



Presidents Message

March is almost upon us and with that comes the changeover to EDST, St. Patrick's Day and the arrival of spring. Bill, NJ2S reported that he received positive feedback from BSA Troop 9 in West Deptford based on last month's ham radio presentation. One of the scouts' Dad, Frank, KC2SJ, has already volunteered to be Radio Merit badge counselor for the troop and has already begun teaching their first class comprised of 11 scouts. Let's hope that all will join the ranks of amateur radio in the not so distant future.

On another note I noticed an advertisement on page 131 in the March issue of QST that electronics officers were needed for U.S. flag commercial ships worldwide and that they would assist in obtaining all licenses. For those interested in studying for the FCC Commercial Operators License, I'd like to recommend subscribing to <http://www.fcctests.com> which is a Web based FCC Test Preparation. These pages have self-assessment tests for the Marine Radio Operator's Permit (MROP), the General Radio Operator's License (GROL), the Global Marine Distress Safety System Operator's License (GMDSS operator), the Global Marine Distress Safety System Maintainer's License (GMDSS Maintainer) and the Ship's Radar Endorsement. The FCC does not currently administer commercial operator license examinations. To obtain a new or upgraded FCC commercial operator license, one must pass an examination administered by a COLEM (Commercial Operator License Examination Manager). A list of COLEMs are on the FCC's website <http://www.wireless.fcc.gov/commop> all of which are authorized by the FCC to administer examinations nationwide. Upon passing the examination(s), the COLEM will issue the applicant one or more Proof of Passing Certificates (PPCs) that one must include with their license application (unless the application is filed electronically by the COLEM) with the FCC. The FCC will then issue the applicant a new or upgraded FCC license. I believe the U.S. Coast Guard also has additional marine certification requirements based on a ship's tonnage. I might add that several Club members already have their GROL based on mandatory requirements within the broadcasting and certain electronics professions that are outside of the maritime industry.

Due to new time constraints, Art, K2AWS, will not be able to continue as webmaster and is looking for someone to replace him. On another note, Lou, KC2FXK resigned his position as Club treasurer. As of this writing, the board is identifying possible candidates and will present their recommendations to the general membership for their approval.

At the March 7th meeting we will shorten the business meeting to allow time for our program.

Welcome New Member

This month the Club welcomes Matt Katsoris, KC2MVO of Franklinville as a new member. Please welcome Matt when you meet him at Club meetings and functions.

Down Jersey DXing

By Bill Grim, W0MHK

That was a DX hectic January into early February for the beginning of the year. Hope you qso'd some new entities for your DX totals! Conditions were somewhat cooperative and the efforts, like Malpelo, were fabulous. Be sure to follow qsl instructions given on each specific DX station website on QRZ.com. It is a real aid to know you are in the DX stations log with on-line logs refreshed by the DX while they are still on their rare piece of real estate. A rework while they are there can save the agony of having to wait for another group to activate what you need in the world!

Use the hints and kinks of a recent GCARC presentation by WA2NPD which shows how to qsl DX to bag the cards or electronic confirmations you may need. It's your decision, but an extra US dollar or two sent to a rare effort can help pay left over expenses from the trip or be used to help finance another trip by a group that has done you a big DX favor. Costs of travel and fuel are sky-rocketing.

At this writing, the recently past February ARRL World Wide DX CW Contest sure exhibited the fact that our Sun can "giveth and taketh away"! Conditions on 10 Meters were significantly down compared to contests in the last few months. It seems to have been a seasonal phenomenon coupled with a lack of active sunspots. Openings to Europe and longer path DX destinations seem to be disappearing for the present on 10 and 12 Meters to a noticeable degree. Let's hope that spring time propagation will add some additional "DX juice" from the sun to reinvigorate some propagation paths as the days get longer. Even in times of little solar activity, changes in the seasons can bring significant changes to propagation. It was fun to once again hear so many Indonesian stations coming in on different higher bands over the pole last year. Look for that trend to possibly start up again as we come out of winter's chill.

