with each symbol change? In other words, what if we send 1 of 16 possible tones, one at a time, to represent our data? 16 is 2^4 which means **each symbol change could represent four bits of data.** Do we get better accuracy and higher speed by having more tones, and what do we compromise. First, to send 16 different tones requires a greater bandwidth than sending just two tones (RTTY) as the 16 tones must be identified as distinct from one another. It has been found that if the tone spacing is about the same size as the baud (rate of symbol change) then the sound card is able to distinguish one tone from another tone. Thus, the op mode MFSK **16** consists of 16 distinct tones, each separated by 16 Hz, sent at a baud of close to 16, for a total bandwidth of 316 Hz and an overall speed of about 58 words/minute. That is what is meant by "safety in numbers". On some propagation paths, MFSK 16 is much more robust than the simple two-tone RTTY, or two state CW, or two state PSK31.

There is no shaping of the envelope of MFSK modes, the tones change abruptly from one pitch to a different pitch, maintaining a nearly constant amplitude and constant phase at the rate of 16 symbol changes per second. This mode results in more visible "sidebands" above and below the main signal, as shown in the spectrum. This graph shows a bandwidth of about 400 Hz for audio -30 dB below the signal peaks. MFSK 16 has a throughput of about 58 words/minute, about the same rate as RTTY 45, but with upper and lower case letters and forward error detection and correction built in.

Here is an audio spectrum of a typical MFSK **16** audio signal centered at 1500 Hz on the waterfall. Note the sidebands decrease in amplitude the farther you move from the main signal. **Thus, greater speed and accuracy requires a greater bandwidth**.



Another very popular mode that is becoming dominant on the 40 meter state-wide NBEMS (narrow band emergency messaging service) nets via NVIS propagation on weekends in the mid-Atlantic area is Olivia **8/500**. Olivia 8/500 is also a multi-pitch mode (8 tones) and a symbol rate change of 63 baud, and a bandwidth of 500 Hz with a speed of about 30 words/minute. Olivia has softer sounding pitch changes than MFSK mode due to a "shaping" of the envelope of the signal, resulting in fewer sidebands on the spectrum, as shown below. What makes Olivia so amazing is that it is capable of detecting signals as faint as -13 dB signal/noise. It has a speed of only 30 words/minute, but having great capacity to dig signals out of the noise on 40 meters. I have made QSO's with Olivia on 40 and 20 meters where I could barely hear any sounds in my headphones and could barely see any signal in the waterfall spectrum.



New modes are being developed every year, including Domino, Thor, Throb, and others. Of course, each new mode attempts to solve problems that plague existing modes. The great feature for ham radio operators is that we get to play with these new modes with our radios and sound-cards and see for ourselves what works and what doesn't.

Barry Feierman, K3EUI Dec 2016

Steadicam continued from cover…

de Chris Brady, N3CB

On a late weekday afternoon in the summer of 1989, a call was forwarded to my office at Philadelphia's KYW-TV, where I'm the News Operations Supervisor, supervising our complement of television news photographers and all the associated equipment they use on the street.

On the other end of the call was an unfamiliar voice. However, when the caller identified himself, I recognized his name — as would most people in my business. Garrett Brown, the famed inventor of the Steadicam, had called me!

For those of you who might not be familiar with Mr. Brown, Garrett is both an award-winning cinematographer and an inventor with 50 patents to his credit.

The Steadicam, a merge of Garrett's two passions — engineering and cinematography — is an industry-changing, Academy Award-winning device that dampens the vibrations and movement of a film or television camera. Some of Garrett's most famous work includes boxing underdog Rocky Balboa's iconic, triumphant run to the top of the steps of the Philadelphia Museum of Art in *Rocky*; the revolutionary background footage used in the speeder-bike chase through the woods in *Return of the Jedi*; and the chilling footage of a crazed Jack Nicholson chasing his child co-star through the snow-covered hedge maze at the end of *The Shining*. Add about 100 more movies, and you've just scratched the surface of his professional work.

Back to that phone call! Garrett was looking for input on one of his new projects — a lightweight camera support system, including lights, for TV news photographers. I was invited to his home, where he interviewed me about how I used the television camera to cover news.

Our conversation lasted for a few hours. I was intrigued by his engineering skills and, of course, our common bond as cameramen.

Having recently passed my Novice and Technician exams, I mentioned ham radio to Garrett and was surprised to learn that he had been a licensed ham. Unfortunately, a missed opportunity to renew his ticket — blamed on an address change — sent his call, W3AFF, into limbo.