And while we're on the topic of "chills", NASA came out with a less than spectacular general evaluation of the present solar cycle we are experiencing. You can Google the full text of the report dated February 16th on the NASA website. Seems like we might have an exceptionally low peak in solar activity which is now predicted to be in 2013 with this cycle being the poorest in 100 years! But we still have time to take advantage of whatever this cycle might provide. On the flip side, there have been some very interesting openings on 6 Meters for the rest of the world in recent months also including some very long haul DX for our USA 6 Meter ops across the southern tier of states already into the Pacific! We're back to the "gettem while they're hot!" philosophy of DXing! Here are some strong DX possibilities for you during the month of March:

CALL	DATES	HIGHLIGHTS	PRIORITY(5=RARIST)	ENTITY
3C0E	2/28-3/11	EA OPS/160-6M	4	ANNOBAN IS.
ZD7XF	2/29-3/3	CW / 160-10M	3	ST. HELENA IS.
V73FW	3/1-3/30(?)	DATES UNSURE....	2	MARSHALL IS.
PJ7PT	3/5-3/18	160-10M/CW,SSB,RTTY	1	SAINT MARTIN
A35YZ	3/7-3/24	10 OPS/160-6M/MANY MODES	2	TONGA
ZL7	3/8-3/13	CW/SSB	3	CHATHAM IS.
S9	3/16-3/23	HF & 6M/SSB, CW	2	SAO TOME
TO7BC	3/23-4/06	SSB	3	MAYOTTE
J52HF	3/24-4/6	80-6M+EME/RTTY/CW	2	GUINEA BISSAU
E51M	3/28-4/10	160-6M/MANY MODES/7 OPS	2	N. COOK IS.

CREDITS: ADXO NG3K

March Club Meeting Program

At the March General Membership meeting the topic will be software defined radio. Jim Wright, N2GXJ, your Program Chairman has arranged for a talk on "SDR 101" and demonstration of PowerSDR by Greg Jurens of FlexRadio Systems. FlexRadio Systems is the world leader in software defined radio for radio amateurs. We hope to have a packed house for this program so talk it up among your ham friends and come on out to this special program.

Ham License Plates

By Tom, Gorman, KE2ES

For those interested in obtaining NJ tags with one's FCC amateur radio callsign: Telephone NJ Motor Vehicle Commission (MVC) in Trenton at 1-888-486-3339. Wait for the prompt for the "Special Plate Unit". Once connected, request the person mail you an "Amateur Radio Plate Application." Once received, complete the application and mail it with the following:

- a photocopy of the current vehicle registration certificate.
- a photocopy of the current amateur radio license issued by the FCC.
- A check or money order for a one time fee of \$15 payable to NJ Division of Motor Vehicles.

Along with the application card they should also send you a SAE. If not, mail the above to:

NJ Motor Vehicle Commission
Special Plate Unit - Attention Amateur Radio Section
P.O. Box 015
Trenton, NJ 08666-0015

Allow 4-6 weeks and your plates will be mailed to you.

Note: You may also obtain a second set of amateur radio license plates if the combination assigned to you is 5 characters or less. For example K2YYL is 5 characters. The second set will have a -2 following the registration number. A separate application and fee is required. Amateur radio tags cannot be assigned to a vehicle registered commercially.

You can also do this in person by visiting the Special Plate Unit that's located at 225 East State Street, 2nd Floor in Trenton, 08666.

Sonny, WB2DXB, SK

By Doug Gehring, WA2NPD

On February 14, GCARC lost one of its most beloved members. Sonny had a massive stroke from which he could not recover. He was 86 years young. Sonny, a Life member of GCARC, had been an active Club member since joining in 1978 and always held the call WB2DXB. He served the Club in many capacities most notably having been the spark plug in amending and revising our Club Constitution. He served as a Club Director for many years. In 1995, the Club awarded its Milt Goldman service award to Sonny for consistent outstanding service to the club. Sonny was a regular attendee at the Friday luncheon group. He did not regularly attend monthly Club meetings in recent years as he did not feel comfortable. Please see 'Sonny' on Page 10.

Seeing Sound

By J. Wright N2GXJ

Everyone knows you hear sounds with your ears. And sometimes you can feel sound, when the vibrations are strong enough. But, can you see sound? Thanks, in part, to the theories of a French mathematician from the 1800's, the answer today is a definite 'yes'. In fields as diverse as sonar, radar, seismology, and now ham radio, "seeing" sound has become a common tool for signals analysis. It sounds complicated at first, I know, but it really isn't that bad. And it's worth understanding, at least a little bit, before hearing about FlexRadio and "Software Defined Radio" from our guest speaker at the next club meeting. So, please read on....

Going by many names, including "spectrogram", "spectral waterfall", "sonogram", or "voiceprint", the basic technique for "seeing sound" involves measuring the energy at many frequencies at an instant in time, and then comparing a series of those measurements taken in succession to show how the signal varies over time. But let's back up first.