Brown's Ham Radio Beginnings

Brown had first been exposed to Amateur Radio as a Cub Scout when Jay Gaul, W3IM (SK), brought his "location" setup to a scout meeting. Gaul and Gardiner Pearson (formerly N3BF) became Garrett's Elmers.

Garrett recalls constructing an early Heathkit CW transmitter — a complicated kit that needed Pearson's more skillful prowess with a soldering iron to bring it to life. A World War I "side-swiper" key rounded out his station. Garrett quickly improved his CW speed, reaching 40 WPM after just a few months. At the age of 12, he participated in military traffic nets!

Another Chance Meeting

After Garrett and I parted ways that day in 1989, we lost contact with one another for quite some time. Our paths crossed for a moment in 2004. This time it was while we were both attending the National Association of Broadcasters (NAB) Convention in Las Vegas.

Garrett, standing at nearly 6' 7", was an easy and familiar figure to spot from across the convention floor. He was holding court at the booth of Tiffen, the photographic equipment company that represents and distributes his line of Steadicam products. Surrounded by a ring of cinematographers, Garrett was demonstrating his camera support system, when I slowly approached the assembled group.

I approached Garrett's right side from slightly behind him, and whispered, "Did you get that license yet?"

Garrett slowly turned and looked at me. I asked if he remembered who I was. After all, it had been nearly 15 years since we had been in each other's company.

Garrett not only remembered me, he afforded me enough time to get reacquainted. He recalled our discussion about ham radio and his expired license and admitted that though he was full of great intentions, there just wasn't enough time in his busy schedule, which included a lot of travel, to study and retest. He seemed interested in getting back on the air, but wasn't confident about exactly how he was going to do it.

Perseverance Pays Off

Over the next 7 years, Garrett and I did a pretty good job of exchanging occasional e-mails, text messages, and phone calls. We even crossed paths at subsequent NAB Conventions. After years of prodding, coaxing, and maybe even a little harassment (I think the term Garrett used to describe me was "nemesis"), I felt the time had come for my perseverance to pay off. In the summer of 2011, just prior to Field Day, our e-mail exchange about PSK31 — a mode that didn't even exist the last time Garrett was on the air — seemed to pique his interest.

Garrett agreed to make a cameo appearance at my club's Field Day operation. I set up my PSK station and waited. About an hour into Field Day, Garrett arrived. He watched in amazement as the computer decoded calls. After about half an hour, Garrett reached into a satchel slung over his shoulder and pulled out the side-swiper from his childhood station. He asked if he might be able to get on the air, so we made our way over to the CW station, which was operating on 40 meters.

The guys operating the CW station had a pretty good run going, but eventually there was a break in the action. After some adjustments to the wires attached to it, Garrett started knocking out some CW on his old swiper key, after a long hiatus.

I think Field Day really lit a fuse for Garrett, because after the event, messages from him became more frequent, with a greater sense of interest and excitement. Our many conversations changed from me telling Garrett about all the fun he was missing with Amateur Radio, to Garrett asking questions that implied, "What do I need to do to get back on the air?"

At Last, a License

In the early summer of 2014, an incredible opportunity was about to become available — grandfathering of expired licenses! I sent Garrett copies of articles about this process, believing that, after 25 years of keeping after him, this might be the way to get him licensed again.

I started doing the necessary homework to support Garrett's application. A quick phone call to my good friend Dick Moll, W3RM, immediately produced a 1987 ARRL call book. On those yellowed, closely printed pages, was the information I needed to prove that Garrett's previously held license existed. Bingo!

So, on July 24, 2014, after a day or two of cramming for the Technician test, Garrett agreed to meet me at the Phil-Mont Mobile Radio Club's VE session in Ambler, Pennsylvania. After about half an hour — and 25 years since our initial conversation about ham radio and an expired license — Garrett had passed the exam. A new ham — actually, a *reinvented* ham — was ready to get on the air!

Garrett's new call sign was insignificant; his goal was to regain his former ham radio identity. Fortunately, his old call had remained unassigned. Garrett quickly surrendered his FCC-assigned call for the call he had held as a boy: W3AFF.

Garrett purchased an Elecraft KX-1 QRP rig. After some initial frustration, he brought it to my house, where we connected his new radio to a 40-meter dipole, and he made his first CW contact!