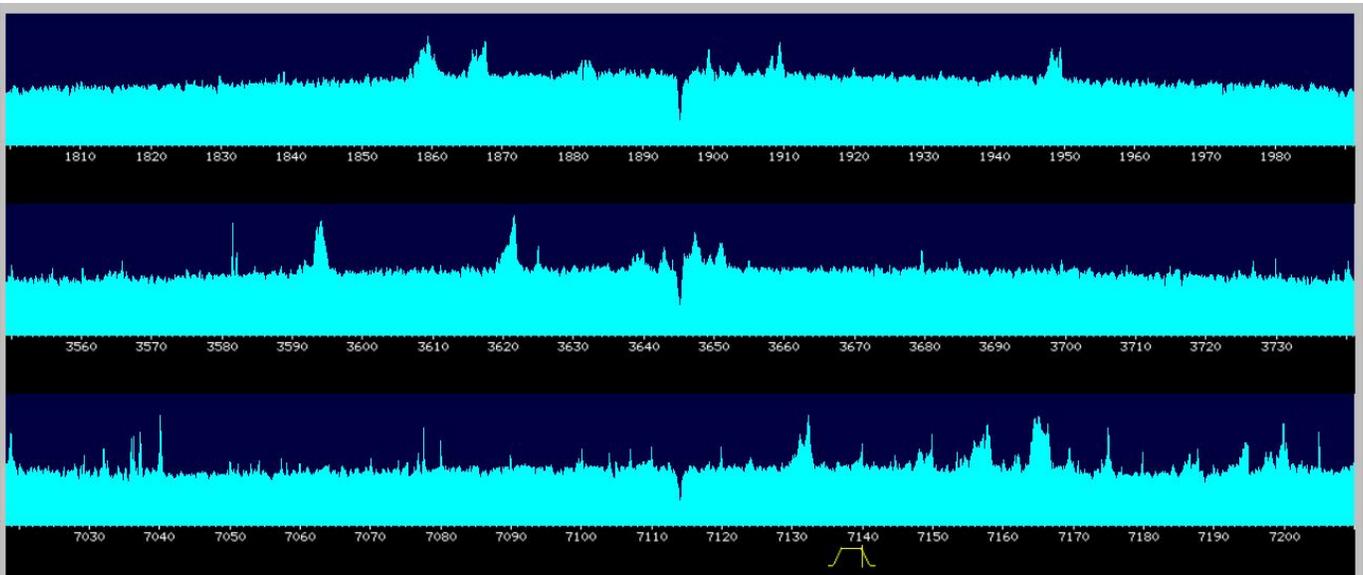


Figure 1: Spectrogram of the lower ham bands at 10pm on 2/20/2012

I remember being introduced to a frequency analyzer back in college. The idea behind the device seemed understandable. Imagine taking a portable radio and spinning the tuning dial from low to high, measuring and plotting the strength of every station you heard along the way. You would end up with a graph of signal strength values on one axis vs. measurement frequency on the other axis, similar to what is seen for each of the three frequency bands shown in Figure 1. The little 'spikes' seen in the plots above the 'average' level in each band (above the noise floor) represent signals of interest, with their height representing their relative signal strength. For example, look for the little yellow symbol around 7.140 MHz at the bottom of Figure 1. See how there is a little spike above the noise floor in the light blue signal that is just above this symbol? Turns out that is an LSB voice signal being received on 7.140 MHz. Notice the bigger spike just to the left around 7.133 MHz? That's another even stronger signal.

After being introduced to the spectrum analyzer, we then learned how a signal could be turned into digits, and then how math could work on those digit samples to give us the same kind of signal strength vs. frequency. Please see 'Seeing Sound' on Page 5.

“Seeing Sound” from Page 4.

quency information we had seen on the frequency analyzer. The subtle difference was that instead of taking time to “sweep” the tuner across the whole band, taking amplitude measurements independently at each frequency along the way, this mathematical technique allowed us to get a representative snapshot of the amplitudes of all the frequencies in the band at the same moment in time.

Lastly, we learned how we could display a series of these ‘amplitude vs. frequency’ snapshots taken at different times stacked one after the other to get a picture of how the signals in the band were changing over time, similar to what is shown in Figure 2 below.

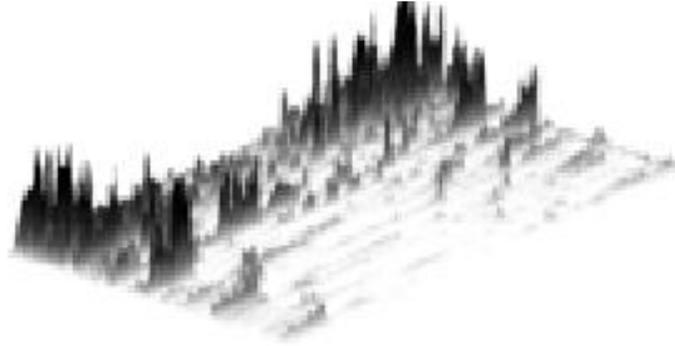


Figure 2: Spectrum displays vs. time

Turns out Figure 2 is a “spectrogram” (credit: Wikipedia.org/wiki/Spectrogram), and is a way that we can “see sound”, as introduced at the start of this article. The turning of a signal into digits is analog to digital conversion (digitization, e.g. via the input port of a sound card), and the math performed is the discrete Fast Fourier transform (DFFT), which is based on the theories of a 19th century Frenchman named Joseph Fourier. If you want to know more, I recommend this easy-to-follow explanation, from the folks at MIT (<http://web.mit.edu/newsoffice/2009/explained-fourier.html>). Making more sense now?

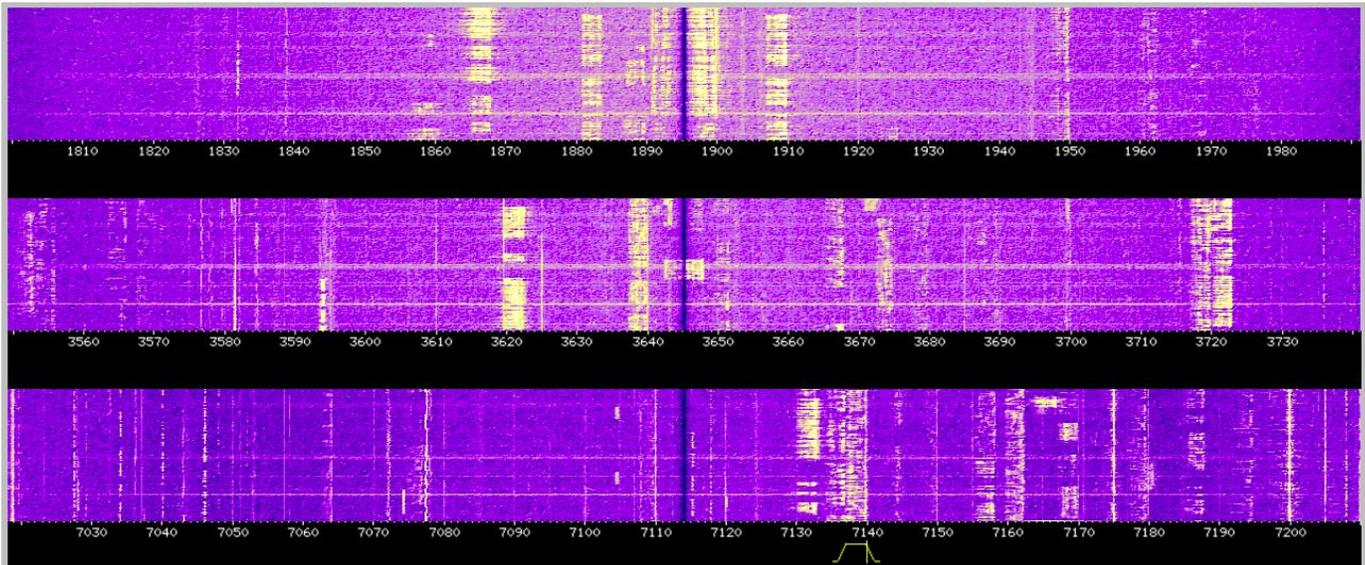


Figure 3: Waterfall display of the lower ham bands at 10pm on 2/20/2012

Please see “Seeing Sound” on Page 6.

‘Seeing Sound’ from Page 5.