Back On the Air Again

Fast-forward to Field Day 2015. I had invited four other buddies for a 3D run from my basement in suburban Philadelphia, and it couldn't have been more fun. Garrett, along with his side-swiper from days long ago, put many miles on an old Kenwood of mine. He operated 40-meter CW for about 7 hours, only breaking briefly for lunch. He was like a machine!

It's amazing to think that our chance meeting some 25 years ago, and a benign mention of Amateur Radio, started us on a path to getting Garrett relicensed. This shows that persistence does pay off, and that the ham radio fraternity reaches deep into the soul. Garrett, a ham that had been temporarily derailed, is now back on track, so listen for W3AFF on the bands!

Chris Brady, N3CB, was first licensed in 1989 as KA3VHL. He previously held N3IEI as well.

Chris is proud of the fact that his entire family — wife Lisa, KA3VIL; daughters Caitlin, W3CJB, and Heather, W3HEB — is licensed!

Chris's 35-year career in broadcast television began at WNEP-TV in Scranton, Pennsylvania, and for ESPN reporters covering Philadelphia sports teams. For the past 33 years, he has worked at KYW-TV in Philadelphia, which has been owned and operated by CBS since 1995.

Chris has won five regional Emmy Awards and was inducted into the NATAS (National Academy of Television Arts and Sciences) Silver Circle Society in 2014. Chris was responsible for all the technical aspects of KYW-TV's remote broadcast coverage for Pope Francis's visit to Philadelphia in fall 2015, and the summer 2016 Democratic National Convention in Philadelphia.
He credits Amateur Radio with providing the strong technical background his career requires. The formula for 1⁄4-wave antennas comes in very handy on production remotes! Chris can be reached at ***n3cb@arrl.net****.*

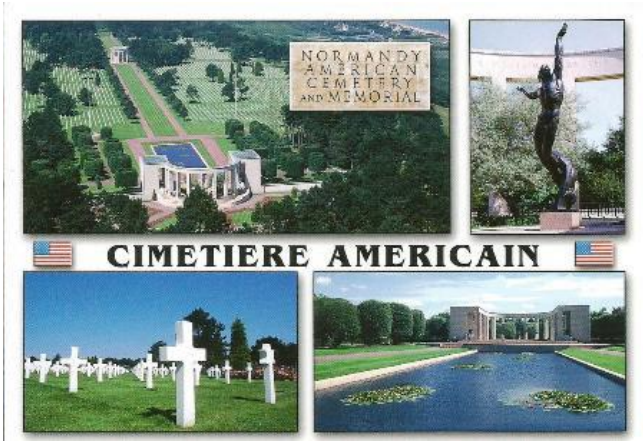
This great article appeared in last month's QST and should have been in that issue of the Blurb. Mea culpa. I blame the cats.

We will be hosting our 21st Annual "Ham Radio Auction-Fest"
on Thursday evening, January 12, 2017, 7:00pm
in The Wolcoff Auditorium at Roxborough Memorial Hospital
5800 Ridge Ave., Phila, PA.

ND3B's Excellent European Adventure continues…

BBC D-Day transmitter in the Creully castle tower

Postcard showing troop objectives



We arrived at the American Cemetery just in time for the lowering of the flag while a bugler played Taps. Talk about goose bumps!

To be continued…

January at Phil-Mont

1 Sun New Year's Day
WU3I
4 Wed Board Meeting
8 Sun KB3IV
12 Thur Auction Fest
15 Sun WA3GM
16 Mon M. L. King Day
17 Tues Ben Franklin Birthday
20 Fri Inauguration Day
22 Sun NC3U
26 Thur Evening VE Session
29 Sun N3QV

Don't forget the ARES net on Sunday nights and the Digital net on Tuesday nights.

--... ...-- -.. . -. -.. ...-- -...

For Sale

1/8" (290#) & 3/16" (380#) Dark Olive Drab Braided Cord · 100% Polyester/Dacron Knit Braided. Nice stuff! Tough and long lasting · UV Resistant and Low Stretch Proudly Made in the U.S.A.! Contact Steve WU3I at wu3i@arrl.net or 215-605-6074

DAIWA CS 201 Two position SO239 Coax Switch $25.00 each. I have 6.
Bill K3HWG K3hwg@arrl.net

First Class Mail

The Phil-Mont Mobile Radio Club, Inc
1700 Street Rd. Apt. H3, Warrington PA, 18976
The Blurb