So let’s go back to the spectrum display of Figure 1 again. If we were to substitute ‘display brightness’ instead of height for signal strength in that display, each spectrum snapshot would then be just a single line high, with the brightness of the points on that line representing the relative strength at each frequency point in the snapshot. Then, if we would take snapshot after snapshot, and scroll them up over time, with the newest line being painted below the previous line that just got moved up, we would get a ‘waterfall’ display showing spectrum displays over time. Well, that’s exactly what we have in Figure 3. What we end up with is a waterfall display, which is showing us everything going on in the lower ham bands all at once!

Take a look again at the little yellow figure below 7.140 on the 40M ham band. Above this yellow figure is that same SSB signal, now shown over time. The guy’s a rag-chewer for sure! He’s stayed keyed down while talking for a while now. Look around the bands a bit. What other signals do you find? See any CW signals in the lower part of the band?

Waterfall displays, like the ones above, are easily produced on today’s home computers given an appropriately digitized sample of the HF radio spectrum as input. Once the digitized samples are in the computer, now you can do all kinds of things with the data from portions of the bands you are capturing. Take a look at the sample of controls offered in Figure 4. Want to zoom in on any portion of the waterfall? Yes, you can. Want to fine tune then demodulate and listen in on that SSB QSO above the little yellow figure? Yes, you can. Want to adjust the filter bandwidth while listening to the signal you have selected for demodulation? Yes, you can. Since the digitized samples are in your computer, do you want to allow other people access to your sampled data, allowing them to demodulate the same or other signals from the same waterfall at the same time? Yes, you can.

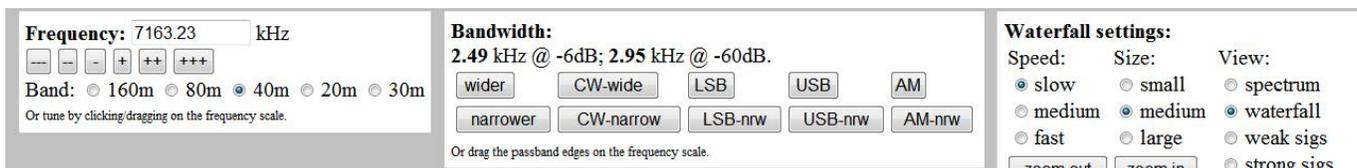


Figure 4: Waterfall settings and demodulation controls

To get a better feel for how this all works, there is no better way to do that than to get hands-on with the technology, and it’s easy to do with a web connection. Just Google “WebSDR”. People from all over the world are digitizing portions of the HF spectrum that they receive at their QTH, and are sharing access over the web. For example, to get the HF displays for this article, I went to <http://w4ax.com/>, where W4AX (“Mack”), has graciously shared five independently tunable software defined receivers with the public. With well documented operating instructions, and an FAQ, his site is a great place to get started. So, that’s all there is to it. Have some fun! Hope to “see” you on the waterfall soon!

VEC Testing

Regular VEC testing sessions are scheduled for the second Thursday of the month at 7:00 PM and are held at the Franklin Township Public Library on Coles Mill Road in Franklinville. The cost of the exam is \$15. Candidates are required to have a photo ID and two copies of their current license if they have one. For further information on VEC testing or to sign-up for a session contact Gary Reed at 856-582-4365 or at glreed49@verizon.net.

HMS *Bounty* Descendants get Radio

Bob Thomas, W3NE

Mutiny on the Bounty is a well-known classic adventure of the high seas, as told in several novels and motion pictures. HMS *Bounty* was sent by the Royal Navy on an experimental expedition to explore the viability of transplanting breadfruit trees from Tahiti, where they were abundant, to the West Indies, where the nutritious fruit of mature trees would be used to feed British slaves. The *Bounty*, a 90-foot three-mast ship sailed from England on December 23, 1787 with a crew of 46 officers and men under Captain William Bligh. Bligh was a superb seaman, navigator and cartographer, but he was a brutal authoritarian, unable to direct his crew without threats and harsh punishment. After a month of aborted attempts to pass around Cape Horn in foul weather, Bligh reversed direction and sailed eastward around the Cape of Good Hope at the southern tip of Africa, across the Indian Ocean and finally to Tahiti on a voyage of ten months. During the rigors of the voyage Bligh became unable to get along with his First Officer and replaced him with Fletcher Christian.

The layover in Tahiti for collection and preparation of breadfruit saplings lasted longer than anticipated. During that five month period Bligh allowed the crew to live ashore where they rapidly “assimilated” with Tahitians, taking wives and adopting many of their customs. The worst of Bligh’s personality began to surface as he continually humiliated Mr. Christian in front of his men and Tahitians, and meted out harsh punishment on the crew for minor infractions. The *Bounty* finally set sail from Tahiti on April 5, 1789 with the original crew minus three men who deserted to continue living on the island.

Out at sea, Bligh’s brutality intensified with frequent floggings and blame heaped on Christian for every problem. After three weeks of unrelenting harsh treatment, Fletcher Christian led sixteen men in an unopposed mutiny. Bligh and eighteen of his supporters were loaded on the *Bounty*’s 23-foot open launch and set adrift.^[1] The *Bounty* returned to Tahiti with the mutineers, where Christian married a Tahitian and eventually departed with eight crewmen, six Tahitian men, and eleven women. After searching for an island where they would be hidden from passing ships, especially the Royal Navy, they came upon Pitcairn Island, only two miles long and one mile wide, with rocky cliffs rising 1000 feet up from the sea. A further advantage offered by Pitcairn was that its position was shown on all existing charts with an error of 200 miles! There were coconut and fruit trees on the island and fish were plentiful. The new inhabitants burned the *Bounty* and began a peaceful life with Fletcher Christian as leader, but before long there was such extreme social strife it nearly brought the population to extinction. Divisive issues were eventually resolved and the community flourished. John Adams was the only British survivor in 1808 when the island was first visited by a British ship; he was given amnesty for his part in the mutiny. Today most of the residents of Pitcairn (about fifty) are direct descendants of the original settlers. The island, now a British Overseas Territory, as might be expected even has its own internet web page.^[2]

W8IGQ visited Pitcairn and described how radio arrived there in his 1937 QST article^[3] “CQ PITC.” It began in 1921 when some of the islanders started to study Morse code after they had been promised a receiver by the Marconi Company. Practice initially was with flash lights, but they were later able to hook-up a key and buzzer so they were ready when Marconi delivered two crystal sets. That enabled islanders to copy marine traffic and get advanced notice when a ship, usually from New Zealand, would be arriving at Pitcairn. A low power spark transmitter on 600 meters (about 500 kc.) was installed in 1928 by a New Zealand ham to enable direct contact with ships at sea, using the commercial call PITC. Incredibly, that transmitter was still in operation when W8IGQ visited in 1937 even though spark had been legally banned in 1923! The rig used a simple spark coil that produced a tone described by one shipboard operator as “sounding like a monkey pi - - ing on a drum.” The transmitter was powered by a 12-volt Please see ‘Pitcairn’ on Page 8.

'Pitcairn' from Page 7.

storage battery, but with no primary power on the island, the battery had to be shipped to New Zealand every time it needed recharging! Even then, dedicated PITC ops continued to keep a watch on 500 kc. while their transmitter was down. Harking back to the *Bounty's* heritage, the Chief Operator of PITC was Andrew Young, a fifth generation descendant of an original settler. Although Young was not a ham, he embodied the spirit of amateur radio in the way he forged ahead with limited technical knowledge and few material resources to establish communications with the outside world.

Following publication of the article by W8IGQ, several U.S. amateurs and manufacturers responded by donating and assembling a complete modern medium-power station. As described by WIBES in his 1938 *QST* article^[4] the equipment consisted of an amateur-built transmitter, commercial receiver, and a power generating system suitable for conditions on Pitcairn Island. Author, WIBES, was Chief Engineer of the Coto-Coil Company, a major manufacturer of receiver and transmitter coils at that time, who seemed to be the coordinator, if not the driving force behind the project. The 60/80-watt Phone/CW transmitter was built in a rack-and-panel 36" cabinet with separate units for speech amp/modulator, exciter, and power amplifier. Six panel meters monitored operating conditions. It was supplied with crystals for 7245, 14,346 and 478 kc. so it could immediately be used for maritime communications and later for amateur QSOs when a few islanders became interested in ham radio as anticipated. Output coupling accommodated half wave dipoles for the ham bands and a Marconi (combination horizontal and vertical) for 600 meters. The receiver was a Sargent TRF, covering 100kc. to 30 mc. donated by the manufacturer.

As previously noted, there was no source of primary power on Pitcairn Island so a wind-driven generator with 7-foot prop on a 12-foot tower was included to supply d-c for charging two 6-volt/300 A.H. storage batteries. The batteries powered filaments directly and dynamotors supplied plate voltages. A wind velocity of 20 mph provided sufficient energy for ten hours operation. The transmitter was tested on the air, packed with everything needed for a complete station, and delivered to Pitcairn Island by a shipping company at no charge. It all arrived in March 1938 and Andrew Young got his ham ticket, VR6AY, shortly afterward, but evidence of his amateur operation is obscure, possibly buried in a "How's DX" column of *QST*. The transmitter apparently later developed trouble beyond Young's capability to fix, so it was shipped to NY2AE in Panama for repair. As reported in *QST*^[5] the repaired TX was picked up by the sailing ship *Yankee*, on its round-the-world tour, and returned to Pitcairn, however, by then war had begun in Europe and Andrew Young was forbidden to go on the air at all.

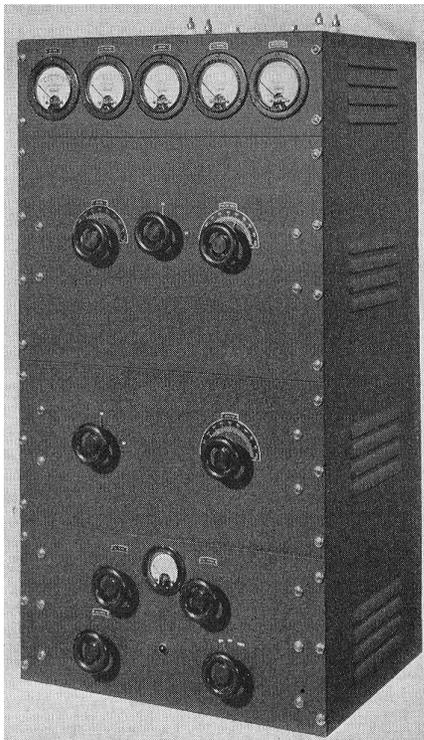
Was all the effort to establish an amateur and commercial station on Pitcairn worthwhile? Probably. The receiver and generating system would have enabled islanders to keep abreast of war news, and Andrew Young would almost certainly have used the transmitter if there had been a serious emergency. VR6AY and PITC were revived after the war and short wave broadcasting also began using a new diesel generator for power. Now, like everyone else, the islanders depend on satellites for most communications.

FOOTNOTES

- [1] Captain Bligh demonstrated his competence by navigating the *Bounty's* open launch, crowded with the other castoffs, across more than 3600 miles of open sea in 47 days to Timor in the Dutch East Indies.
- [2] Pitcairn Island's modern webpage: <http://www.onlinepitcairn.com>
- [3] Eurich, Allen. "CQ PITC." *QST* 9-10. March, 1937
- [4] Bellem, Lew. "The New PITC." *QST* 19-20. January, 1938
- [5] "Operating News." *QST* 75, June 1940



Pitcairn Island



Radio Transmitter from Pitcairn Island

‘Sonny’ from Page 3.

able driving at night due to failing eyesight. He was most notably a DXer having long ago earned his DXCC. His DX interests were minimized in recent years following a move to an apartment where antenna restrictions became a problem. He was also quite active in ARES and RACES and enjoyed 2 meters in its heyday. We will sorely miss Sonny and we extend our sincere sympathies to his XYL and Family.

Payroll Tax Bill Includes Provision for Amateur Radio Study

A bill that passed both the House and the Senate includes a provision for a study of the uses and capabilities of Amateur Radio Service communications in emergencies and disaster relief. If passed into law, Section 6414 of the Middle Class Tax Relief and Job Creation Act of 2012 mandates the completion of the study, with a report of the findings to the House Committee on Energy and Commerce and the Senate Committee on Commerce, Science, and Transportation. This study would “use the expertise of stakeholder entities and organizations” to recommend how to best use radio amateurs in emergency communications and disaster relief efforts, and how to best utilize the Amateur Radio Service in coordination with the federal government in these efforts. In addition, the study would also discuss the effects of unreasonable or unnecessary private land use restrictions on residential antenna installations and recommend ways to remove such impediments.

The bill passed the House with a 293-132 victory. In the Senate, it passed by a 60-36 vote. According to the Los Angeles Times, President Obama is expected to sign the bill "quickly." The relevant text is as follows:

(a) In General: Not later than 180 days after the date of the enactment of this Act, the Commission [FCC], in consultation with the Office of Emergency Communications in the Department of Homeland Security, shall:

(1) complete a study on the uses and capabilities of Amateur Radio Service communications in emergencies and disaster relief; and

(2) submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the findings of such study.

(b) Contents: The study required by subsection (a) shall include:

(1)(A) a review of the importance of emergency Amateur Radio Service communications relating to disasters, severe weather, and other threats to lives and property in the United States; and

(B) recommendations for:

(i) enhancements in the voluntary deployment of Amateur Radio operators in disaster and emergency communications and disaster relief efforts; and

(ii) improved integration of Amateur Radio operators in the planning and furtherance of initiatives of the Federal Government; and

(2)(A) an identification of impediments to enhanced Amateur Radio Service communications, such as the effects of unreasonable or unnecessary private land use restrictions on residential antenna installations; and

(B) recommendations regarding the removal of such impediments.

(c) Expertise: In conducting the study required by subsection (a), the Commission shall use the expertise of stakeholder entities and organizations, including the Amateur Radio, emergency response, and disaster communications communities.

March Birthdays

Congratulations to these members celebrating birthdays in March.

James Casto, N2IMH
Ed Champion, N2RO
Stu Cleveland, N2WUP
Jeff Garth, KC2WCS
Doug Gehring, WA2NPD
Paul Munzenmayer, K2DX
Bill Price, NJ2S
Mark Smith, N2MR
Dave Strout, W2YC
Mark Townsend, W2OCY
Daniel Tremolini, N2TXG
Wayne Wilson, WA2LET
Jim Wright, N2GXJ
John Zaruba, K2ZA

Crosstalk Submissions

This is your Club newsletter. Make use of it. Feel free to contribute general interest articles and ideas for articles.

All submissions, queries, comments and editorials should be addressed to Gene Schoeberlein at aa2yo@arrl.net.

Submission deadline for the April issue:
3/24/2012

Club Website

<http://www.w2mmd.org>

President-Tom Gorman, KE2ES
Vice President-Jim Wright, N2GXJ
Treasurer-Lou Ranson, KC2FXK

Doug Gehring, WA2NPD
Art Strong, K2AWS
Chuck Colabrese, WA2TML

Ray Schnapp, WB2NBJ
Mike Mollet, N2SRO

ARES/RACES-Gary, N2QEE
Awards-Kenny, W2KRD
Budget-Lou, KC2FXK
Clubhouse Site-Al, KB2AYU
Club License Trustee-Darrell, AB2E
Constitution-As needed
Contests-Ken, W2KRD
Crosstalk-Gene, AA2YO
Database-Ken, N2CQ
DX-Bill, W0MHK
Field Day-Vinnie/Bill, N4NYY/NJ2S
Hamfest-Vinnie/Bill, N4NYY/NJ2S
Historian-Art, K2AWS

GCARC Officers

Recording Secretary-Sheldon Parker, K2MEN
Corresponding Secretary-Cory Sickles, WA3UVV

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Gene Schoeberlein, AA2YO
Gary Mirkin, WA3SVW
Dave MacDonald, WB3JOY

Trustees

Cory Sickles, WA3UVV
Al Arrison, KB2AYU

Committees

Hospitality-Ray, WB2NBJ
Membership-Cory/Ray, WA3UVV/WB2NBJ
Nominations-Tom, KE2ES
Programs-Jim, N2GXJ
Publicity-Cory, WA3UVV
Repeaters-Tom, KE2ES
4H Liaison-Cory, WA3UVV
Special Services, Darrell, AB2E
Sunshine-Ray, W2RM
Technical/TVI-Cory, WA3UVV
VEC Testing-Gary, N2QEE
Website-Art, K2AWS

The W2MMD Repeaters

147.78/18 Mhz-Pitman
(CTCSS 131.8Hz)

223.06/224.66 Mhz-Sewell

447.1/442.1 Mhz-Pitman
(CTCSS 167.9Hz)

1272.4/1284.4 MHz-Pitman

GCARC Meetings

General Membership

7:30 pm 1st Wednesday every month
Pfeiffer Community Center
Williamstown, NJ

Board of Directors

8 pm 3rd Wednesday every month
GCARC Club site
Harrison Twp. 4H Grounds
1 mile south of Mullica Hill on RT77

Nets

GCARC 2 Meter Net
Third Thursday of the Month
8:00PM
147.78/18Mhz (PL131.8Hz)

ARES/RACES
Sunday 20:00 Hrs
(147.78/18 and
223.06/224.66
repeaters)

March Meeting

What is Software Defined Radio?
Greg Jurrens of FlexRadio Systems

Gloucester County Amateur Radio Club
P. O. Box 370
Pitman, NJ 08071

